User manual

xp.room

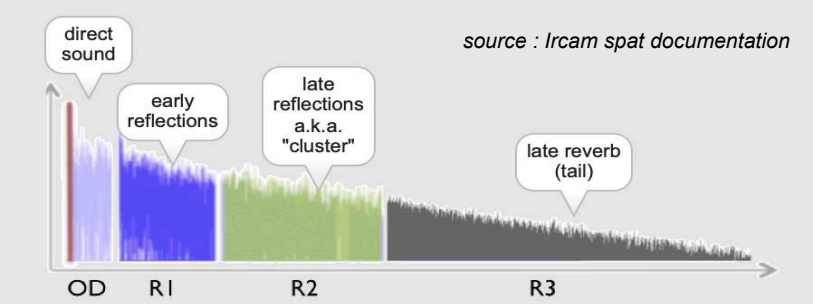
xp.room is a m4l (max-for-live) device. It comes inside the *xp.devices* bundle under the file name *xp.room.amxd*.

It is essentially a set of osc controls which allows to modify the parameters of rooms as they exist in the Ircam Spat library.

What is a Room?

XP audio engine (through Ircam Spat) is based on a simplified model of a room impulse response.
The model consists of 4 temporal sections :

- direct sound (OD)
- early reflections (R1)
- late reflections (cluster, R2)
- late reverb (R3).



Direct sound and early reflections are precisely localized in space.
Cluster and late reverb are spatially diffuse (i.e. uniformly coming from all directions).

The Room of Spat and XP is therefore an artificial reverberator allowing room effect synthesis and control in real time, based on digital signal processing algorithms under license from France Télécom [Jot, 1992].

In Xp, the xp.room device can be considered as a “high-level” user interface to design and control such artificial room effects. They finally can be described as virtual acoustic environnement in which xp users can "send" a sound source.

A maximum of 4 rooms can be created and independently configured in XP. You can assign any of the sources on the fly to them.

Initialization

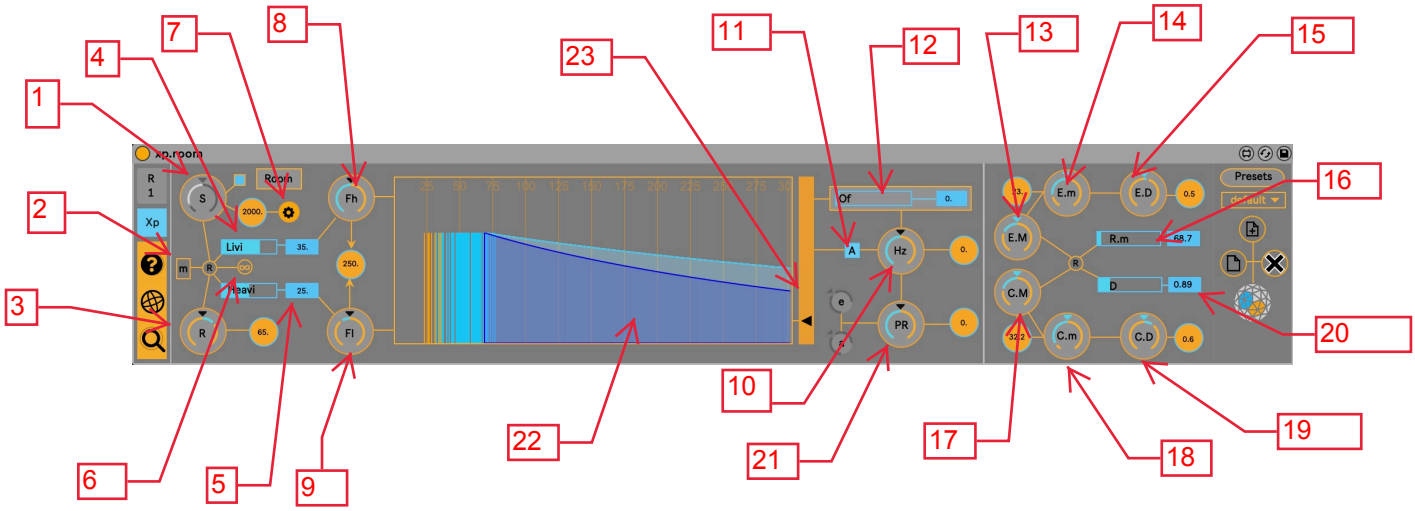
XP system comes with a standard way to instanciate all devices loaded in Ableton. It's dynamic, efficient and instinctive as long the basic rule is followed.
Drop the device on an empty Ableton track and the track title will take the name of <device-type><#id>.
It's important to keep titles of the tracks the way they have been instanciated.

A xp.room should only be added in a Live project after a xp.engine has been loaded before. When a xp.engine is loaded in a new project, by default one room is created in the system. But to control the parameters of that room, a xp.room should be loaded on an empty track. Adding more xp.room will automatically create rooms, up to 4.

Automation

the Size and Reverberance parameters (S and R), are in fact high-level parameters modifying a serie of values. It is not advisable to create automation from them, and it could create strong noise artefacts. Try to avoid automations on such parameters, and instead modify the custom parameters to change room perception with automation.

Parameters Reference



1 : Room size Room size (in cubic meters)
2 : Mute
3 : Reverberance Mid-frequency decay time
4 : Liveness Relative decay time at high frequencies
5 : Heaviness Relative decay time at low frequencies
6 : Infinite Enable/disable infinite reverb (handle with care)
7 : Show/hide custom parameters panel*
8: Crossover Fh : Reverb mid/high crossover frequency (in Hz)
9 :Crossover Fl Reverb low/mid crossover frequency (in Hz)
10 : *Air Freq* Air absorption rolloff frequency in the FDN (in Hz)
11 : Air Enable/disable air absorption in the FDN
12 : *Room offset* Room offset (in msec)

Custom parametrers (*)
13 : Early max Maximum delay (in msec) for the early reflections
14 : *Early min* Minimum delay (in msec) for the early reflections
15 : *Early distr* Delay distribution.
16 : *Reverb min* Reverb minimal in msec.
17 : Cluster max Maximum delay (in msec) for the diffuse reflections
18 : *Cluster min* Minimum delay (in msec) for the diffuse reflections
19 : *Cluster distr* Delay distribution for the diffuse reflections
20 : *Density* Modal density
21 : Pan Reverb
22 : Time view section
23 : Time view zoom