Peak Tutorial:
Cleaning up Audio Files

This tutorial will guide you through some basic aspects of audio editing in Peak. By following these steps, you'll be able to remove coughing, applause, background noise, etc. from your audio files. You'll learn about several main concepts involved in editing audio in Peak.

- Viewing audio

- Selecting

- Removing coughing, applause, etc. by deleting or silencing or replacing with room tone

- Removing hiss, hum, etc. with SoundSoap

- Removing clicks and pops with the Pencil Tool

- Reducing wind noise with Freq

For more information about editing audio in Peak, see chapter 5 in your Peak manual.

Viewing Audio

To view audio in Peak, you'll need to open an audio file first.
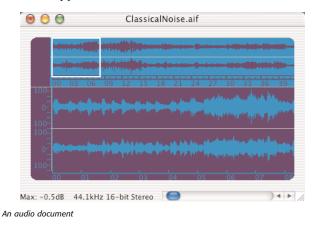
To open an audio file in Peak:

1. If you haven't already done so, launch Peak.
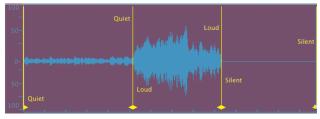
2. Choose File>Open. The Open dialog box is shown.

The Open dialog

3. Navigate to the file you wish to open.

4. Double-click the file name, or single-click the file name and click Open. The file's audio document window appears in Peak.

An audio document

The audio document window shows a visual representation of the sound in an audio file. If you're unfamiliar with digital audio waveforms, it may not be immediately clear how the picture relates to sound. You're seeing a picture of the sound's amplitude (loudness) over time (going from left to right). In the places where the waveform is higher, the sound is louder. In places where the waveform is lower, the sound is quieter.

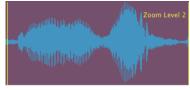*Audio waveform showing Quiet, Loud, and Silent sections of audio*

The File Overview, at the top of the window, displays the entire audio file, while the waveform display, at the bottom of the window, gives a closer look at the portion of the audio file defined by the white box in the File Overview.

Zooming

You can "zoom" the waveform display in or out to make it easier to determine the beginning and end points for your selection. Zooming allows you to see a larger or smaller portion of the audio at once. Effectively, zooming lets you get closer to the audio, as this example shows:

Not zoomed in very far...

The same piece of audio, zoomed in further...

The same piece of audio, zoomed in much further...

To Zoom In or Out:

1. Click the magnifying glass in the Cursor palette. The cursor changes into a small magnifying glass.

2. To zoom in, click in the waveform display.

3. To zoom out, hold down the option key and click in the waveform display.

Alternately, to zoom in press Command - "]", or to zoom out press Command -"[" on your computer keyboard. See page 56 in your Peak manual for more information about audio waveforms.

Selecting

Just as in a word processor, a selection is simply a portion of a file that has been highlighted by clicking and dragging. In Peak, a selection corresponds to a portion of an audio document. You must select audio before you can edit it. To make your edits as smooth as possible, selections should begin and end at low amplitude points – places where the waveform is lowest. Peak can automatically help with that if the Preferences>Auto Snap To Zero option is turned on. The option is on if there is a check next to it in the Preferences menu.

Peak's Preference Menu, showing the Auto Snap to Zero preference

Auto Snap To Zero is on by default, and is highly recommended. To toggle it on or off, choose Preferences>Auto Snap To Zero.

To make a selection:

1. Click the arrow in the Cursor palette to select it.

2. In the waveform display, click and hold where you want to begin the selection.

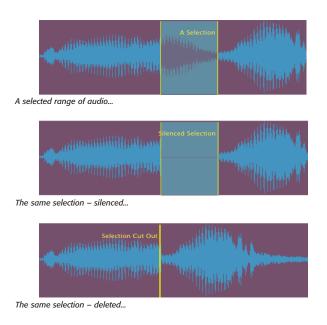3. Drag to the right until you reach the point where the selection will end.

As you drag, the area between the beginning selection point and the current cursor location is highlighted.

4. Release the mouse button. The area is selected and highlighted.

For more information about making selections, see page 58 in your Peak Manual.

