# *EmoteControl* Setup Guide

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# 1 Introduction

*EmoteControl* is an interface that allows for live manipulation of six parameters of a musical piece: tempo, articulation, pitch, dynamics, brightness, and mode. There are two versions of the interface: the full version and a smaller-scale version. The full version of EmoteControl utilises Max/MSP, Logic Pro X, and Vienna Symphonic Library (VSL). The interface works with MIDI files inputted in the Max patch and are played out through a chamber strings synth in the VSL plug-in in Logic. Five sliders and one toggle (on/off) button control the six cues that can be altered as the music plays in real-time.

The smaller-scale version of EmoteControl also utilises Max/MSP and Logic Pro X, however, VSL is swapped with one of Logic's in-house virtual synths. This allows for the interface to work on smaller and less powerful devices. The 'portable' version works with a piano as playout. Four sliders and one toggle (on/off) button control the five cues (tempo, pitch, dynamics, brightness, and mode) that can be altered in the smaller-scale interface as the music plays in real-time. The first five parameters are controlled via sliders, whilst mode is controlled via a toggle button. Musical pieces should be instrumental and in MIDI file format due to the nature of the interface.

The paper accompanying *EmoteControl* is available at:
https://www.researchgate.net/publication/337774188_EmoteControl_A_System_for_Live-Manipulation_of_Emotional_Cues_in_Music

Reference
Annaliese Micallef Grimaud, Tuomas Eerola, Nick Collins. 2019. *EmoteControl:* A System for Live-Manipulation of Emotional Cues in Music. In *Proceedings of Audio Mostly 2019 (AM' 19), September 18-20, 2019, Nottingham, UK. ACM, New York, NY, USA. 5 pages.* https://doi.org/10.1145/3356590.3356608

# 2 Basics

This section will cover the software required, which devices the interface works on, and setup.

## 2.1 Software Required
- Max/MSP from Cycling '74 https://cycling74.com
- Logic Pro X by Apple https://apps.apple.com
- Vienna Instruments (Vienna Symphonic Library) www.vls.co.at – for the full version of the interface

## 2.2 OS Required
Due to Logic being an Apple product, the interface works on Macs.

## 2.3 Setup

EmoteControl works via a Max/MSP patch and a Logic project, which are both available for download from GitHub. Max is used as the main platform while Logic works in the background as the rendering engine. Vienna Symphonic Library (VSL) is used as a plug-in in Logic.

### 2.3.1 Max Setup

When the Max project is opened, the main patch will be presented. A sub-patch exists in the main patch; the object called *patcher automaticnewtextfile*.

*Sub-patch.* This is the patch that allows for the values of the different musical parameters (sliders + toggle button) to be recorded in a text file and saved. The sub-patch is connected to the *Open* object in the main patch, and every time a new music file is opened in the patch, a new text file is automatically created via the sub-patch. For the text files to be saved in the correct folder, and with the required name, the working directory has to be changed in the *sprintf* object in the sub-patch. The name of the text file can also be changed in the *sprintf* object. The last part of the string (_%d) should be kept as this automatically allows new files to be named with a different number, increasing with an increment of 1 each time.

*Main patch.* All *ctlout* objects in the Max patch have to be set to 'from Max 1'.

### 2.3.2 Logic Setup

The musical piece is played out via a virtual instrument in Logic. *EmoteControl* uses a chamber strings sound synthesizer from VSL as the default virtual instrument. Most of the musical parameters in the interface work by controlling functions in Logic and the VSL plug-in through the sliders and toggle button in the Max patch. This is attained via controller assignments in Logic. Controller assignments have to be setup.

*Articulation, Dynamics, and Pitch.* These three parameters work by assigning them CC numbers in Max, which correspond to different functions in the VSL plug-in. Articulation has a CC# of 2, Dynamics 3, and Pitch 4. This has already been configured in the Logic project and Max patch that are made available. However, to confirm:

- In Logic, open the VSL plug-in.
- Confirm that *Chamber Strings All* is selected in VSL.
- In Advanced settings, select the Ctrl Map.
- Volume should have CC3 selected.
- Pitch should have CC4 selected.
- The X-axis slider below the articulation settings, should be assigned to CC2.

