

How to create more effective vocal tracks using the VOCALOID EDITOR

This document made by our demo song creator is based on what he explained at the VOCALOID seminar taken place in Tokyo on October 8, 2004. We would be honored if it becomes useful for creation of your vocal tracks.

YAMAHA Corporation VOCALOID development team

Section 1. Editing in the VOCALOID EDITOR

The VOCALOID EDITOR is a fantastic vocal-synthesizing software package that enables anyone to easily create vocal tracks by using a series of simple operations.

Basic operation involves inputting musical notes on to a Piano Roll style interface, adding lyrics to the notes, converting these lyrics to phonemes, then synthesizing the notes. The end product will be smooth-flowing words with natural sounding pronunciations sung in the melody that you have written.

However, in order to create more effective and realistic vocals you will want to add extra subtlety and nuance in order to create a vocal track that is unique and emotionally expressive.

In this document we will give you some tips to help you create realistic vocal tracks using the VOCALOID EDITOR. We hope these tips will be of some practical help to you in creating your vocal lines.

Artificial Vocal Tracks versus Real Vocal Tracks

A performance by an outstanding vocalist has many elements. A vocalist enralls listeners by making full use of his or her original vocalisms and expressions. In doing so, the vocalist uses effects such as voice quality, tone, rhythm, accent, intonation, and vibrato. These effects are constantly fluctuating, sometimes only slightly, but often quite noticeably. These “changes” are the factors by which you can make vocal expression more real and impressive.

How can you achieve these effects using the VOCALOID EDITOR? Unfortunately, you do not get

these dynamic effects in the synthesized vocal by simply inputting notes and lyrics and synthesizing them. This is because this editor is designed to enable users to manipulate the synthesized vocal from the ground up in any way they think fit and so starts with the basic building blocks.

However, do not worry! The VOCALOID EDITOR has a set of expression icons and control parameters that add expressiveness and nuance to any Vocaloid track so that you can achieve very realistic vocals. You should make the most of these functions to expand the “expression and nuance” elements of your Vocaloid track. Simply adding these expression icons and control parameters to the synthesized vocals that you have created will make a great deal of difference to your Vocaloid track.

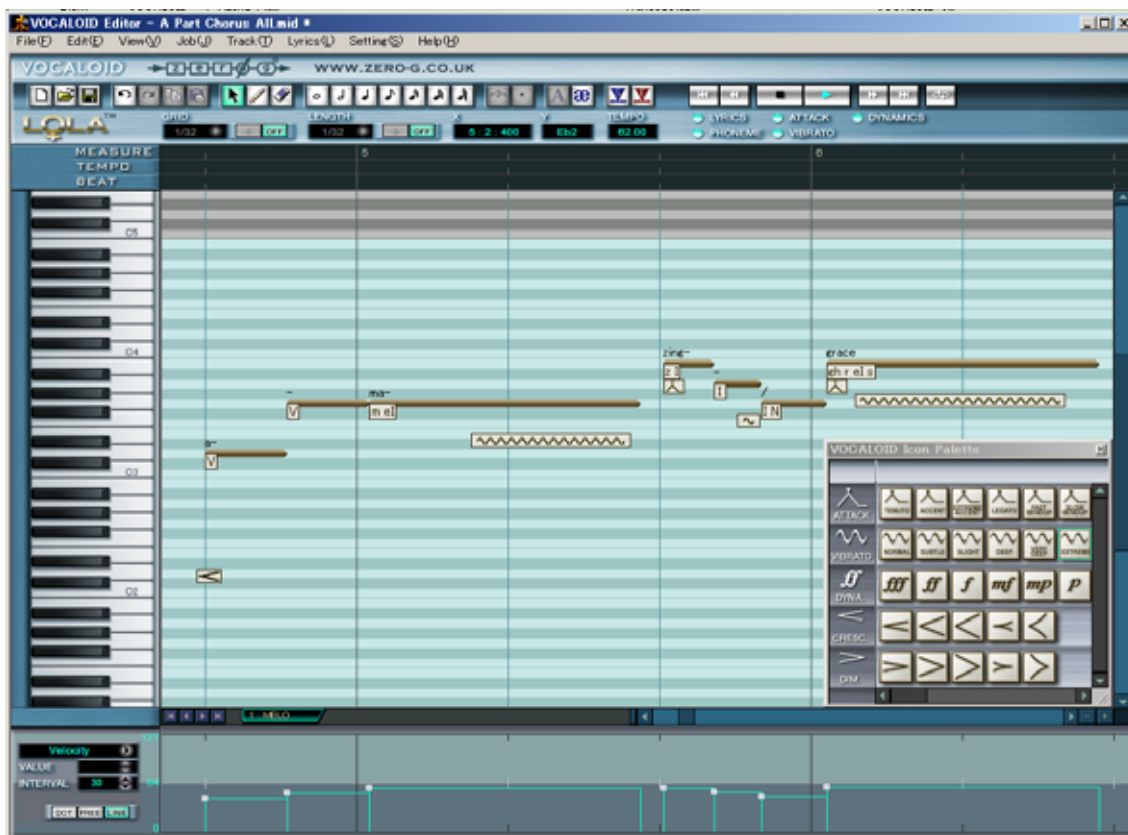
Now, let us explain the exact method.