Removing Coughing, Applause, etc.

You may want to remove background noises such as clapping, coughing, etc. from your Peak files. Removing these unwanted sounds can greatly increase the quality of your recording. You can choose to delete the noise and change the timing/duration, or leave the timing/duration intact but replace the noise with silence or room tone. If your goal is to eliminate lengthy applause between songs, you will probably choose to remove the audio and change the timing, so that the listener doesn't hear a long silent period. Instead, it sounds as if the applause never occurred, and the performers simply went on to the next piece. On the other hand, if you wish to remove a cough that occurred during a rest in a piece of music or speech, the best option is to silence/replace the cough but leave the duration intact. That way, the rhythm of the piece is not interrupted.

A selected range of audio...

The same selection – silenced...

The same selection – deleted...

To delete content/duration from an audio file:

1. Select the portion of the audio file that you wish to remove. (See the previous section for help with selecting.)

2. Press the Delete key on your computer keyboard, or choose Edit>Delete. The selection is deleted and the duration is shortened.

To silence a portion of an audio file:

1. If the Cursor palette is not open, choose Windows>Cursor to open it.

2. To completely silence the selection, disable the Blend button.

3. Select the portion of the audio file that you wish to silence.

4. From the Edit Menu, choose Silence (or use the keyboard shortcut: ⌘- E)

To fade into and out of silence at the beginning and end of the selection, enable the Blend button. Alternately, you can activate or deactivate Caps Lock on your computer keyboard

to turn Blending on or off.

If you are unsure which option to choose, try following these steps with Blending off, then choose Edit>Undo and follow the steps with Blending on. Choose whichever method you prefer. See page 66 in your Peak manual for more information about blending.

To replace a portion of an audio file:

In some situations, you may want to silence a cough, or other unwanted sound, profanity, etc. by silencing the portion of the waveform where the noise occurs. However, by eliminating any existing room tone, you can end up with a very artificial sounding edit, that isn't much better than the original unwanted sound.
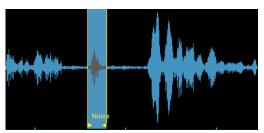
A good strategy for eliminating this type of sound is by using Peak's Region Markers to sample and replace the sound with room tone from the same audio file. This process creates an edit that is very convincing and in most cases, unnoticeable.

1. If the Cursor palette is not open, choose Windows>Cursor to open it.

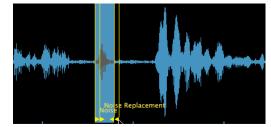2. To completely replace the selection, disable the Blend button.

The Blend button (in an inactive state)

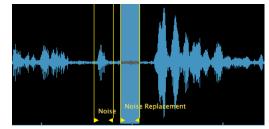3. Select the portion of audio where the cough (or other unwanted sound occurs.

A region bounding an unwanted cough

4. From the Action Menu, choose New Region. The selected area is now bounded by region markers.

5. From the Action Menu, choose New Region again. Now the selected area is bounded by two sets of region markers, both exactly the same duration.
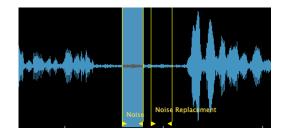

Moving second set of regions markers to an area that contains room tone only

6. Hold down the Option Key on your keyboard, and click on the small triangular flag at the bottom of a region marker. While holding down both the Option Key and the mouse button, drag one set of region markers elsewhere in the audio file, to an area that just contains room tone.

Selecting an area of room tone from the same audio document

7. Hold down the Command/Apple Key on your key board, and click between the two region markers that were just moved. This selects the area between them.

8. From the Edit Menu, choose Copy.

9. Now, while holding the Command/Apple Key on your keyboard, click between the two region markers that bound the unwanted sound.

10. From the Edit Menu, choose Replace.

Unwanted cough replaced with room tone

To fade into and out of silence at the beginning and end of the selection, enable the Blend button. Alternately, you can activate or deactivate Caps Lock on your computer keyboard to turn Blending on or off.

What you've just done is define the duration of the unwanted sound, and then replace it with the exact same duration of room tone. By creating two sets of identical region markers around the same audio selection, you can move one set to a new area of the file, sample a precise duration of room tone, and then return to the unwanted sound, whose duration is still indicated by one set of region markers.

