Chapter 7: Sound Supplement

7.12 Audio Compression Using XACT

WAV files are not compressed and can be quite large, especially if we want to use one or more music tracks in our game. XACT has the ability to compress the game audio. This can result is significantly smaller file sizes for our finished game.
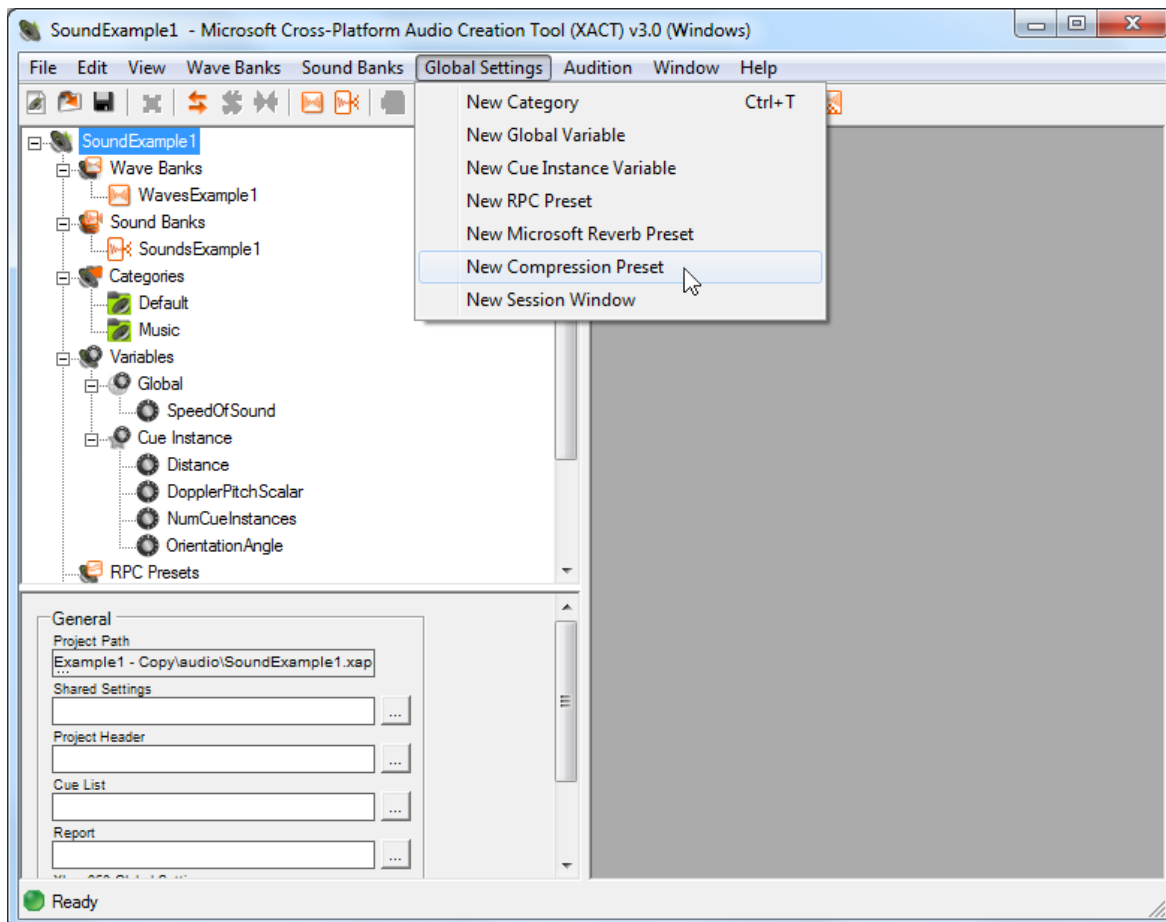

Figure 7.12. Creating a New Compression Preset in XACT.

To compress our game audio we create a Compression Preset by selecting "New Compression Preset" in the "Global Settings" menu (Figure 7.12). The compression preset may be renamed if desired. We will use the default name "Compression Preset". A compression preset may also be created by right-clicking on the Compression Presets item in the XACT explorer (left window). Compression Presets may be applied to an entire Wave Bank or individual sounds within a Wave Bank.

