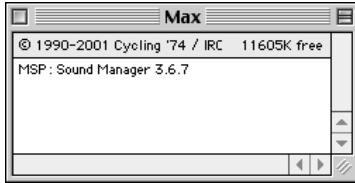
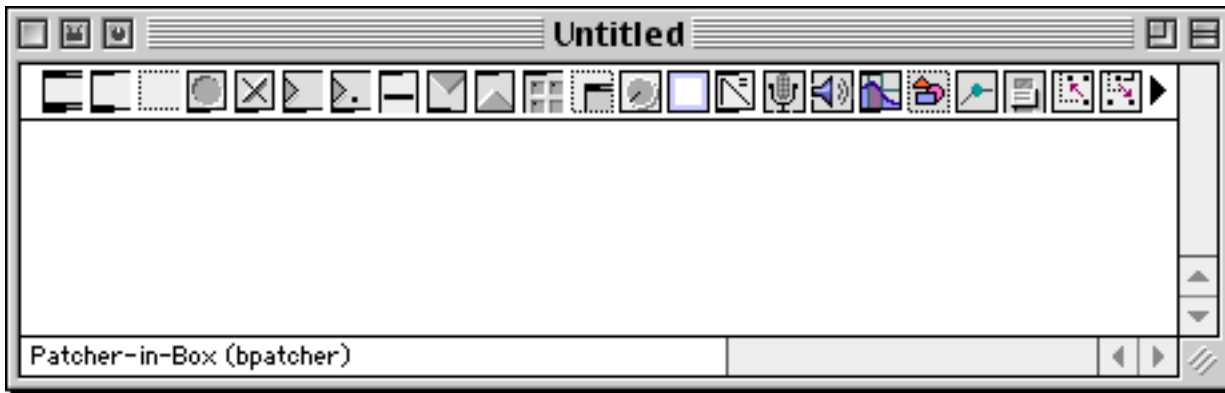




Electronic Media II
Spring 2003
Intro to Max/MSP








1. Prepare to launch **Max/MSP** as follows:
 - a) Power up the studio (power switch on wall; power switch for amps; power switch for peripherals)
 - b) Bring up **Digi** faders on the mixer (1,2)
 - c) Assign the faders to the desired buses by punching the bus buttons directly above each fader.
 - d) Bring up **Mackie** Bus faders + L-R (main) fader on the mixer
 - e) Bring up faders for desired speakers (23-31 + 32 for sub)
2. Launch **Max/MSP** as follows:
 - a) Select **Apple Menu>Process/Synthesize>Max/MSP**
 - b) A **Max** window like the one below will appear. It is used only for messages.



3. Open a new **Patcher Window** as follows:
 - a) Select **File>New Patcher**
 - b) An untitled window like the one below appears



- c) Notice that the **Patcher Window** can be unlocked  or locked 
 - d) When the window is unlocked, the patch can be created or edited.
 - e) When the window is locked, the patch can be played.
4. Notice that the unlocked **Patcher Window** displays a series of icons along the top. These icons are the **Object Palette**. Several important objects are:

-  Object Box. Creates Max or MSP objects. Notice inlets on top and outlets on bottom.
-  Message Box. Used for Messages like “Start”, “Stop”, “Open”. Notice inlet on top and outlet on bottom.
-  Comment Box. Used for comments like “Larry’s Patcher”. Notice no inlet or outlet.
-  Button. Used to trigger events with Bang messages. Notice outlet on bottom.
-  Toggle. Used to toggle between states such as “on” and “off”. Notice outlet on bottom.
-  Number Box. Used to generate numbers (integers—whole numbers). Notice inlet on top and outlet on bottom.
-  Float Number Box. Used to generate decimal point numbers (such as 1.112). Notice inlet on top and outlet on bottom.

4. Create a **dac~ object** as follows:
 - a) Drag an **Object Box** into the **Patcher** and position it in the lower middle part of the window
 - b) Disregard the **Object List** window
 - c) Type “dac~” into the **Object Box**, as shown below:



- d) Notice the following:
 1. “dac” stands for digital to analog converter. It converts digital sounds into analog audio sounds.
 2. The ~ (tilde) sign indicates that the object is an audio or MSP object.
 3. The dac~ object has a left audio inlet and a right audio inlet.
 4. You can make the object box longer by grabbing the right side and resizing.