Removing Hiss, Hum, & Rumble with SoundSoap:

Plug-ins are pieces of software designed for a specific function – when "plugged-in" to a host application, they add functionality to the host program. In this case, we'll look at BIAS' SoundSoap as a plug-in, which reduces broadband noise. Peak will be the host application that SoundSoap is "plugged-in" to, thereby adding broadband noise reduction to Peak.

The easy-to-use SoundSoap graphical user interface

SoundSoap is designed specifically to reduce/remove "broadband" noise. Broadband noise includes analog tape hiss, 50 & 60 Hz hum, low-frequency rumble, DV camera motor noise, air-conditioning system noise, and many other types of noise that have a pattern to them.

⚠ *SoundSoap is not included with Peak – it is available as a separate purchase!*

SoundSoap is not designed to work with clicks and pops, as might be encountered when recording old vinyl LPs. For information about removing clicks and pops, please refer to the section of this tutorial called "Removing clicks and pops with the Pencil Tool".

⚠ *SoundSoap requires at least Peak 3.2, running on Mac OS X v. 10.2.*

To remove noise with SoundSoap:

The first step in reducing noise in digital media is to open the file in Peak, then open SoundSoap. The following steps will guide you through your first attempts at noise reduction.

1. Launch Peak.

2. Open media file.

3. If using Peak LE/DV, choose "Insert 1>SoundSoap" from the VST Plug-Ins menu. If using full edition of Peak, select it from the integrated Vbox SE matrix when you select "VST Plug-Ins..." from Peak's VST Plug-Ins menu.

4. When the SoundSoap interface appears, enable the Learn Noise button.

5. Start playback by pressing the space bar, or by clicking the Play button in Peak's transport window.

6. Listen to the results.

7. To apply/render the current noise reduction settings, choose "Bounce..." from Peak's VST Plug-Ins menu.

Congratulations! You've just learned the basics of using SoundSoap. Now, we'll show some advanced techniques to fine tune the noise reduction.

8. Turn the Noise Reduction knob all the way to the right for the maximum amount of noise reduction.

9. While listening to your media, adjust the Noise Tuner knob to fine-tune if necessary (see tip below).

10. While still listening to your media, (in the "On" listening mode) slowly turn the Noise Reduction knob to the left to reduce the amount of noise being taken out. Continue to reduce the Noise Reduction setting until you reach an acceptable compromise between the amount of noise being reduced and any audible artifacts from the noise reduction process.

11. Now, using the Mode Buttons, toggle between the "Off" and "On" listening modes. This allows you to compare

⚠ *A good technique for confirming your noise reduction settings is by switching SoundSoap into "Noise Only" listening mode. In Noise Only mode, you will hear just the noise that will be removed when you apply the current noise reduction settings. If you hear any of the audio that should be kept in the file, adjust the Noise Tuner knob until you hear just the undesired noise.*

12. To apply/render the noise reduction settings to the file, go to Peak's VST Plug-Ins menu, and choose "Bounce..."

⚠ *Be sure to disable SoundSoap after "bouncing" in Peak. If you leave SoundSoap active, you will hear the processed file being played through SoundSoap in real-time, giving the effect of twice the amount of noise reduction. For your convenience, a dialog box is presented after bouncing, with options to turn plug-ins off, or to leave them active if you need to process additional files.*
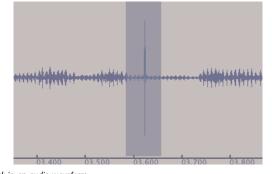
Removing Clicks & Pops with the Pencil Tool:

Clicks and pops are something that everyone working with digital audio will run into at one time or other. These unwanted sounds can occur in a variety of ways, and some common ways they occur are when recording old vinyl LPs, or cutting audio at non-zero crossings of the waveform.

Regardless of how they occur, they're usually unwanted artifacts, and Peak offers an easy and effective way to remove them. Peak's Pencil Tool works by "re-drawing" the samples that make up the click or pop, essentially re-assigning the values those samples. By smoothing out the very abrupt amplitude transition, the unwanted sound is eliminated.