Fig. 1-01



Fig. 1-01 shows inputted notes and lyrics from the first line of “Amazing Grace” as per the original musical score. However, accomplished singers won’t always stick so closely to the exact timing of the score. They will sometimes purposely drag slightly behind or ahead of the beat in order to create a distinctive feel to the track. So...

Fig. 1-02



In fig. 1-02, GRID and LENGTH are switched off, and the timing of Note-on and note LENGTH have been altered slightly. You will see that the notes are not quantized exactly to the grid guidelines. These changes enable you to express unique rhythms and grooves. It may be a good idea to insert some tempo changes to express the feeling of rhythmic swing. Now, please keep on editing the notes this way until you are happy with the timing of your song.

*** If you open the dialogue from the “Play” sub-menu in the “Track” menu and select “Play with Synthesis” mode, you will be able to listen to the edit results while you create your song without having to wait for the synthesis to be completed.**

Once you are happy with the timing of your song you can then add Vibrato and Attack Icons to the notes to achieve even more realism. You can do this by dragging the appropriate icon onto the note in question.

Now, to improve the vocal quality further, we will tell you how to add more character and variation to the vocal line by using various control parameters.

Fig. 2-01



As you can see in Fig. 2-01, we have selected a control parameter that we would like to edit from the control parameter menu in the bottom left hand corner of the Vocaloid Editor.

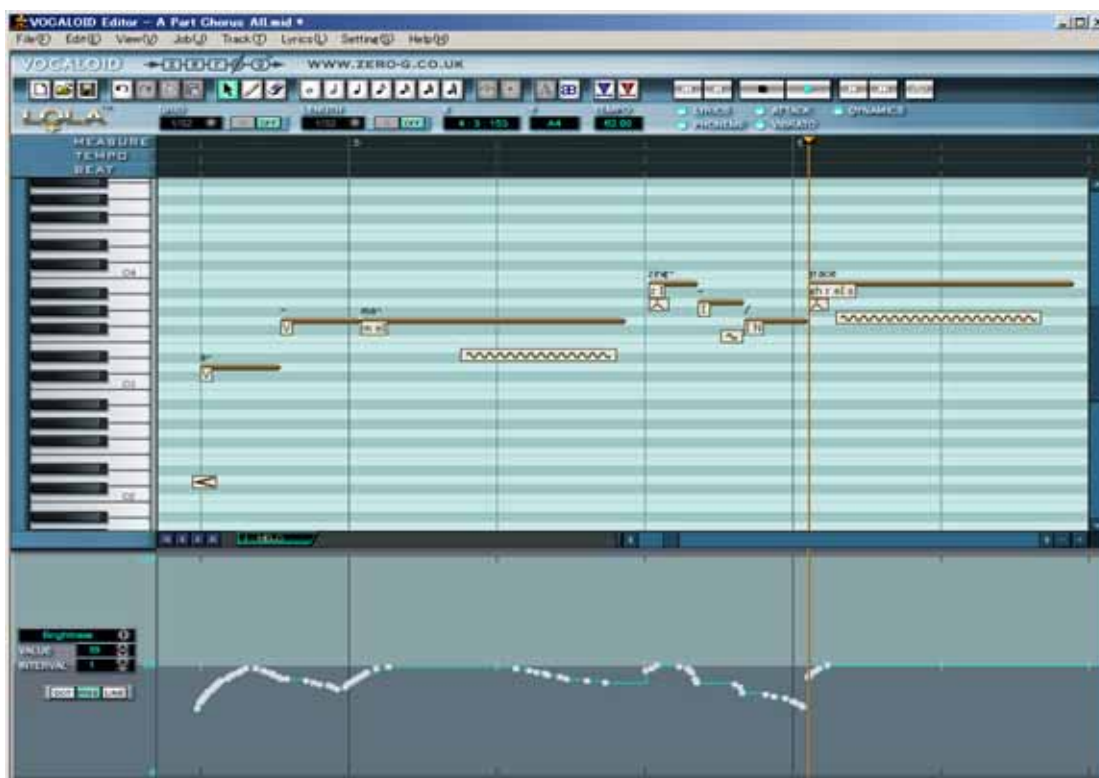
In this case it is the Harmonics parameter. This parameter enables you to change the balance of the harmonic overtone component that is contained in a voice. A lower value produces a whispery voice. In Fig. 2-02 we have drawn the Harmonics parameter to follow the Note-on and Note-off positions. By doing so, the voice will become softer at the start of the vocal line and at the beginning and end of phrases. Also you will be able to let the voice fade away naturally at the end of the song.

Fig. 2-02



Now, let's use the Brightness parameter. Brightness is a parameter that is used to produce a contrast of light and shade as its name suggests. The influence of tonal variations is another key element in vocal construction and is as equally important as dynamics in creating a realistic speaking voice. A vocal without much tonal variation will give the impression of an artificial robot-like voice with no expression or feeling. This is generally not desirable unless you want to purposely create such a mechanically synthesized vocal. It may surprise you just how much the tone of the human voice changes as we speak or sing.