5. Create “start” and “stop” **Message Boxes** as follows:
 - a) Drag a **Message Box** into the **Patcher** and type “start”.
 - b) Drag another **Message Box** into the **Patcher** and type “stop”.
 - c) Arrange these boxes to the left and above the **dac~ object**.
 - d) Patch the **Start** outlet to the **dac~ left inlet**.
 - e) Patch the **Stop** outlet to the **dac~ left inlet**.
 - f) The **Patcher** should look like this:



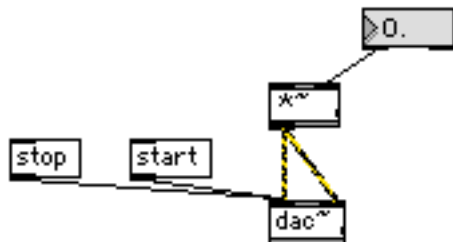
- g) Notice the following:
 1. The **dac~** needs to be turned on and off. “Start” and “stop” accomplish this.
 2. These patch cords are radial. Segmented patch cords are another option (see the **Options** menu).
 3. The patch cords are plain, black lines, which indicate that these are control signal, not audio.

6. Create a **Signal Multiplier Object** as follows:
 - a) Drag an **Object Box** into the **Patcher** and position it above the **dac~ object**.
 - b) Type “*~” into the **Object Box**.
 - c) Patch the **Signal Multiplier** outlet to the **dac~ left and right inlets**.
 - d) The **Patcher** should look like this:



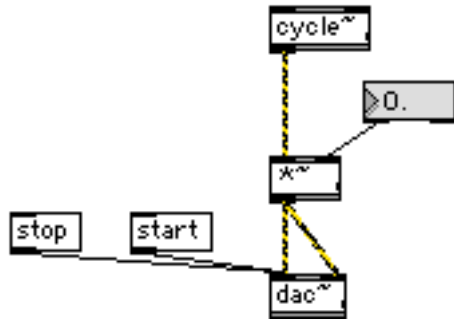
- e) Notice the following:
 1. The **Signal Multiplier** will be used to control the volume of the left and right channels of the **dac~**.
 2. The patch cords are dashed, yellow and black lines, which indicate that these are audio signals, not control signals.

7. Create a **Float Number** object as follows:
 - a) Drag a **Float Number Box** into the **Patcher** and position it above and to the right of the **Signal Multiplier**.
 - b) Patch the **Float Number** left outlet to the **Signal Multiplier** right inlet.
 - c) The **Patcher** should look like this:



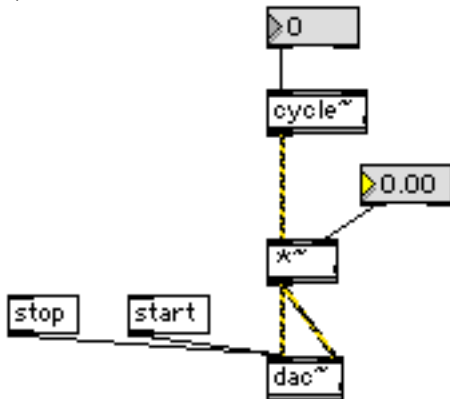
- d) Notice the following:
 1. The **Float Number Box** will be used to supply a decimal number to the **Signal Multiplier**.
 2. This decimal number will function as a volume control for the **dac~**.

8. Create a **cycle~** object as follows:
 - a) Drag an **Object Box** into the **Patcher** and position it above the **Signal Multiplier**.
 - b) Type “cycle~” into the **Object Box**.
 - c) Patch the **cycle~** outlet to the **Signal Multiplier** left inlet.
 - d) The **Patcher** should look like this:



- e) Notice the following:
 1. The **cycle~** object is a sine wave.
 2. The patch cord is an audio signal.

9. Create a **Number Box** object as follows:
 - a) Drag a **Number Box** into the **Patcher** and position it directly above the **cycle~** object.
 - b) Patch **Number Box** left outlet to the **cycle~** object left inlet.
 - c) The **Patcher** should look like this:



- d) Notice the following:
 1. The **Number Box** will function as a frequency control.
 2. The patch cord is a control signal.

10. Play the patch as follows:
 - a) Lock the **Patcher**.
 - b) Press “start”.
 - c) Adjust the volume from the **Float Box**.
 - d) Adjust the frequency from the **Number Box**.
 - e) Press “stop” to stop the sound.

11. Save, name, and store the patch, then quit **Max/MSP**.