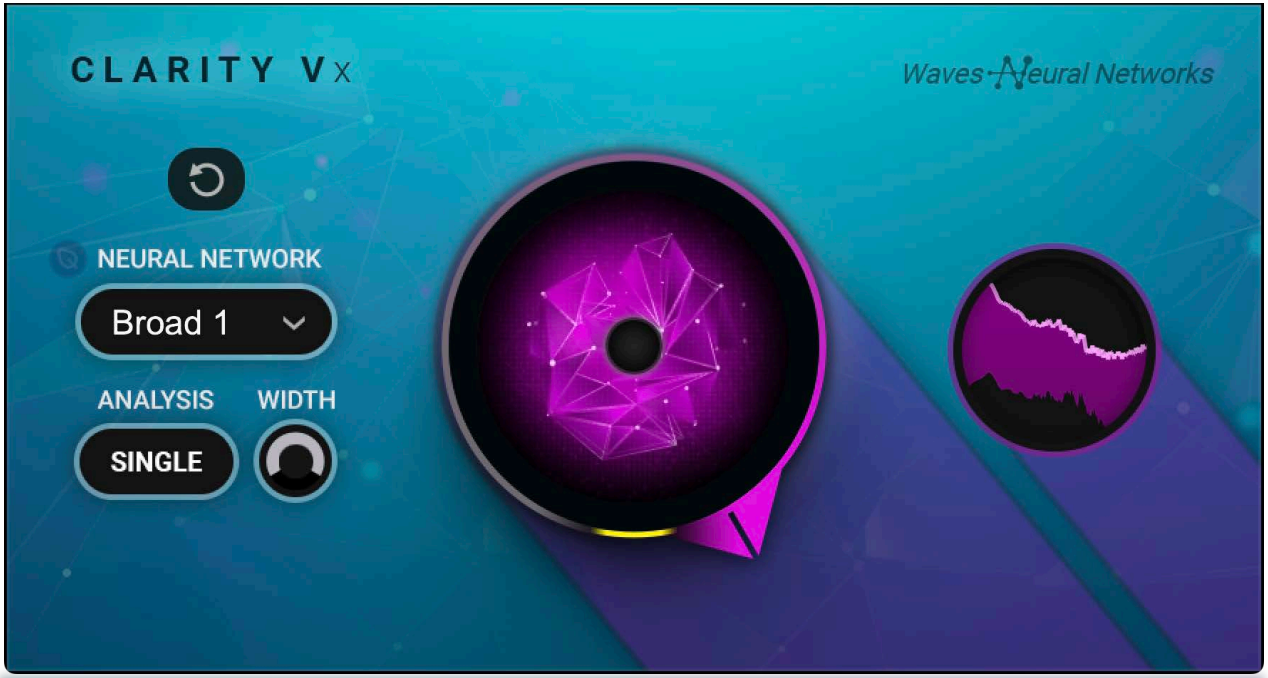
Waves Neural Networks

# Clarity Vx

Clean Vocals. Fast. No Compromise.

Powered by Waves Neural Networks®

## User Guide



# Introduction

Thank you for choosing Waves! To get the most out of your new Waves plugin, please take a moment to read this user guide. Installing software and managing your licenses require a free Waves account. Sign up at www.waves.com. With a Waves account you can keep track of your products, renew your Waves Update Plan, participate in bonus programs, and stay up to date with other important information.

