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# Altiverb 8

## manual v1.1

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[www.audioease.com](http://www.audioease.com)



## Altiverb 8

Altiverb is a plug-in that makes your audio sound as if it was played back somewhere else, adding the acoustics of existing spaces to your own recordings or to your live audio. The spaces in Altiverb were sampled in the real world. Therefore it can be called a *sampled acoustics processor*. The mathematical process to add real acoustics to audio is called Convolution, and because acoustics can also be called reverb, you can also call Altiverb A *Convolution Reverb*. The samples of spaces are called *Impulse Responses*.

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Altiverb's main operational modes are discussed on this page.

## **Positioner (in mono and stereo input Altiverb instances)**

Altiverb can have mono or stereo inputs (Altiverb XL can have more). When making impulse responses, we used either one speaker position in the center of the stage for mono input, or two speaker positions for stereo input. So there is a direct relation between the amount of inputs and the speakers used.

When positioner is switched off, you only hear reflections and tail, not the direct sound path between speaker and microphones. You want this when you need Altiverb to be as wet as possible.

Using the *positioner* tab, available only in mono and stereo input Altiverbs, you can switch on the speaker, in which case you can hear where it stands. You can also, right there, move the speaker around. This is the absolute most realistic sounding virtual playback of your audio in any space in Altiverb. You should use it fully wet, but even then you hear quite some dry-ish material, because now you hear that direct path from speakers to microphones. A demo of this is in the first minutes of the *Altiverb 8 guided tour* video on YouTube.

Positioning works most convincingly in playback systems where no center speaker is used, so quad rather than 5.0. You can achieve this in 5.0 instances by selecting quad IRs or muting center. This is simply due to the nature of microphone systems with a central microphone. It has a tendency to be sticky in the middle. Please note that with positioner, you have a microphone system in the hall. When you drag your source speaker from center to left stage, even at that position there will be audio in the right and center microphones. If you want more extreme panning than this hyper realistic one you need the next feature: cloud size.

## **Cloud Size and Pan Tracking Reverb - (LCR up to 9.0.6 input Altiverbs)**

Altiverb XL allows more than two inputs. Then there is no longer a direct relation between an input and a speaker that was used when making the impulse response. Therefore the (speaker-) Positioner tab is not available. Instead there is a cloud size knob, on the right side of Altiverb. When you turn that down, the reverb is no longer output on every output channel, but it starts clustering around the input pan position of your sounds. Even when the input sound moves the reverb cloud travels along with it. It is best used in conjunction with Pro Tools' FMP (Follow Main Pan) knob on its send strips. The *Altiverb 8 guided tour* video on YouTube gives an example of input pan following reverb starting at 5:43.