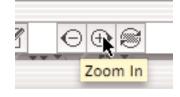The following steps show how to use the Pencil Tool to repair a click.

To repair a click:

1. Open an audio file in Peak that contains a click or pop.

2. Audition the file in Peak to locate the click.

3. When you have located the click, place the mouse cursor directly over the click, and click into the waveform, so Peak's playhead indicator is directly over the click (or as close as possible).
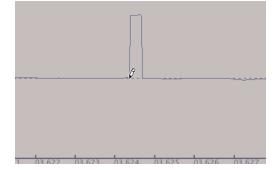
A click in an audio waveform

⚠️ *You may wish to place a reference marker in the waveform where (or close to) the click occurs. When zoomed in to sample level, it's easy to "lose" a click when scrolling left or right – by having a reference marker present, it's easy to find the click again if you scroll too far one way or the other.*

5. Using the Zoom In command, zoom in on the audio waveform until you can clearly see the click.

Using the toolbar zoom buttons to zoom in

6. From Peak's Cursor Pallette, select the Pencil Tool.

7. Draw across the the area in the waveform where the click occurs, trying to approximate the shape of the waveform on either side.

Drawing out the click

8. Zoom out and audition the section of audio that had a click – it should now be gone.

Reducing Wind Noise with Freq

In some situations, especially when working with digital video, you may encounter wind noise, picked up by a microphone. This type of noise is usually at a very low frequency, and in many cases cuts in and out of the intended audio – dialogue for instance. If this low frequency noise were more contstant, it might be possible to eliminate it using SoundSoap's Remove Rumble feature, but more often than not, wind noise is too variable to be effectively reduced with SoundSoap.
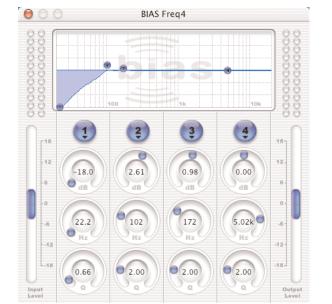
The following steps show a more "industrial strength" approach to reducing wind noise – by using a paragraphic equalizer plug-in, Freq, which is inlcluded with Peak. By using particular settings in Freq, we'll actually pull out the very low frequencies that make up the unwanted wind noise.

This approach does have its drawbacks – if any of the intended audio occurs in the same frequency range as the wind noise, then it will also be removed. Typically however, a person's voice and low-frequency wind noise do not occur in the exact same frequency ranges, so this technique can be quite effective. Even if some of the frequencies overlap, this technique can help to salvage otherwise unusable audio, particularly if it's not practical to re-record.

To reduce wind noise with Freq:

1. Open an audio file with wind noise in Peak.

2. If using Peak LE/DV, choose "Insert 1>Freq" from the VST Plug-Ins menu. If using full edition of Peak, select it from the integrated Vbox SE matrix when you select "VST Plug-Ins…" from Peak's VST Plug-Ins menu.

3. When the Freq plug-in interface appears, make settings

using the dials, so that your settings are close to those shown in the picture below.

BIAS' Freq EQ plug-in showing a "Low-Shelf" setting, effective for reducing wind noise.

4. Audition the noisy audio, which is now being processed in real-time, through Freq. As there isn't any "recipe" to eliminate wind noise in every audio file, you'll have to rely on your ears now! Experiment with variations of the settings shown above – any settings made in the Freq interface will affect the audio you hear instantly.

5. When you've found the ideal setting, choose Bounce from the VST Plug-Ins menu to apply the settings to the audio file.

⚠ *Be sure to disable Freq after "bouncing" in Peak. If you leave Freq active, you will hear the processed file being played through Freq in realtime, giving the effect of twice the amount of equalization. For your convenience, a dialog box is presented after bouncing, with options to turn plug-ins off, or to leave them active if you need to process additional files.*

Conclusion

Now that you've cleaned up your audio files by removing background noises like applause, coughing, hiss, etc. you're ready to burn an audio CD. The next tutorial will help you create regions, add them to a playlist, and burn an audio CD.