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What is a reverb?

In almost any space, we have surrounding objects, walls, floor etc. In such a space,

1. sound travels to you directly from the source – direct sound
2. some of the sound reflects on the surroundings and reaches your ear – reflected sound.

Usually there are so many objects and surfaces to reflect on, that there is a cluster of reflections that reach our ears along with the direct sound. This group of reflections gives us a sense of acoustic space and is called reverberation or reverb in short.

Artificial reverberations

It is not always possible to record in surroundings which have a great natural reverb. In fact most of our recordings are done in rooms adjusted so that very less natural reverbs interfere with the recording.

Plugins and hardware effect equipments allow us to add a sense of space to the recording, artificially. We can add a bright short plate reverb to a close miced SM58 vocal recording. We can add large hall like spaces to create chorale effects to vocal parts recorded one after another in a sequencer.

Recordings we make in our rooms, definitely benefit from artificial reverberation as we can add some pleasing acoustic 'halo' to our recordings which is almost impossible to get naturally from our rooms.

When we use VST plugins, synth sounds etc, anyway we need to add reverb since they don't come with a natural acoustic space or ambience.

More the reflected or wet sound level in the mix, more distant the sound source feels, from the listener.

Varying the wet / dry ratio for different instruments can vary the perceived distance of each instrument from the listener, thereby giving a spatial depth to the mix.

Reverb parameters and controls

The image shows an example of a reverb plugin interface. Let us have a look at **the three most important reverb controls.**

Direct/ Effect levels

The ratio between the Dry or direct sound level to Wet or reflected sound level.

We can either set it in the reverb – usually a single knob that controls the ratio.

Or we can set the ratio to 100% wet in the reverb unit and adjust the send level to the reverb, of the particular channel to decide how much of the reverb sound should be mixed with the dry sound.
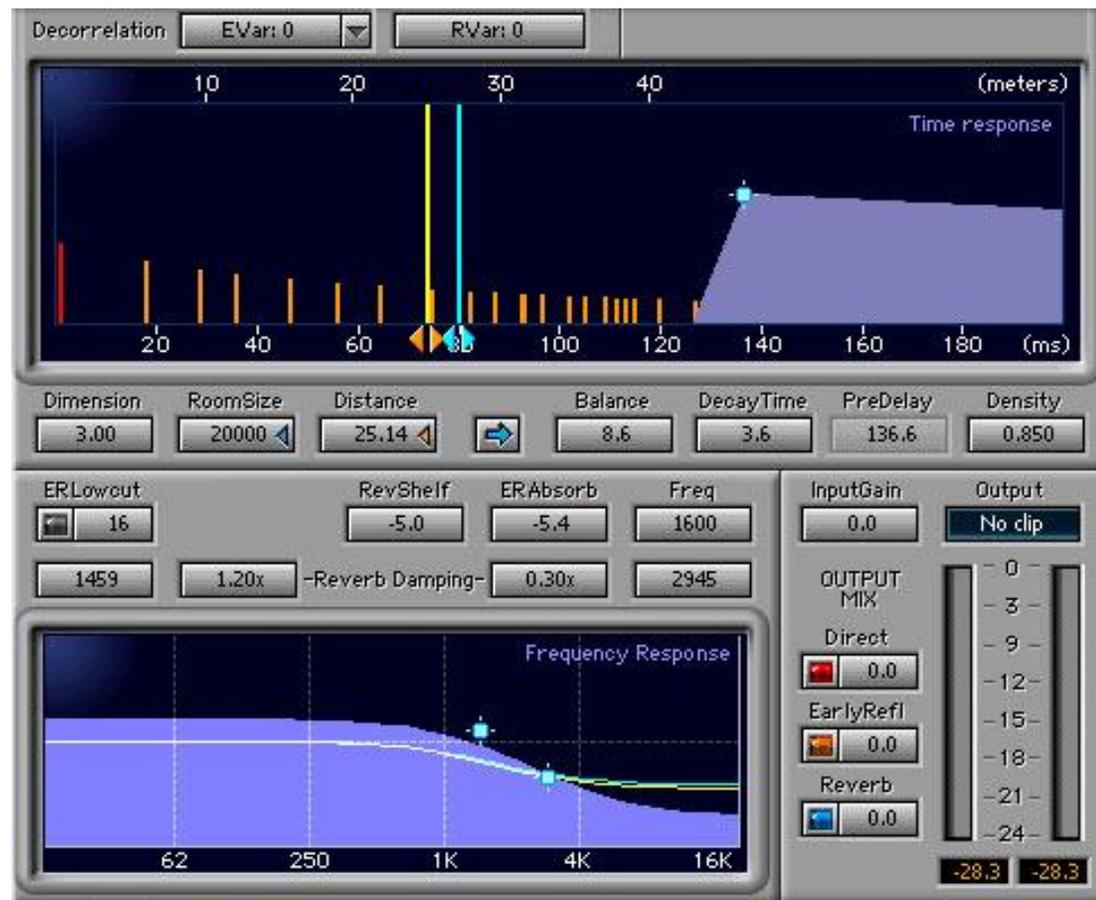
Pre-delay Time