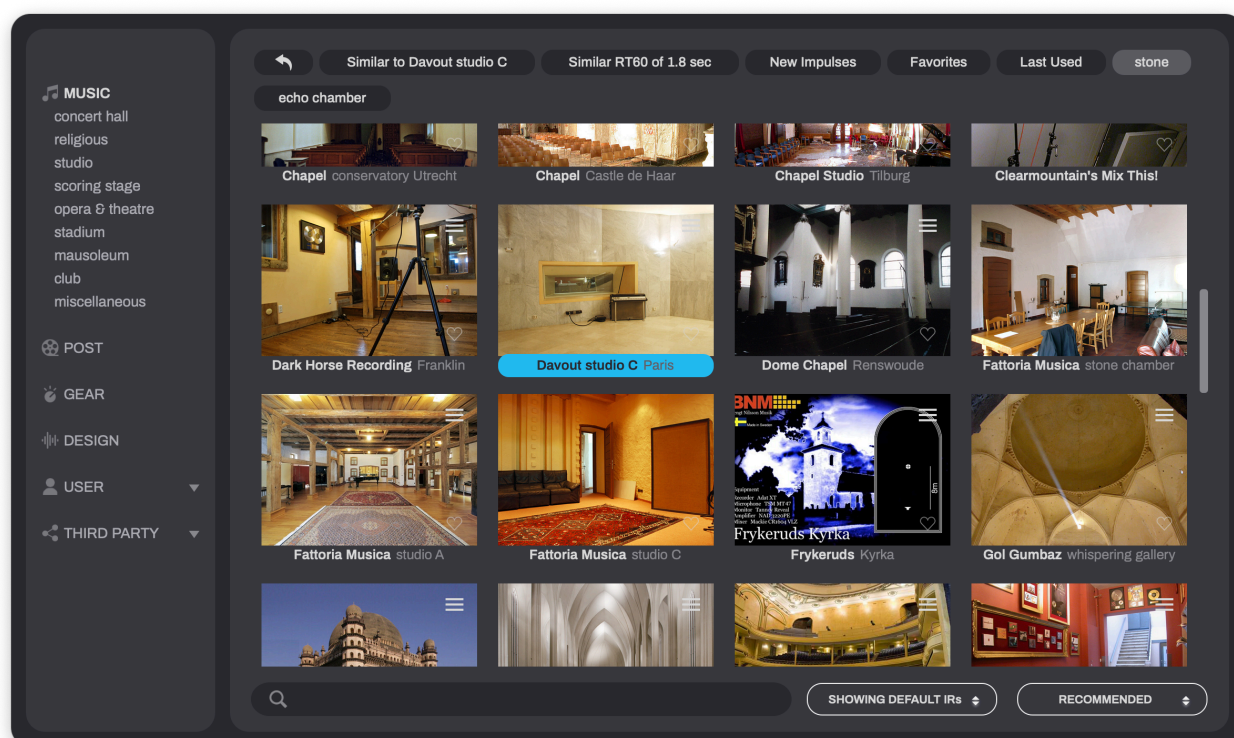
## **Dialogue reverb**

In the impulse response browser next to the search field select 'show all irs'. That will reveal the mono version of a space. Consider loading that mono impulse response of the room in your (5.0 in, 5.0 out) Altiverb, and turn cloud size all the way to minimum. It now sounds as if you are panning a mono reverb around using input panning. This is how you get only center channel reverb, unless you pan the dialogue, in which case the reverb pans with it.

## **Cross Terms (in stereo input - stereo output Altiverb instances)**

When decreased, the Left-input to right-output and right-input to left-output components of the stereo to stereo IR are decreased, eventually resulting in two (different) mono reverbs for the left and the right channel. It can make more space in a mix that sounds too wet.

# Impulse Response Browser



From the main interface window you bring up the impulse response browser by clicking on the lower left icon (the three books), or on the picture, or on the name of the room. You can resize the browser by dragging on its sides and bottom, and move it by dragging at the top of the window

In the search field at the bottom you can search for parts of the name or other words associated with an impulse response, like its use (orchestra) or its material (brick) or the country it is in etc.

Next to that you can choose to 'show all IRs' which means you can select a stereo output IR in a 5.0 output Altiverb. The sorting order is in the popup next to that. *Default IRs* means that in a 7.0 Altiverb, only 7.0 impulse responses are shown, and automatically chosen when you click on a picture.

The browser disappears if you click another time where you clicked to bring it up.

New IRs are available for instant download and auditioning in the News section at the panel left of the Browser.

## Some more help finding what you want

At the top of the screen you see a bunch of words associated with the chosen Impulse Response (IR). If you click on any of them it is as if you searched using that word.

Both *Similar* tags show impulse responses that sound similar to the one that is currently chosen.

*Favorites* list all your favorite IRs.

you can 'favorite' or 'un-favorite' an IR by clicking in the heart at the bottom right of each impulse response picture.

Last Used are recently used IRs

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## Central screen



Click on the lower left icon (three books), or on the picture, or on the name, to bring up the browser.

Click on magnifying glass to quickly search the library without using the browser

Click on the small text at the bottom to bring up other microphone options in the selected space.

Move to the next picture or 360 VR or waveform or waterfall-diagram or IR information etc. by clicking on one of the circles in the strip at the bottom of the picture

pop the pop-out icon at the bottom right to enlarge the current central screen in a separate window.

## Resize GUI



Altiverb can be resized using the 4-arrows icon at the top right.

## The output level meter

Shows a bird's eye view of the Altiverb outputs.

Click on a speaker to set the output parameters (also available in the mixer tab.) such as Mute/Solo, gain and delay. If you prefer classic meters switch to the mixer tab in the bottom half of Altiverb, or in case of a mono or stereo Altiverb to the meters tab.