Fig. 2-03

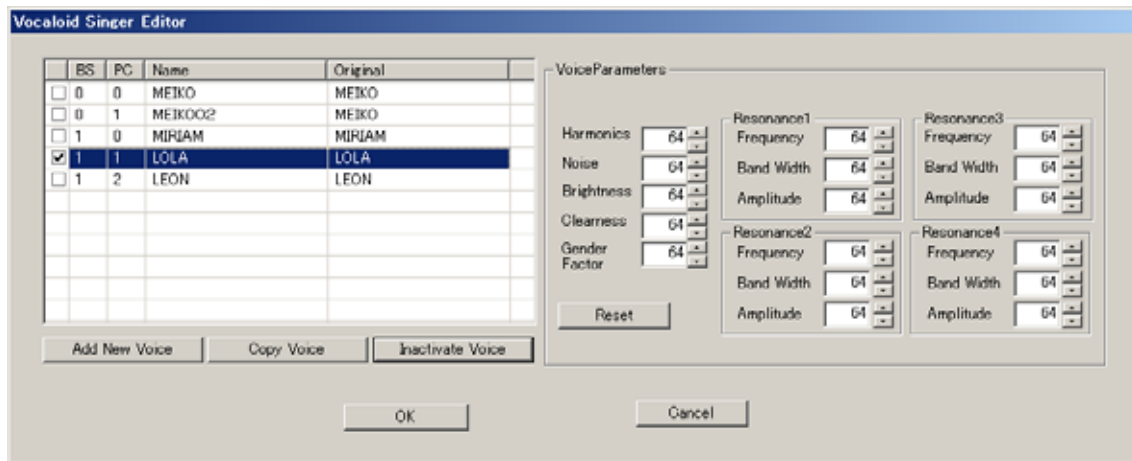


There are many other control parameters that you can use to color your vocal track, for example Resonance and Gender Factor. Resonances 1 – 4 enable you to change the vocal tone and dynamics of the voice while Gender Factor enables you to change the “thickness” of the vocal by altering the formants of the voice which in turn changes the gender quality to either a more feminine or masculine sound.

The Vocaloid Singer Editor dialogue (Fig. 2-03) accessed from the Singer List in the Setting menu enables you to control all the standard values for each Singer’s control parameters. Any changes to the control parameters you make here will affect the voice as a whole. This enables you to set default

parameters for the vocal quality and timbre of the voice.

Fig. 2-04



The VOCALOID EDITOR has 20 parameters available with which to control a voice’s expression, intonation, quality, and timbre. There must be an infinite number of combinations. So, please take your time finding your favorite parameter settings in order to obtain your ultimate vocal track.

Section 2. Process of MIXING

In this chapter, we will give you another idea to make your completed Vocaloid track more impressive - the process of MIXING.

A vocal track created in the VOCALOID EDITOR is the equivalent of a real human voice which has been recorded straight from a microphone without any post-processing.

Recording engineers try to find the most appropriate recording method for their subject and will consider various parameters such as the type of microphone and microphone-preamplifier to use, different microphone settings, and various recording environments. Using these different parameters they will explore how to get the best recording through a process of trial and error in order to achieve the highest quality recording possible.

However, VOCALOID EDITOR users do not have to make such efforts because the VOCALOID EDITOR always gives you the best quality of vocals recorded for each particular singer.

However, in order to produce more impressive vocals, as mixing engineers and mastering engineers do, you may need to correct such things as voice quality by using EQ, level adjustment by using dynamics and spatial acoustic treatment by using reverb and delay.

This acoustic processing has a great impact on the finished vocal track and is absolutely necessary in order to produce a clearer voice and more dynamic vocal.

It is a good idea to adjust the EQ of the finished VOCALOID track. For female vocals you may find it useful to boost frequencies above 10kHz so that the vocal becomes clearer and more penetrating without getting buried in the mix. By reducing the frequencies around 7kHz, you will be able to tone down consonants such as [S] and [s] which tend to be quite harsh.

You can also use a compressor to minimize excessive input and turn up the volume in quieter parts. The vocal track will become more dynamic and energetic and take on a more polished sound.

You could also apply a pre-amp and/or distortion to the vocal to get a saturation effect that can add to the expression and presence of the vocal in the finished track.

Adding reverb and/or delay to the vocal is always a good idea to enliven the track and create a live feel and ambience.

It may also be interesting to output the vocal track from loudspeakers and record the track with ambient sound so that it produces a unique quality and presence

These acoustic techniques are some of the many “secret techniques” that recording engineers may use. Please find your own secret techniques and try to use your initiative so that your vocal track made on the VOCALOID EDITOR comes as close as possible to what you are looking for. Remember, there is no rule that says that “this procedure is correct” or “this way is wrong.” We are looking forward to the day when your original song made by the VOCALOID EDITOR will fascinate people all over the world!

GOOD LUCK!