Reverb

Reverb is one of the most DSP intensive effects. It can involve a very complex algorithm that requires a lot of processing power. In real-life, sound bounces around in complex ways. When sound reflects off of some objects the timbre may change. Large objects tend to produce a warmer tone, regardless of their materials. Soft objects, such as curtains, foam, etc., tend to absorb high frequencies as well. Therefore, an important facet of reverb is the fact that as the sound reverberates, the high frequencies become increasingly dampened. It is also important to note that when sound reflects off of objects, it's dynamic level lowers. The first few reflections (which actually gain volume slightly), are the most articulate. The later reflections are more diffuse and less defined. Their spatialization is also more random. Preceding the first reflection there is a short delay called the "pre-delay."

Reverb should be mixed with the untreated sound and therefore should be used in the effect sends or aux sends of the mixing board. Don't overuse reverb. As lush an effect as it is, it can fill up your sound palette very quickly.

Reverb creates a sense of distance. If you want to create the sense of a sound appearing far away, apply a lot of reverb. This will ultimately create a sense of spatial depth in your musical composition. Musical ideas without reverb will stand in the foreground whereas those with reverb will stand in the background. Remember if you do this, that distant sounds have less high frequencies than near sounds.

Pitched Reverb - An interesting effect can be created by routing the signal through a pitch shifter and then through a reverb. Add some of the dry signal back in and the reverberations will be transposed while the original pitch stays the same.

Types of Reverb:

(1) Natural – The major recording studios all have large rooms specifically for recording natural reverb. This reverb can be manipulated by dampening devices such as curtains, foam, partitions, etc.

(2) Plate – Involves a suspended steel plate. This plate vibrates due to the presence of an incoming signal (usually produced by a loudspeaker). The plate's vibrations are picked up by contact transducers attached to the plate, which send the signal out to an amplifier and on to the recorder.

(3) Spring – Works similar to a plate but a spring is involved instead of a plate.

(4) Digital – Very flexible. Early reflections can be dramatically overemphasized. Requires digital filtering to produce the correct frequency response. Can

easily simulate various spaces with little programming. There are two types of digital reverbs:

(a) Programmable – The parameters of the unit are adjustable. These parameters include: pre-delay time, early reflection level, decay time, high frequency dampening, room selection, and mix (wet/dry). Some additional parameters may include chorus-like modulation (to randomize the reflection patterns more), decay shape, gated reverb (producing an abrupt cutoff), and reverse reverb (the reverb envelope is reversed). These parameters may be saved in presets which may be recalled for later use.
(b) Preset – Pre-programmed, non-editable machines. You usually have a choice of several different room sizes.

(5) Software – requires a lot of CPU power!