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Following is a description of each of the tabs in the bottom half of Altiverb.  
You can close all tabs using close on the right hand side.

## Home tab

This tab combines the 5 most commonly used parameters from the other tabs in one strip.

## Color tab

### Equalizer

The black screen is a four band equalizer. Click in it to reveal its controls. Hold down command to adjust the width (Q) of parametric eq's. The equalizer works on the wet signal only.

The bass and treble bands are Baxandall eq's, designed to not shift phase more than 180 degrees, which effectively means that combing or cancellation effects are unlikely when the eq'd signal is mixed with the dry signal.

### Size

Makes the selected room (impulse response) smaller (turn counter clockwise), or larger (turn clockwise). It transposes room modes and resonances, tightens or spreads early reflections, and shortens or lengthens the reverb tail.

### Bright

Real spaces often contain less high frequencies than algorithmic (synthetic) reverbs. Some- times you need that extra sparkling brightness in a reverb tail that is just hard to obtain from the real world. And it often cannot be achieved with EQ, because what's not there can't be turned up either.

This is where bright comes in.

Bright adds an entire algorithmic synthetic reverb on top of the real-world impulse response. It tailors the reverb tail exactly to the IR, following length, slope and early reflections closely, so that it connects and the result does not fall apart in two sounds. By turning up bright you dial in more of the synthetic reverb and thus more high frequencies.

With a bit of bright on top of the IR there is some more high frequency content in the tail that you can then start to enhance via EQ or high damp if desired.

### Damping

Control the reverb length of three separate and adjustable frequency bands. Shortening is damping, lengthening is enhancing. You can see the effect of damping in the waterfall graph of the impulse response, (available as a channel in Altiverb's central screen.)

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# Time tab

Effects of the time tab can be seen in either the waterfall graph, or the impulse response waveform view, both available as a channel in Altiverb's central screen.

## Reverse

The entire impulse response is reversed in time for backward reverb.

## Attack

Fades-in the start of the impulse response.

## Pre-Delay

Delays the onset of the reverb. If the note symbol is clicked, the timing of the delay is locked to the tempo of the host application so you can select an eighth-note as the delay time.

## Modulation controls

This effect does not emulate anything that happens in reality, it emulates something that happens in artificial reverb algorithms.

When the impulse response is modulated the frequencies of input notes are a little bit spread out. The effect is that a note that is a bit false does not necessarily remain false in the reverb, or that the reverb may sound a bit more full, or that a snare sample that is input twice to Altiverb does not come out of Altiverb the same twice.

## Gated Reverb

Allows you to abruptly cut-off a reverb after a set amount of time.

# Positioner Tab

Available in mono input and stereo input instances of Altiverb.

Effects of the Positioner tab can best be seen in the impulse response waveform view, available as a channel in Altiverb's central screen.

Altiverb can have mono or stereo inputs. When making impulse responses, we used either one speaker position in the center of the stage for mono input, or two speaker positions for stereo input. So there is a direct relation between the amount of inputs and the speakers used. Using the *positioner* tab, available only in mono and stereo input Altiverbs, you can switch on the speaker, in which case you can hear where it stands. You can also, right there, move the speaker around. This is the absolute most realistic sounding virtual playback of your audio in any space in Altiverb. You should use it fully wet, but even then you hear quite some dry-ish material, because there is a direct path from speakers to microphones. A demo of this is in the first minutes of the *Altiverb 8 guided tour* video on YouTube.

The four knobs on the right manipulate the different stages of the impulse response, starting with the earliest part: the direct sound. Its gain and color can be adjusted. Color is adjusted between neutral (flat) and the actual direct sound that is in the Impulse Response (IR), which sounds more realistic, but can give unwanted coloration as it can contain a very early reflection from an on stage piano or the stage itself, and also includes speaker and microphone coloration.

Early and tail can be switched on or off or gained.

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## Snapshots tab

Snapshots are presets that are private to an instance of Altiverb. All Snapshots are saved within a Pro Tools Preset. Another Altiverb in the same session contains different snapshots. Snapshots are saved with the session. Snapshots can be switched using automation. The *automation preset index* parameter does that.