The pre-delay time specifies the time lapse between the start of the direct sound and the start of the first sonic reflection.
This means that the time set for predelay is what decides how much time after the original sound, the first reflections of the reverb sets in. For example, if we sing 'Silence', and the predelay is 90ms, we will hear the clear 'S' and 90mseconds will pass before the reverb starts sounding.

- When you decrease the predelay time, the sound source feels closer to the boundaries of the space and moves it farther from the listener.
- When you keep a longer pre delay time if you want the sound clearer and closer to the listener.

The reverb time

The reverb time is the part of the reverb which decides how long the reverb sounds. This is also known as the decay time. To give an idea about reverb time setting : 1.8 millisecond is a fairly long decay time.

These three parameters – Direct/Effect Levels, Reverb Decay Times and Pre-delay, give us enough control to set reverbs very well for most of our needs.

More reverb controls if available :

Early reflections

Early reflections are the first reflections produced from a sound before the complexity of the main reverberation.

Early reflections give us a feel about the size of the room, how close the large reflective surfaces are, where the sound source is within the reverberating space, and even the material of the surfaces.

Using a reverb patch that has a lot of early reflections can help reinforce the dry sound.

Dampening

High- and Low-frequency Damping parameters allow us to shorten the reverb decay for the high and low frequency extremes. Most often when we see presets like 'Hall' 'Room' 'Plate' etc, they have the damping set as preset, even if the plugin does not offer individual control over the damping parameters.

Low-frequency Damping simulates solidly built and sizeable spaces.

High-frequency Damping simulates warmer sounding furnished rooms with soft funishings, carpets, curtains, junk etc which absorb the high-end.

Using the reverb

Reverb as a send effect

Using a reverb as a send effect as opposed to insert effect has its advantages
1.   Using everb and delay as send effects lets the same settings be shared by different tracks thereby allowing the whole project to share an 'uniform space'.
2.   As minimal resource producers, when we use just one instance of a reverb plugin instead of inserting it in each channel that needs reverb, we have added advantage of not wasting computer CPU and RAM resources.

Setting up a reverb effect

1. We set up one instance of the needed reverb treatment.
2. A send track to the reverb is setup for each track that needs the effect.
3. Changing the send level in a track determines how much reverb effect is added to that particular track.

Balance between the reverb length and reverb level (volume)

1.   If the reverb is too long, we can't keep the reverb level high enough without affecting the whole mix.
2.   If the reverb is too short, to get a full sound we will have to keep raising the send level of the reverb. But when we raise the reverb level too high, the track will sound like coming from far away.

Remember we talked about Decay Time or Reverb Time – the control that all reverb processors or plugins have to change the length of the reverb.

Change the reverb length setting. Try making the reverb longer and reducing the fader. Listen how it sounds.

Then make the reverb shorter by a bit and increase the fader a little bit. Listen again, experiment.

With time we will get a feel for balancing the two parameters of reverb length and reverb level to find the best.

Most often we will set this once when we start the mix, then come back and tweak again as the other instrument reverb levels and lengths are set. It is important to make this comparative adjustment of a track's reverb with respect to the other tracks and considering the mix as a whole.

Using different reverbs on different instruments

This gives a good contrast between them. As said before, more the reverb, the sound is perceived as farther from the listener. Adding different reverbs to different sounds in the mix can add a **spatial depth** to the mix.

If we use a short reverb for a vocal, it will sound upfront and clear. Then we can use a wider reverb for a backing guitar, making the voice stand out while the guitar does not muddy its space.

Reverb for vocals

1. For the words to be clear, the effect level and reverb time should not be too high.
2. Increase the Pre-delay time to keep the words clear, for the beginning of the words to come across clear before the reverb sets in.
3. The reverb setting will depend on the kind of music or the effect we want. If we are making a choir recording or a vocal group, using longer reverb decay will give the effect of big halls and chapels where such music is usually performed.

