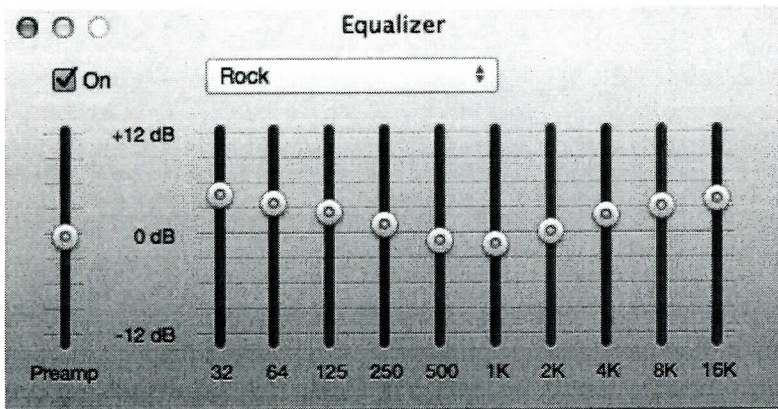


Composition: Electronic Media I
Fall 2015
EQ

1. Most sounds are made up of a complex interaction of different frequencies. Equalization (EQ) is the task of filtering specified frequencies to alter the sound. Frequencies can be cut out, reduced, or amplified. Generally, for our purposes, we will be cutting or reducing frequencies. Amplifying frequencies (going above 0 dB) might add over to the sound (clipping), because all of the sounds we use in our projects are usually normalized.
2. Equalizers generally fall under two different types; graphic and parametric.
 - a. Graphic equalizers control specific frequency bands individually. The alterations to the frequencies that one can make are only gain. The number of frequencies one can alter depends on the limitations of the equalizer itself. The image below is of a graphic equalizer found in iTunes software. Notice the center frequencies listed below each slider.



- b. Parametric equalizers allow you to dynamically change the **gain**, **center frequency**, and **bandwidth ("Q")**. This is a much more flexible system, and is common among Digital Audio Workspaces. This is the type of equalizer that will be used in this handout.
2. Protools has a variety of EQ plugins available under the AudioSuite menu heading.
 - a. Navigate to the Audio Suite, and hover over EQ.
 - b. The next drop down menu provides many different options for EQ.
 - c. Q 1, 2, 3, ... 10, refers to the amount of nodes that you would like to control. If you are not sure how many nodes you will need, it is a good idea to choose more than you think you might need. However, with practice, you will be able to anticipate what frequencies you want to alter in the sound, and can then predict how many nodes you will use.

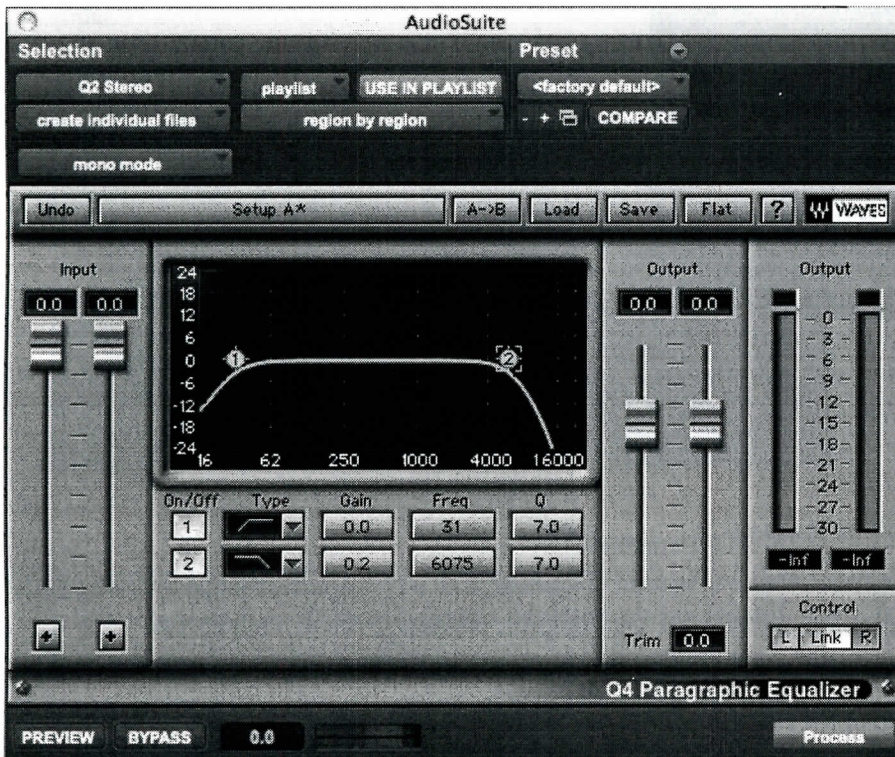
3. The image below shows the AudioSuite window.