**Snapshots are an inheritance of older versions of Altiverb and no longer a necessity in Altiverb 8** because Altiverb 8 is a total-recall plug-in, meaning that its entire state can be automated without the use of snapshots.

To fill (store) a snapshot just click on an empty one. The current setting will be stored. The default name is the name of the impulse response, but you can change that by double clicking on the name.

Empty a snapshot by pressing the clear button at the bottom of the snapshot area. Then click on the cross of the snapshot you wish to empty.

Recalling a snapshot can be done by clicking an occupied snapshot.

Recalling a snapshot using automation: Arm your host for automation recording and click a snapshot at the proper times. If you want to draw an automation point, the parameter to look for in your host's automation is called *automation preset index*.

### *Warning:*

Consider the case where all your parameters are automation enabled. When an Altiverb snapshot is clicked with the mouse, all its internal parameters are output to the host's automation so they can be stored in the host's parameter automation curves. After that those automation curves do all the work and a recall of the snapshot via playback of the *automation preset index* does not do anything, because if it *would* output all its parameters again, all those parameters at that instant would switch into automation-write, overwriting anything after that point.

This also means just penciling-in snapshot changes does not work when all parameters are automation enabled. Only actual clicks work.

Unless *automation preset index* is the only automatable parameter, in which case a snapshot *does* output all its parameters each time it is recalled even when penciled-in. It is because of this difficult to understand contradiction that we advise not to use snapshots at all. If you want it anyway then at least make sure there are no other automatable parameters. If you do that, a conflict between the contents of a snapshot and a parameter curve can never occur. That prevents unpredictable situations.

**Our advice: use either snapshots or all other parameter automation.**

## Mixer tab / Meter Tab

Per output section of Altiverb you have separate controls here to solo, mute gain or delay.

These controls are also available when you click on a speaker on the meter of Altiverb at the top right.

Classic Meters are visible here. The order of meterchannels is as in ProTools. From Left To right: Left Center Right, and then the lower stereo sets from front to rear, and then the ceiling stereo sets from front to rear.

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# Preferences tab

## IR Folders

Impulse responses can be located in several positions on your system. There are three folders that Altiverb scans for IRs, all three of them categories in the Impulse Response browser.

Audio Ease should contain the impulse responses made by Audio Ease.

User contains everything you made yourself or you received from other users. Move wav files to that folder and they will show up as Impulse Responses in the Browser. Third party This spot is meant for libraries made by other manufacturers.

## Reset all parameters to default on IR change

When you select a new IR, all knobs will jump to their default positions. If you do not want this, uncheck this box.

## Set current IR as default.

If you like an impulse response a lot, you may want it to be the default IR whenever you insert a new Altiverb. First select your favourite IR and then click on the field below 'default ir' to make that the default.

## Downloading New IRs.

New IRs are available for instant download and auditioning in the News section at the bottom left of the preferences panel, or on the left hand side of the browser..