4. For a pop lead vocal, we will use short reverb times so that the vocal does not sound too far away or muddy.

For popular styles

1. Make sure the words are clear – use predelay and
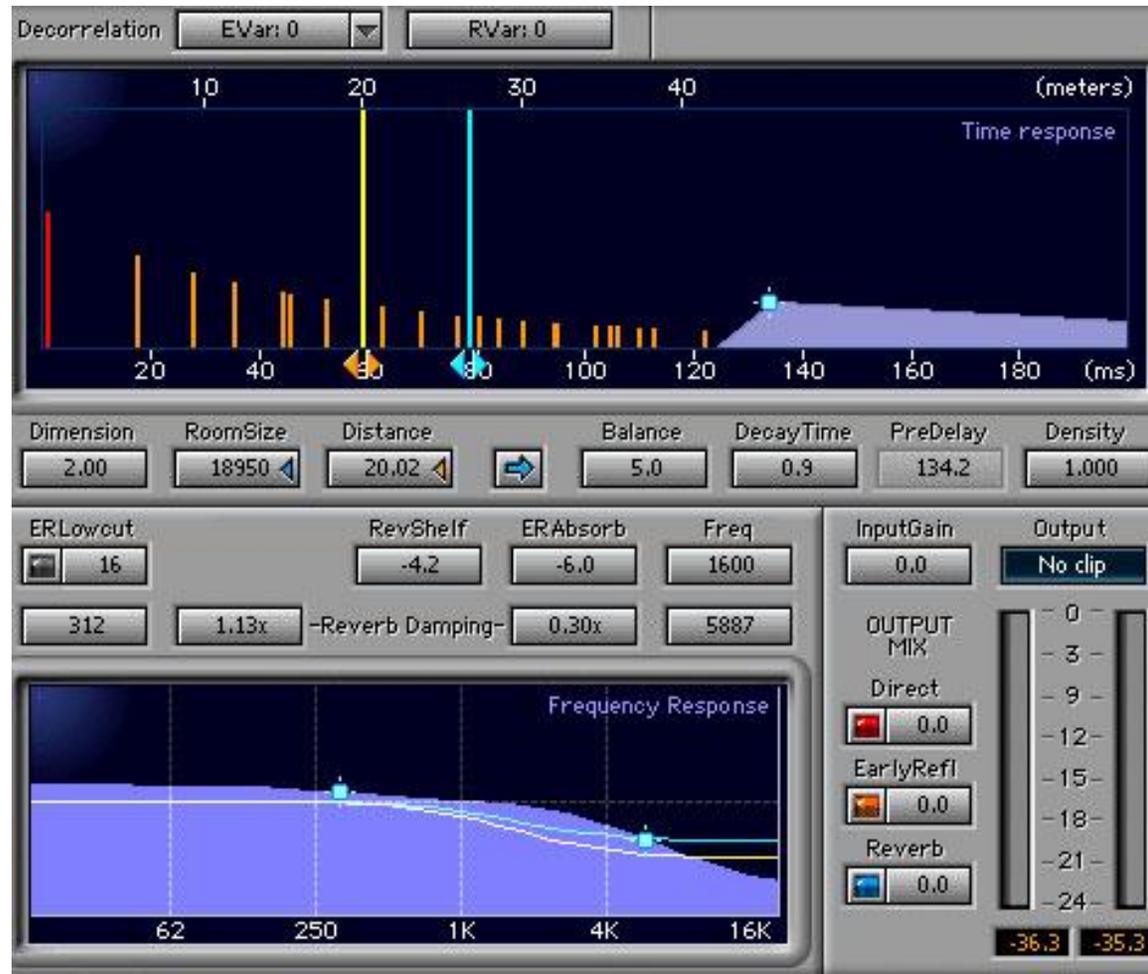
short reverbs times. In your face pop vocal should have a short pre delay time.

2.   One more reason to use short reverbs in popular styles – to keep the vocal close to the front of your mix.

3.   Keep a bright reverb – use the send eqs to cut out the middle muddy frequencies carefully in a tasteful manner.

4.   To take care of the sibilance when using a bright reverb, we can

a.   Use a de-esser on the vocals

b.   Instead use a de-esser on the feed to the reverb

What reverb styles are in trend now?

Though a generalization is not possible, the reverb treatment these days are much less obvious than it used to be. Short bright plate reverbs are more common than long washy reverbs. Still the choice remains artistic.

Don't overuse reverbs

Reverbs should be used in moderation. They should primarily be used to make the vocals sound as if it shares the same acoustic place with the other instruments. We should not try to add too much reverb and delay to make the sound 'colorful' or 'smooth' or with the intention of masking a shortcoming in the vocal take.

Listen to commercial recordings you like and try to learn from them till slowly it becomes natural.

Adding reverb adds space to the sound and affects the **stereo placement** of the sound. Using mono reverbs and placing the wet signal where the original is, can help prevent the stereo smear.

Reverb has the effect of pushing the vocals back. Try pre-delay values of 60mS and above to keep the vocals in front.

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