To apply the Compression Preset to a Wave Bank, select the desired Wave Bank and select the Compression Preset from the drop-down menu in the properties window (Figure 7.13). To apply a Compression Preset to individual files, select the file in the Wave Bank window and select the Compression Preset from the drop-down menu in the properties window.
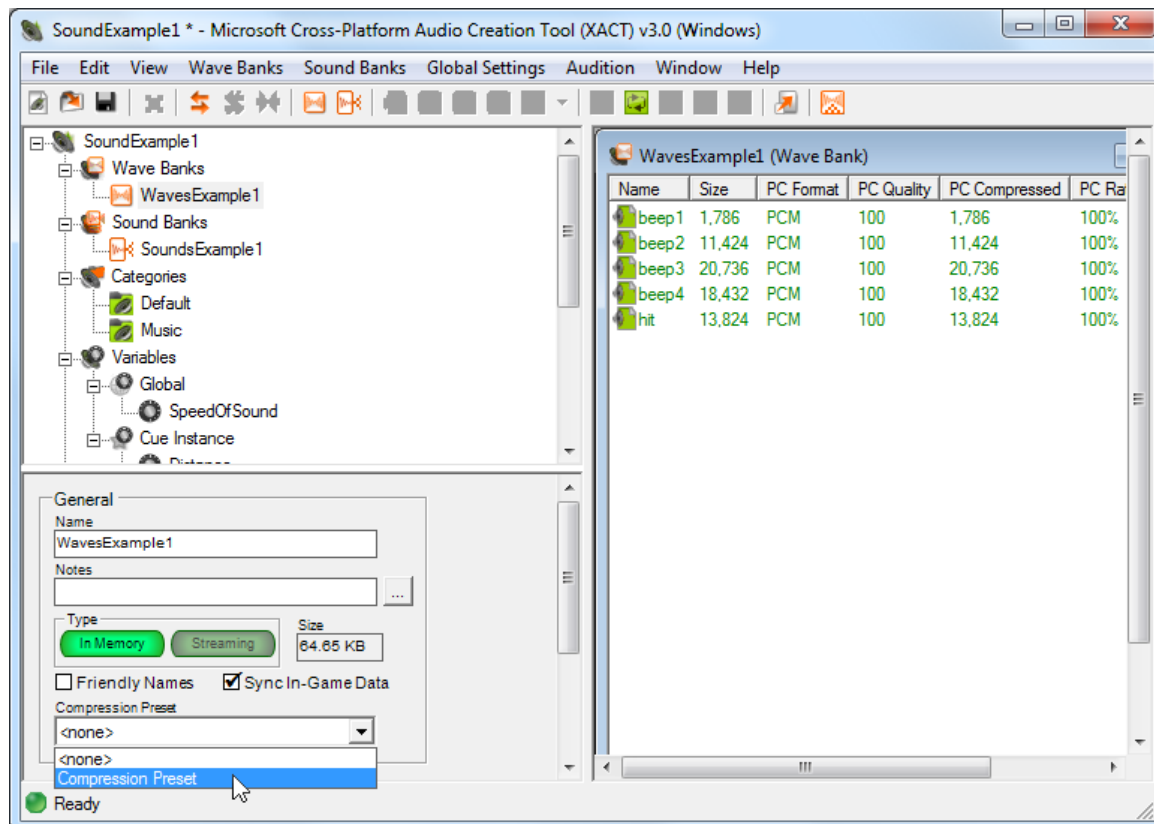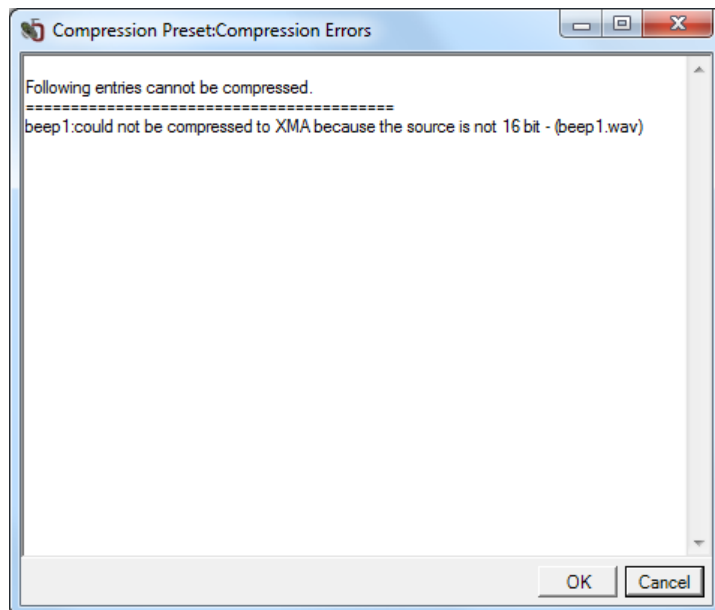
Figure 7.13. Selecting a Compression Preset