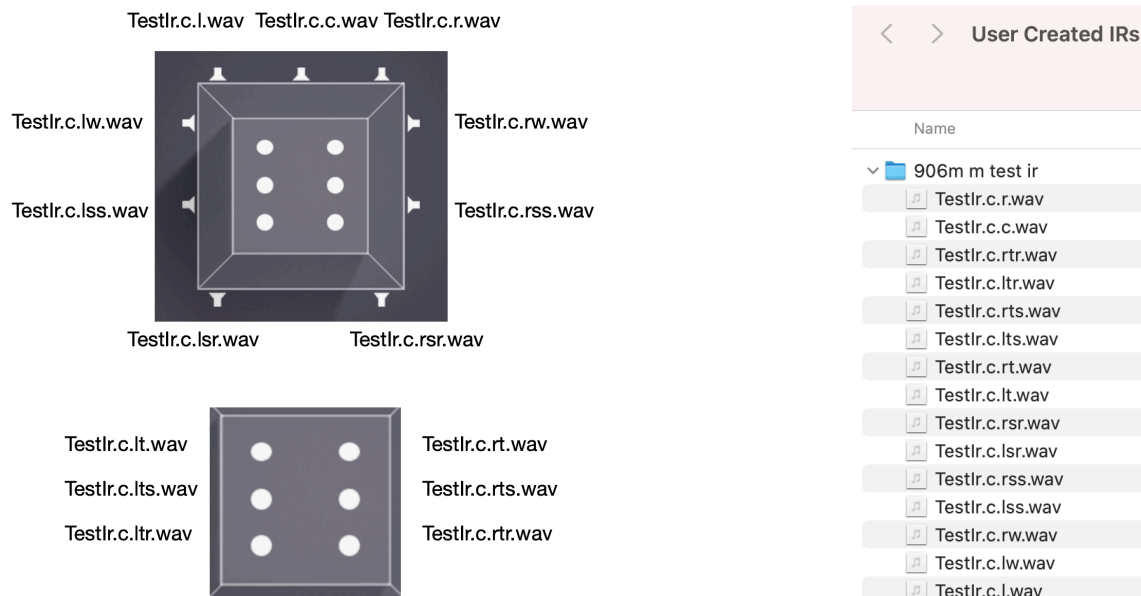


# Adding IRs to User and Third Party Folders

## Adding .wav files as IRs directly (without sweep deconvolution)

You can drag wav files into the USER section of the browser to add them directly. Or you can place them in either User IRs or Third Party IRs folders (see *Preferences tab* above).

It is often convenient to add split files because then you can make alternative folders easily for other channel configurations. The name extensions are then distributed over the channels as such:



In 7.0x the lw and rw are dropped. In x.0.4 the lts and rts are dropped. In 7.0.2 the ltr and rtr are dropped. In 5.0 the lss and rss are dropped. Quad optionally has ls rs or lsr and rsr as rear channels.

If you want to make first order ambisonics IRs, rename them to quad or use a 4 channel interleaved file and decode ambisonics after Altiverb for maximum flexibility.

You can also see why sometimes it is more convenient to offer interleaved files with just the proper amount of channels, as described in the following. If you place your 7.0.2 sweeps on a 7.0.2 channel in ProTools and you bounce it as an interleaved file the channel order is correct. This is shown in a Youtube video called “recording a concert hall with two mics” at the audioease channel, around the 10 minute mark.

A four channel interleaved file will always be interpreted as a true stereo (stereo in stereo out) IR, where the first two channels are the stereo output of the left input, and the second two channels are the stereo output of the right output. If you want mono to quad IRs instead, then you must split these and name them as shown above. We have made two exceptions: .1 .2 .3 .4 will be loaded as a quad IR in the order L R Ls Rs. These old fashioned extensions Ls and Rs for rear speaker are still recognized.

**Level** - After loading of your IR Altiverb scans the level of it and brings it to an internal reference level. This means you cannot influence the level at which your User-IR sounds.

Unlike stock Audio Ease IRs, USER IRs do not get a level increase when direct sound is turned off (using positioner or in a mono mono instance the levels tab).

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# IRTool - Making your own impulse responses

IRTool is for converting your raw recordings into Altiverb IRs. Files that are already IRs do not need the IR Tool. Please see the previous chapter for this.

A five minute video shows the entire IRTool process [here](#).

To make your own impulse responses you must play back a sweep sound from a speaker. You must record this with microphones, as many as you want output channels from your Altiverb impulse response.

## Input file description:

The input recording must be a Pro Tools interleaved .wav Bounce, also known as SMPTE order. Note in the following that a center channel is always the third channel, and that not always the order is front to back.

```
IRTool interprets the channel order in your interleaved input file as Protools Bounce order:
2 = stereoLR
3 = LCR = stereoLR + center
4 = QUAD = stereoLR + rearLR
5 = 5.0 = stereoLR + center + rearLR
7 = 7.0 = stereoLR + center + rearLR + sideLR

what follows is a turn in the above logic, the next filetypes are much newer.
9 = 7.0.2 = stereoLR + center + sideLR + rearLR + topFrontLR
11 = 7.0.4 = stereoLR + center + sideLR + rearLR + topFrontLR +
13 = 9.0.4 = stereoLR + center + sideLR + rearLR + wideLR + topFrontLR + topMidLR + topRearLR
15 = 9.0.6 = stereoLR + center + sideLR + rearLR + wideLR + topFrontLR + topMidLR + topRearLR
```

The largest allowed output configuration is 9.0.6. (note: 7.0.6 is not produced, instead 9.0.4 is produced when 13 channels are in the recording.)