*Tempo*. The function used to control the tempo is one that works in Max, hence, no controller assignments between the two programmes are required.

*Mode.* Mode function works by switching on/off a Transposer plug-in in Logic. This works with a controller assignment in Logic. Assign the toggle button in Max to the Transposer plug-in by using the settings as shown in Figure 1. There are three different mode scales that can be utilised; C, D and E*b*. To select the one you want to use, select either mode A, B, or C in the Max patch. Each mode is assigned to a different Transposer in Logic, which require different controller assignments.
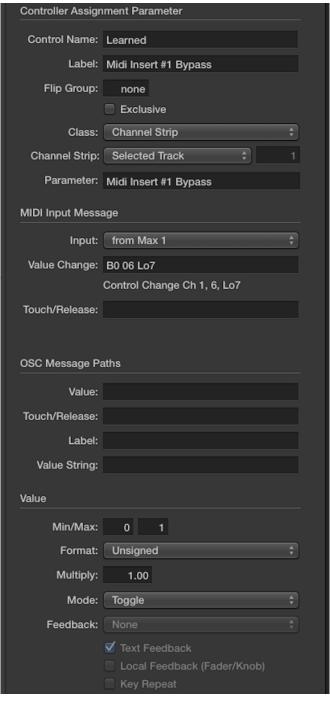


*Figure 1. Transposer controller assignment settings.*

*Brightness.* The brightness parameter works via a controller assignment that controls the cut-off frequency value of a high-cut filter, utilising the Channel EQ plug-in in Logic. When setting up the controller assignment, the settings shown in Figure 2 have to be configured.
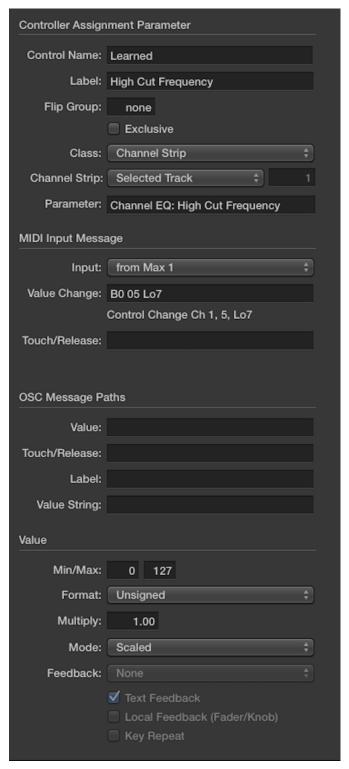


*Figure 2. Brightness controller assignment settings.*

### 2.3.3 Smaller-Scale Version Setup

As the smaller-scale version utilises a different virtual instrument than the full version of the interface, some cue settings are different. Tempo, brightness, and mode utilise the same functions as the ones in the full version, however, the pitch and dynamics cues are programmed differently.

*Pitch.* The slider in the max patch controls the transpose function in the virtual instrument settings in Logic via a controller assignment (Figure 3). Transposition of the music is made stepwise, and the feature allows for a pitch shift up and down 24 semitones from the starting point.



*Figure 3. Transpose function in the virtual instrument.*

*Dynamics.* The dynamics cue is controlled by changing the volume (in decibels) of the virtual track in Logic. This is also attained via a controller assignment.

### 3 Procedure

### 3.1 Max Patch

- Reset values of sliders by pressing reset button. Check mode toggle button is off.
- Switch on 'x' toggle of tempo function.
- Bang all CCs by pressing the bang button.
- In sub-patch, for new participant, set text file increment number to 0.

### 3.2 Logic Project

- Confirm that all MIDI input messages of controller assignments are set to 'from Max 1'.
- After pressing 'Bang CCs' in Max, confirm that CCs from Max are working correctly and controlling functions in Logic.

### 3.3 Method

- Load MIDI file into interface via the Open button.
- Confirm sliders are reset and toggle button is off.
- Select mode key from A, B, or C.
- Press Play.
- Press Loop to loop music.
- When other track is opened, the data is automatically saved in a text file, and then a new text file is created.

*NB.* Text file is saved when the 'Open' button is triggered, hence, for the last values produced during the last music track playing, the open button should be pressed one last time.