

# Creative ALchemy

## **Welcome**

*al-che-my* [al-kuh-mee] ~ any magical power or process of transmuting a common substance, usually of little value, into a substance of great value. - Dictionary.com

In Windows Vista, Microsoft has decided to remove the Hardware Abstraction Layer (HAL) for DirectSound and DirectSound3D. The HAL is the software layer that on previous Windows Operating Systems enabled an audio accelerator such as the SB X-Fi, to provide DirectSound3D applications with hardware accelerated audio. This enabled soundcards to perform tasks such as sample-rate conversion, mixing, 3D spatialization using HRTFs, filtering, and effects processing. Without the HAL, DirectSound on Windows Vista will be rendered in software on all sound cards with no advanced functionality such as EAX.

The good news is that Creative ALchemy allows you to run your favorite DirectSound3D games on Windows Vista as the developers intended - with advanced 3D Audio processing and EAX support!

NOTE: All Sound Blaster X-Fi and most Sound Blaster Audigy series of cards include 'native' OpenAL support. This means that most games that use the OpenAL Audio library will not be affected by the changes in Windows Vista. OpenAL support is available in many modern PC games including Battlefield 2142, Doom3, Quake 4, and Prey.

## **Operation**

When launched, the Creative ALchemy application will search the system for supported DirectSound3D enabled games. All the games found will be listed in the left pane (titled "Installed Games"). The right pane (titled "ALchemy-enabled Games") will show any games which have already been converted to use ALchemy.

To enable ALchemy support for a particular game, select it from the left panel, and press the ">>" button. To undo ALchemy support, select the game from the right panel and press the "<<" button. You can select multiple games at once and then use the directional arrow buttons to update them all.

## **Adding / Editing Games**

The following sections contain information about how you can upgrade games to use Creative ALchemy technology. This is intended for users who are comfortable navigating the Windows File System or using the Windows Registry to retrieve information.

If you want to test out a favourite game that is not currently supported, then please read the following information.

NOTE: Games can use the DirectSound3D library in radically different ways, so not all of them will work with Creative ALchemy. A list of officially and unofficially supported games, including the appropriate settings (see below) can be found on <http://connect.creativelabs.com/alchemy/default.aspx> Users are encouraged to share their experiences (and ALchemy settings) by contributing to the 'Games' list.

Pressing the “**Add**” button brings up the “**Game Settings**” dialogue box requesting information about the title you wish to add. Pressing the “**Edit**” button with a game selected brings up the same dialogue box filled with the current settings so they can be altered.

### **Game Title**

Type in the name of the game you wish to add, as you want it to appear in the ALchemy application.

### **Location**

The ALchemy application needs to know where to find the installed game. This can be done by providing the full directory path to the installation folder, or, by looking up the installation folder in the Windows Registry. As most games add a key to the Windows Registry indicating where the game has been installed, this option enables ALchemy to find games on any user's machine. The alternative, a hard-coded directory path, is specific to each user because most games allow the user to specify a custom directory into which the game is installed. Finding a Registry Key can be tricky and is only recommend for advanced users familiar with tools such as regedit.

To enter a registry key select the “**Use Registry Path**” button. Enter the full path and registry key name that stores the string containing the game's installation folder. E.g. Call Of Duty stores this information in

HKEY\_LOCAL\_MACHINE\SOFTWARE\Activision\Call Of Duty\InstallPath

To provide a game's installation folder select the “**Use Game Path**” button. Enter the full path (including drive letter) to the game's installation folder. E.g. If Call Of Duty was installed in a Games directory on drive C, you should enter c:\Games\Call of Duty

The purpose of providing this information is so that the Creative ALchemy application can copy a couple of files to the game's installation folder. These two files *must* be copied to the same folder as the game's executable. In some cases the game's main executable is not stored in the game installation folder, but one of its sub-directories. If this is the situation then enter the sub-directory name in the “**Install into Sub Folder**” edit box. E.g. Serious Sam Second Encounter stores the game executable in a sub-directory called 'bin' so this should be entered here.

In some even rarer cases, a game may require that the two ALchemy files are copied into two locations – the game installation folder, and a sub-directory. (This can happen if the game has a configuration application in one folder and the game in another). To copy the files to both locations, tick the “**Install into both Root and Sub Folder**” check box.

When you close the dialogue box, the application will verify the location settings and display an error message if a registry path is not found or a directory path doesn't exist.

## **Settings**

To upgrade a legacy DirectSound3D based game to use Creative ALchemy involves copying a couple of files to the same directory as the game's executable. The first file is called dsound.dll and does the work necessary to re-enable 3D audio and EAX, the other file, dsound.ini, contains configuration options that affect how the audio will be rendered. The variables in the dsound.ini are controlled by the following options in the dialogue box: -

**'Buffers'** is used to set the number of audio buffers used internally. The default value of 4 should be fine for most applications.

**'Duration'** is used to set the length in milliseconds of each of the audio buffers. The default value is 25ms.

The total duration of the audio queue used internally is equal to  $\text{Buffers} * \text{Duration}$  (i.e. 100ms by default). Experimenting with Duration values may be necessary in order to find the best performance vs. quality trade-off for each game. In addition, some games require smaller values than the default of 25ms because they use very small DirectSound Buffers for streaming, or they require faster playback position updates. Reducing the 'Duration' value can prevent audio glitches, pops and clicks. However, lower values mean that there is more chance of the audio breaking up during CPU intensive moments (e.g. lots of disc access during level loading). The recommended approach is to try the default settings, and if audio artifacts are regularly heard then try lowering Duration by 5ms and trying again. If the problem still occurs try dropping the value by another 5ms and so on (minimum allowed value is 5ms).

**'Maximum Voice Count'** is used to set the maximum number of hardware voices that will be used by ALchemy. The number of voices used will be the lesser of, the hardware voice count limit and this setting. The default is 128 which is the highest number of voices available on SB X-Fi cards. By lowering this value, hardware voices can be reserved for another application to use, or, to improve performance by streaming less audio channels.

**'Disable Direct Music'** is used to disable DirectMusic support. The default is false (unchecked), meaning DirectMusic support is enabled. At this time no known problems have been caused by combining ALchemy with games, such as TRON 2.0, that use DirectMusic.