The recording must contain either 1 sweep, including start and end blip, for mono input, or two sweeps for stereo input IRs.

## Running the IRTool

If you then double click the IRTool (in /Users/Shared/Audio Ease/Altiverb) , choose: “select sweep recordings folder”. After that they will be batch-converted to Altiverb’s User Created Irs folder where you can select them in the Altiverb Browser after rescanning (triangle after User Created Irs in the browser). Impulse Responses made in this manner may only be used in Altiverb, they are saved in Altiverb Proprietary format. Reverse engineering or re-sampling is prohibited. This information is also in the End User License Agreement of Altiverb.

## Show more input types

A number of legacy ways of producing Impulse Responses are available under the knob “show more input types”. Most notably there are three types of clap recordings here. Two of them popular film-set slates, and one starter pistol type. They have very distinct tonal colors that can be flattened using inverse-equalizers built into IRTool. The dry-sweep option does this: in case in the input folder a file is found that is called dry-sweep.wav, it will use that file to do deconvolution rather than investigate the recording. It is there for the possible salvaging of spoiled recordings.

## Please note:

- Altiverb has no convolution channel for LFE, only LFE bleed. Therefore, do not provide LFE IR recording channels.

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- Only Mono input Altiverbs have a center channel output. So when you offer two sweeps (for stereo input), make sure there is no center microphone channel in the recording. In other words: one 7-channel sweep is ok, or two 6-channel sweeps. Rather than leaving the center channel out completely, you can also silence it, which has the same effect because silent input channels will be ignored.

#### **Advice for obtaining best results:**

- Use omnidirectional microphones.
- Space the microphones far apart. Meters if possible.
- Carefully measure that everything is symmetrical, with large setups, a large error is easily made.
- To test your setup on the location: play dry music through your speaker and compare the recording in the room to the dry recording. Decide if you would be satisfied if the wet version were Altiverb.
- You will find your speaker to be the most critical component. Few speakers when free standing like in the video, sound neutral on-axis at a couple of meters distance. Neutral is crucial if you want to reverberate dialogue and match it to something real. If you feel the result sounds too thin, try a speaker with bass reflex ports on its front, or a bigger speaker, or change out directional microphones for omnidirectional microphones. all of these measures will increase the low end in a more complex and natural way than post-eq.
- Do not play back loud, to protect the people around you, and do not record loud to make sure you don't clip the recording. Do not playback loud to make sure you don't overload your speaker, the sine should remain sounding like a sine and sound hollow or sharp with overtones anywhere.
- Use wired connections for playback if possible. Bluetooth tends to drop packages of audio.

#### **Making IRs using an Ambisonics Microphone**

Like MS and XY systems, an ambisonics microphone is a coincident system: a bunch of capsules as much in the same position as physically possible. For reproduction on speakers a reverb tail captured like this will sound mono-ish, which is why Audio Ease prefers spaced microphone systems. On headphones though, it can sound very convincing.

There are two ways of handling sweep recordings with an ambisonics microphone : decode first, or decode after Altiverb.

##### **Decode first:**

If you have a sweep recording made with an ambisonics microphone, use the decoder plug-in that comes with the microphone to derive as many cardioids as you need for your impulse response: an L and an R an Ls and an Rs and a C for your 5.0 IR. Align those five channels in an interleaved file and offer it to the IR tool.

##### **Decode after:**

Offer the interleaved first-order raw A-Format recording to the IRTool. Load it into a mono to quad Altiverb (not a quad to quad) and use the decoder plug-in that comes with the microphone after Altiverb. This may require some routing in your daw.

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**Adding pictures:**

IRTool will always save the impulse responses here:

/Users/Shared/Audio Ease/Altiverb/Impulse Responses/User Created IRs

(you can paste the above path in the menu Finder->Go->Go to Folder.)

Look up your finished IR and drop a .jpg picture in there to make it appear in the browser.

Be aware that many large pictures can slow down the browser.