

Using ServoCenterMIDI with MAX/MSP

1. Overview

Yost Engineering's ServoCenterMIDI is an embedded controller board that allows traditional musical instrument digital interface (MIDI) continuous controller (CC) messages to be translated into physical movements of RC-style servo motors.

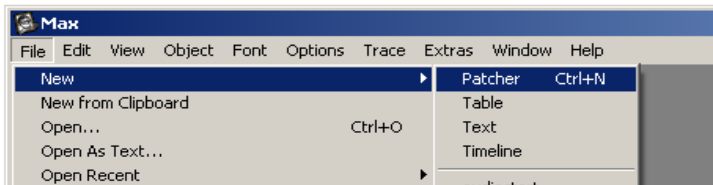
MAX/MSP is a popular application that allows complex programming and control of musical information in a graphical environment.

Using the MAX/MSP application in conjunction with Yost Engineering's ServoCenterMIDI embedded controller gives composers and artists the ability to extend their works from the traditional audio-visual domain into the physical and kinetic range.

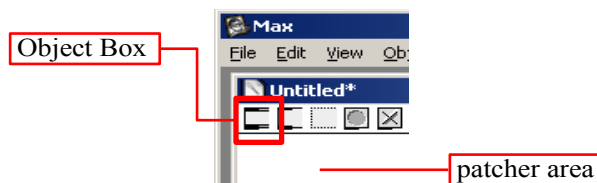
2. Using MAX/MSP to Send Continuous Controller Messages: Object Box Tutorial for ServoCenterMIDI

MAX/MSP is a complex tool that has many features and alternate methods of accomplishing certain tasks. The following steps illustrate one way that a user can get MAX/MSP to send messages to the ServoCenterMIDI board. The following tutorial illustrates the use of MAX/MSP's "Object Box" in the patcher window to send messages to the ServoCenterMIDI.

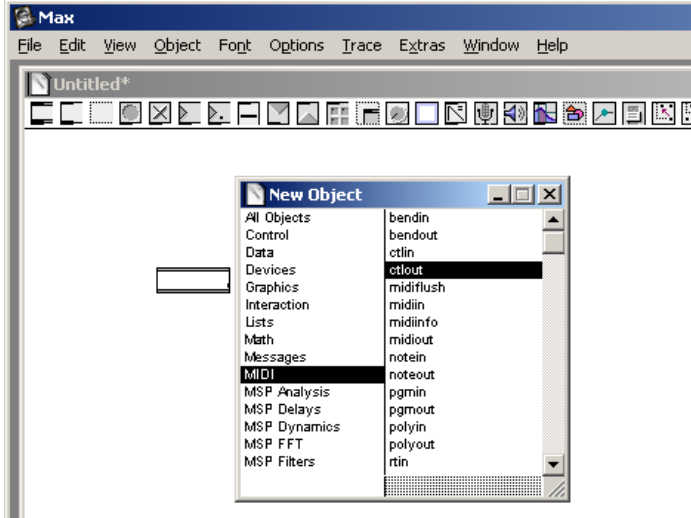
1. Create a new patcher window by using the **File->New->Patcher** menu selection (or by using the ctrl-n shortcut)



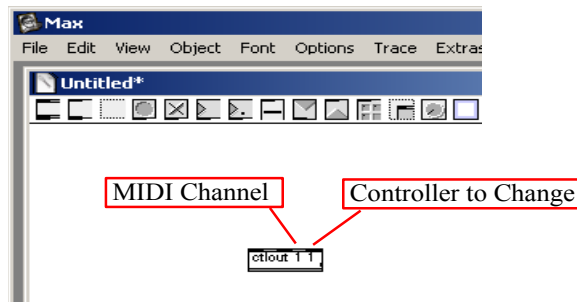
2. Add a new "ObjectBox" from the newly opened patcher window by dragging the object box icon onto the patcher window area.



3. When the ObjectBox is dropped on the patcher area it will open a list of possible object types. Select the object type as **MIDI->ctloud**. Double click on the **ctloud** selection to close the New Object box.

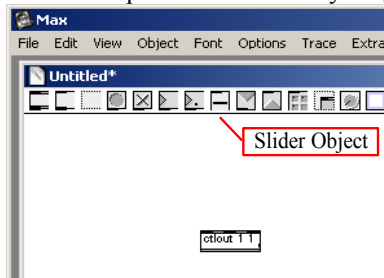


- Now that you have a ctlout (or control out) object box you need to modify the parameters of the object so that it outputs to the correct MIDI channel. This can be done by connecting additional inputs to the ctlout object or by appending the MIDI channel and MIDI CC controller number to the object's name as shown below. The MIDI channel setting should match the MIDI channel dip-switch setting on the ServoCenterMIDI board and the controller number should match the number of the motor channel for which control is desired. Consult the MAX/MSP documentation for more information about using the ctlout object's inputs.

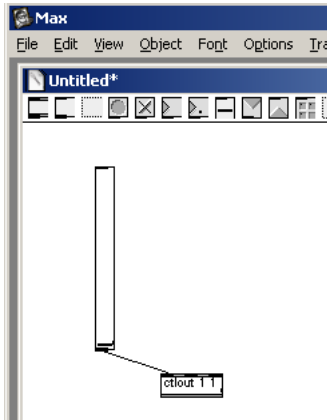


In the example above the ServoCenterMIDI is expected to be set to MIDI Channel 1 (all switches off) and the motor is expected to be attached to the Servo 1 connector (labeled S1 on the board).

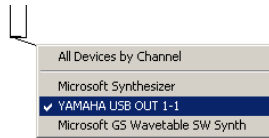
Next a MAX/MSP slider object is added to the patcher. Do this by dragging a slider object onto the patcher area.



5. Once the slider object has been added, you need to “wire” it to the ctloout object's value input by dragging a line from the bottom of the slider object to the upper-left-hand corner of the ctloout object.



6. Now that everything is connected we should be able to test the set up by “running” our patcher window. This is done by taking the patcher window out of “edit mode” by pressing ctrl-e (option-e for Mac users) on the keyboard.
7. Finally, the MAX/MSP mapped MIDI device can be verified by double-clicking on the ctloout box and assigning the controller to the appropriate MIDI device.



For further information on mapping to MIDI devices, see the MAX/MSP documentation.

8. By dragging the slider up and down, the motor's movements will be affected. In this example the motor's movements should now effectively track the position of the slider.