Figure 7.14. Compression Preset Errors

One or more error messages may be displayed if the format of the wav files is not compatible with the desired compression format (Figure 7.14). The errors may be corrected by changing the compression settings or converting the wav file. To convert the wav file, open the file in Audacity, select File/Export… and save as type WAV (Microsoft) signed 16 bit PCM. After converting the wav file, right-click the Wave Bank and select "Rescan Wave Bank Entries".
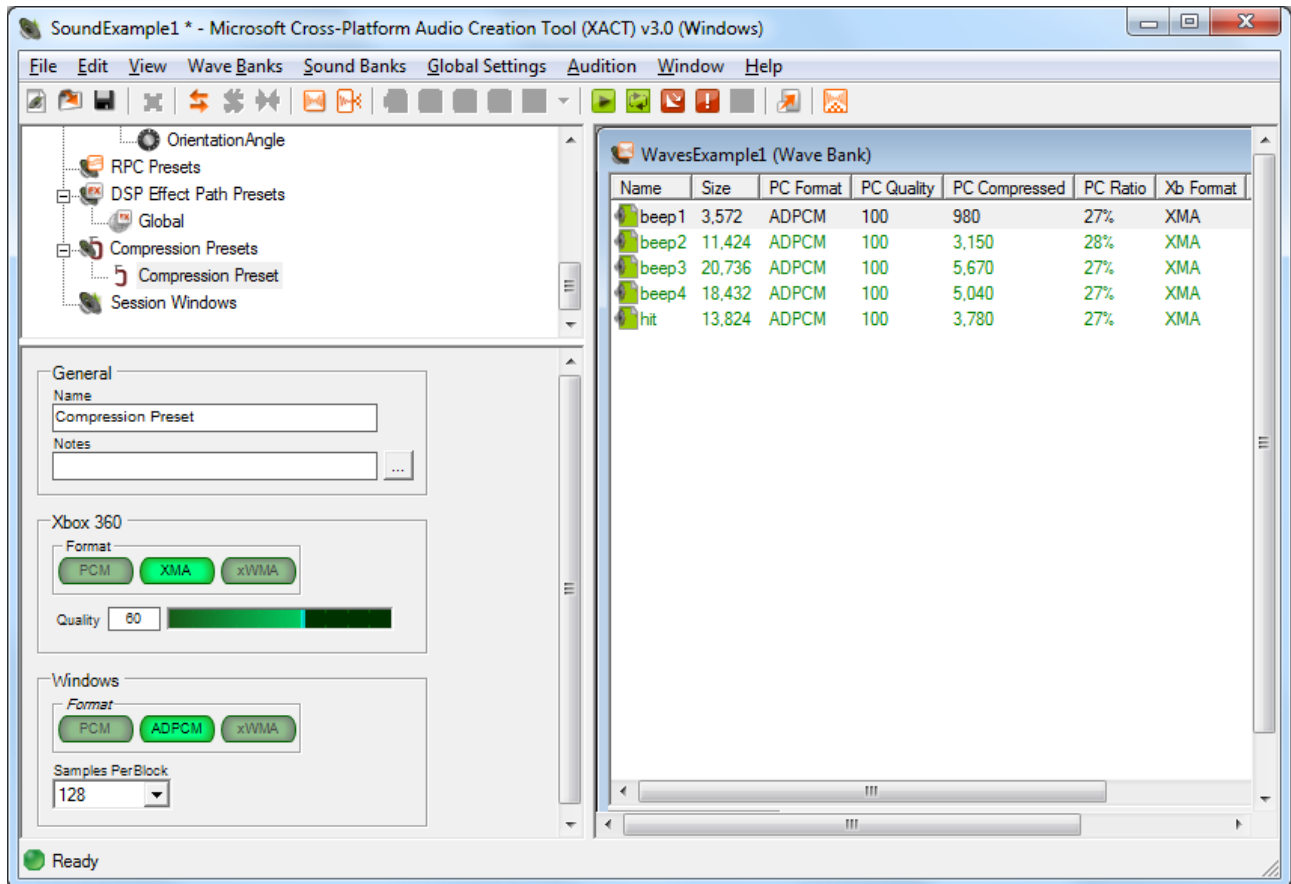

Figure 7.15. Compression Preset Settings

To change the compression settings, select the Compression Preset in the upper-left window. The compression settings for the Xbox 360 and Windows are displayed in the lower-left window. The possible formats for Windows are: PCM, ADPCM and xWMA. Pulse-Code Modulation (PCM) is a lossless uncompressed format usually stored in a .wav file. This is the native format for .wav files and will result in no compression. Adaptive Differential Pulse Code Modulation (ADPCM) is a lossy compression format. Lossy compression formats can alter the audio slightly in order to achieve a higher compression. ADPCM can achieve compression ratios of up to 4:1. Windows Media Audio format (xWMA) is a lossy compression format. The Quality setting affects the amount of compression. The amount of compression achieved can vary greatly from one wav file to the next. Compression ratios of 30:1 or higher are possible with xWMA. It is also possible for xWMA to create a larger file than the original. A little experimentation will be necessary to achieve the best results. The format of the compression used for each file is displayed in the PC Format column of the (Wave Bank) window (Figure 7.15). To achieve maximum compression it may be necessary to create multiple compression presets and assign them to individual files.