- Q2 was selected, and is represented by two nodes on the straight line.
- The straight line is inside of a graph. The vertical axis represents decibels (dB) and the horizontal line represents frequencies.
- Nodes are turned on or off by either clicking directly onto the node, or by clicking on the boxed 1 or 2 below the EQ graph. The nodes need to be turned on in order for them to work.
- The type of node can be selected through the drop down menu next to the node number. The basic types of nodes are high, low, or band pass, and high or low shelf.

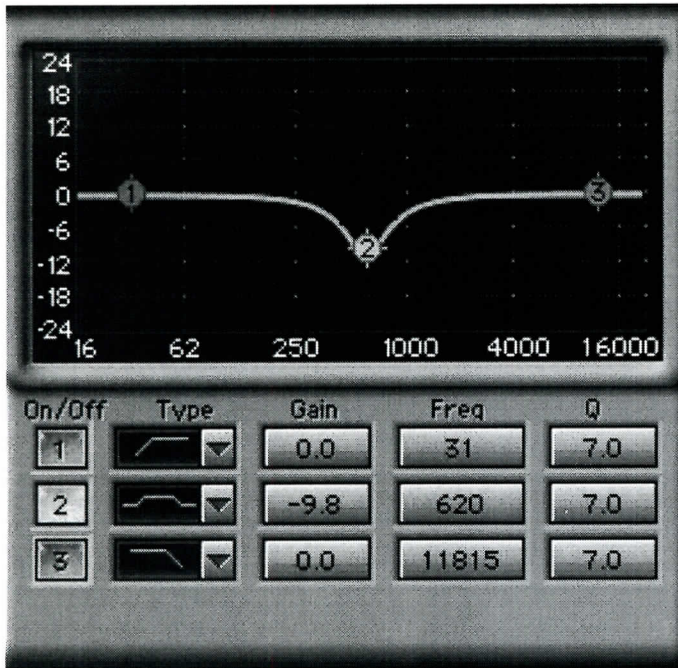


4. The term “pass” refers to what frequencies the equalizer is allowing to pass through, thus, to be heard. For a low pass, the equalizer is allowing low frequencies to pass through. The higher frequencies are being cut or “rolled off”. The opposite is true for a hi pass. A band pass allows a specific mid-range of frequencies to be passed through or reduced.
5. The node is adjustable in two ways.
 - a. The node can be clicked and dragged to any location in the graph. This is changing the Gain and Frequency of the node simultaneously.
 - b. You can also click and drag left or right, to change the specific values of Gain, Frequency, or Q range in the boxes next to the node type.
6. Based on the image below, fill in the blank:



- a. The image above shows node 1 as a _____ pass and node 2 as a _____ pass.
- b. Node 1 begins to roll off at frequency _____, and node 2 begins to roll off at frequency _____.

7. Based on the image below, fill in the blank:



- a. The above example has a total of ____ nodes, however only node number ____ has been turned on.
 - b. Node 2 is type _____.
 - c. Changes in the width of node 2 will be made in the _____ box.
7. Three buttons at the bottom of the AudioSuite window are very helpful; preview, bypass, and process.
- a. The preview button allows you to hear the sound repeated over and over, while you make adjustments to the nodes. To stop playback, click on the preview button once more.
 - b. The bypass button allows you to compare the altered version of the sound with the original version. While preview is on, press the bypass button to hear the original version.
 - c. The process button is the last step. Here the region will be changed based on the alterations made. A new region will be listed in the regions list.