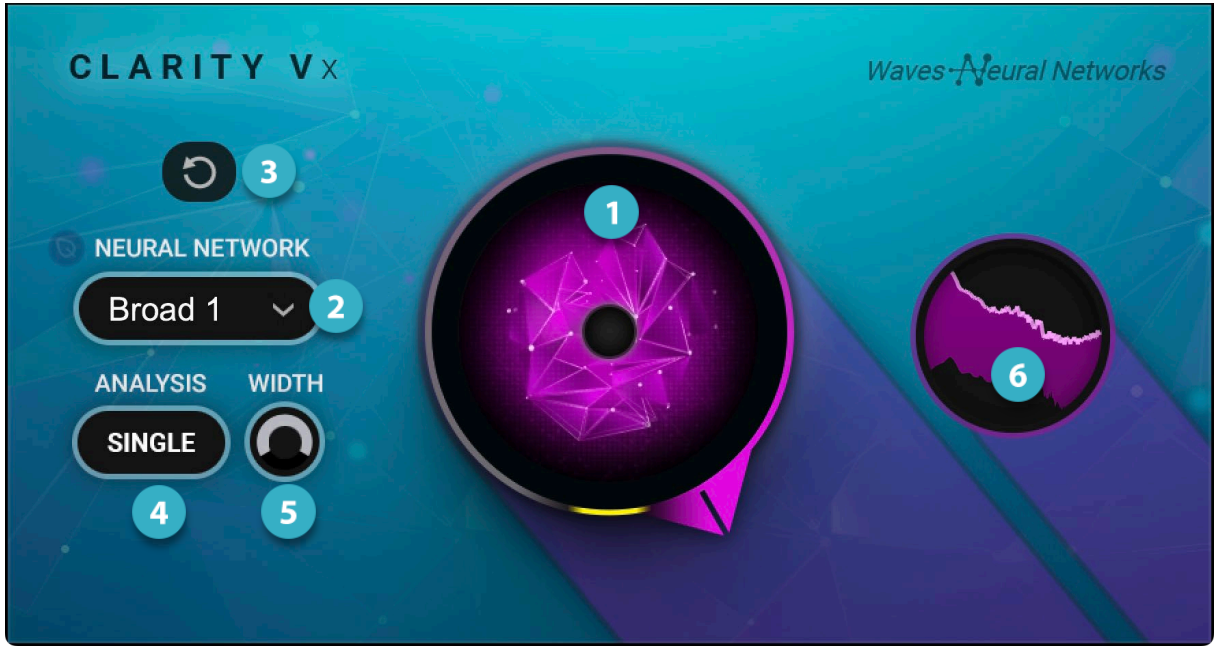
We suggest that you become familiar with the Waves Support pages, www.waves.com/support, where you will find technical articles about installation, troubleshooting, specifications, contact information, and more.

## *Waves Clarity Vx*

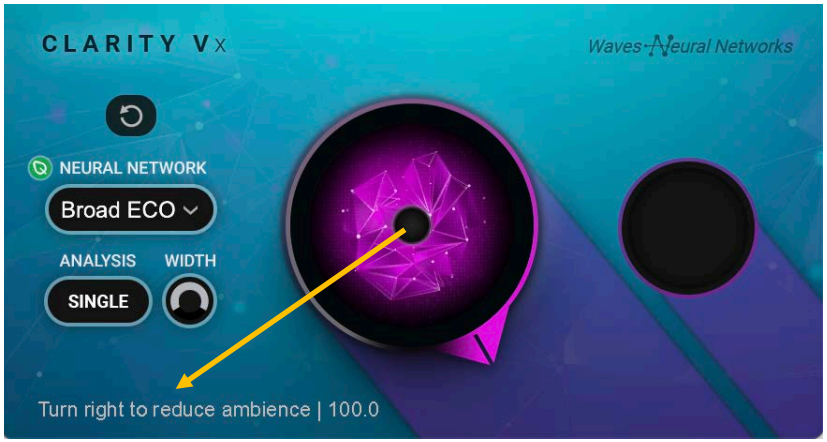
Clarity Vx brings life back to tracks that you previously wrote off as too noisy: old recordings, badly made recordings, hissy recordings, out-of-focus recordings…the list is endless. It removes background noise (ambience) from vocal tracks and dialog in a whole new way. Clarity Vx does this using Waves Neural Networks that have been trained using millions of hours of examples to learn the differences between voices and noise. With one knob, you can adjust how much noise you want to remove, and regardless of how clean you make it, you'll be left with a voice that is remarkably undisturbed.

Clarity Vx has mono and stereo components. It can be used in real time as a channel insert or as an offline processor.

## *Interface*




1. **Main Control Knob** This is where the action is. Turn clockwise to reduce the ambience from the voice.
2. **Neural Network Select** Choose between processing models that change the focus of the processing. When the Broad ECO mode is selected, a small green leaf appears.
3. **Neural Network Reset** clears the neural network history cache.
4. **Analysis** sets how the neural network analyses the input signal.
5. **Width** adjusts the size of the stereo output signal.
6. **Waveform FFT Display** shows input signal and noise reduction.




Tool tips tell you about controls and displays and how to use them. Hover over a control to open its tool tip.

# Quick Start

1. Begin with the **Main Control Knob**. Start with the knob at its maximum position (the value box will read *100*). At this setting, you're removing all the noise. If you're happy, then you're done. If you want to reintroduce some noise or bring back some "edges" of the voice, just turn the knob counterclockwise until you get the sound you want.
2. Your choice of **Neural Network** influences what the noise reduction processing focuses on. A neural network has certain biases, depending on how it was trained. Some neural networks focus mostly on the main voice (close mic) while reducing severe ambience/noises; others are trained to retain more secondary speech.

   One neural network, Broad ECO, is optimized for reducing noise in dialog (spoken word/speech). It is a CPU-efficient neural network that lets you use more than twice the number of instances. It also provides for shorter offline bounces and reduced render times. When the ECO mode is selected, a small green leaf lights up. Broad ECO is not intended for reduction or removal of noise from sung vocals.

> **!** *When using the Broad ECO neural network:*
> If you increase clip gains to the point at which Clarity's input exceeds 0 dB, your signal may not be processed properly; in such cases, you should use the Broad 1 or Broad 2 neural network.

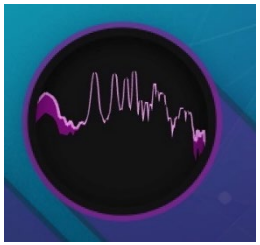
3. Click the **Reset** button to clear the neural network history cache. Certain events, such as an abrupt, substantial change in the noise profile, a quick change of speaker, or a sudden loud noise, can cause the network to lose focus or compromise quality. Resetting the network restores the neural network without losing settings. This command can be automated. Clarity Vx automatically resets each time playback stops. Clarity Vx does not reset when the DAW is looping a segment.

4. **Analysis** (stereo component only)
   Analysis controls how a stereo signal is analyzed before neural network processing.
   - **Single** sums the left and right input channels before analysis. If the ambience and voice are similar on both channels, you don't need to analyze or process the input signal twice. In Single mode, both channels are processed using the same analysis data. Single mode consumes considerably less CPU than Double.
   - **Double** Use this mode when the left and right channels are significantly different (i.e., very different ambience or voice). Double mode analyses the left and right channels independently and processes them separately. This results in more precise processing for each channel, but it requires substantially more CPU. You may need to use the Width control to further adjust the stereo image.

   > Note that in some circumstances, Single will not yield the same degree of voice/ambience separation as Double. When in doubt, experiment with both, since this is very content-dependent.

5. **Width** (stereo component only)
   Use this control to adjust the size of the stereo image.
   Range: 100 (original stereo width) to 0 (mono)

6. Use the **Waveform FFT Display** to see how much ambience you are separating from the voice.



The white line represents the input signal. Reduction is shown underneath, in pink.

When you're happy with your results, give your ears a break and then listen again. A little perspective never hurts.

Clarity Vx features deep neural networks that are capable of adaptive and continuous processing. As a neural network processes audio, it accumulates a "history" that influences its future decisions. However, to ensure reproducibility from one playback to another, Clarity resets the neural network every time you stop.

When the DAW plays a region in a loop, the neural network is constantly adapting, thus improving its performance with each pass. In certain cases, this can result in progressively better results with each loop cycle. So, if you encounter a particularly problematic section of your program material, we suggest that you loop-play the segment and loop-record several passes, until you reach satisfactory results. In most of these cases, you won't need more than three passes to achieve optimal results.

## *WaveSystem Toolbar*

Use the WaveSystem Toolbar at the top of the plugin to save and load presets, compare settings, undo and redo steps, and resize the plugin. To learn more, click the icon at the upper-right corner of the window and open the WaveSystem Guide.