

updated 2025 11 25 (audio engine MC3.00)
contact: Pierre-Olivier Boulant po.boulant@pixetbel.org
Please report the bugs you may find! Thank you :)

= = = DEPENDENCIES = = =

Cycling74 Max 8 (or Max 9 but not recommended)
Java (64bit if Max-64bit / 32bit if Max-32bit)

Multitouch Android remote:
https://github.com/pob31/WFS_control_2/releases/

= = = FEATURES = = =

- client (interface only) & processor (no interface) to off-load interface to a second computer or all-in-one system
- automatic reconfiguration of system up to 64 inputs, 64 outputs and 16 reverb feeds and returns and 16 multieffect channels, no licence needed for permanent storage of IO configuration
- automatic detection of client and processor IP addresses on the network
- configurable multithreaded processing
- fullscreen interface with locking audio processing switch

Interface:

- system settings (output, reverb, effects and input channels, temperature/speed of sound, Haas effect, global system latency)
- venue/stage settings (size, stage origin)
- output channel interface (specific latency, attenuation, position, direction, HF damping, minimal latency enable, live source attenuation enable, distance attenuation factor, eq and filter)
- reverb and effects feed channel interface (specific latency, attenuation, position, direction, HF damping, minimal latency enable, distance attenuation factor)
- input channel interface (specific latency, attenuation, position, height factor, maximum speed, distance attenuation, directional HF shelving, maps, live source attenuation)
- reverb and effects return channel interface (specific latency, attenuation, position, height factor, distance attenuation, directional HF shelving)
- input, output, reverb and effects selector
- input, output, reverb and effects naming
- copy reverb position and parameters to other channels
- manual save and autosave systems, output, reverb, effects and input settings
- reloading system, output, reverb, effects and input settings
- create, recall and update snapshots of input settings from interface or OSC
- auto-update of files with default new features' parameters

For inputs only (not available for reverb returns):

- option to restrict input position to stage dimensions (X Y Z)
- mirror position of input relative to stage origin (X Y Z)
- limit movement speed of inputs
- 2 models of distance attenuation (log with db/m factor or 1/d with ratio of reference 1:1 equal to 0,282m)

- offset source position (X Y Z)
- scaling and rotation of grouped inputs with offset
- LFO on source position (X Y Z) or direction (Gyrophone: Leslie effect)
- jitter on source position (X Y Z)
- source position movement (X Y Z) with constant or progressive start and curvature
- automated movement can be triggered on sound level
- current position that takes into account LFO, jitter and offsets
- global stop, pause and joystick to slow down or speed up movements
- quickly set parameters for all inputs

Reverbs:

- external reverb processor option: send audio back and forth to the console or any other outboard reverb processor/second computer. Reverb return channels cannot send to a reverb feed channel.
- local VST plug-in (user selectable). Install your own VST to use with-in the WFS processor.
- [- internal reverb processor based on the work of Martin Guesney for his Master's thesis at Ecole Louis Lumière in Paris. Spatialised Scattered Delay Network] *soon*

Effects:

- built-in spatially mixed multieffect processor
- each effects channel has dynamic processing, equalisation, distortion, chorus/flanger, phaser, delay effect, reverb in user defined independant order
- each channel can feed to all other effects channel for effects chaining in 3D
- effect channel positions can be animated by LFO and sound triggered movements

Controls:

- tracking (OSC or PosiStageNet enabled thanks to Pixsper Ltd)
- Remote control of input position (not available for reverb or effects returns)
- Remote control of single inputs with most of the functionalities on remote
- coming soon / Remote control of Clusters of inputs
- external OSC control (config, outputs, reverbs, effects, inputs // set, get, stream) with TCP and UDP
- change OSC remote IP and port with confirmation from the remote
- localhost or external IP
- inhibit OSC remote I/O
- keyboard selection of current channel ("i" for input, "o" for output, "r" for reverb feed and return or "f" for effects feed and return - then type number and return / Space bar to select next channel Shift+Space bar to select previous channel)
- keyboard shortcuts for Cluster selection (1 ~ 0), deselection
- keyboard shortcuts for positioning (arrows X & Y; page up/down: Z) with modifiers (no modifiers: 0.1m, shift: 1m, ctrl: 0.01m)
- keyboard shortcuts follow X/Y/Z mirroring for selected channel
- output HF damping, minimal latency enable, live source attenuation enable, distance attenuation factor, eq and filter can be adjusted for a whole group at the same time
- output latency, attenuation and parallax correction settings remote controlled through groups with the remote application interface
- control of parameters with knobs using a Streamdeck+ and Bitfocus Companion.

Position processing:

- delay calculation/position
- calculation of distances with a weighting of height (0~100%) and with parallax correction that takes into account the position of the speakers regarding the position of their respective "1st listener"
- minimal delay option, only curvature and no Hass effect: acoustic vs. amplification precedence
- minimal delay can be enabled or not for each output, reverb or effect feed and will only take into account active channels (unmuted)
- level calculation/position
- percentage of common attenuation to keep levels up when the source is far from speaker arrays
- full bandwidth attenuation with distance (input & reverb return parameters)
- HF shelving depending on directivity of source and relative angle to output (input, reverb & effects return parameters)
- live source attenuation with proximity of an input to an output (radius, level, curve) (does not affect reverb & effects feed or return channels)
- live source attenuation can be enabled or not for each output (always disabled on reverb feeds)
- live source attenuation lowers the sound in neighbouring speakers (fixed attenuation, fast and slow local compression)
- air damping of high frequency with distance (output, reverb & effects feed parameter)
- input and reverb & effects return mutes/output and reverb & effects feeds (only for inputs) & macros
- generation of floor reflections for input sources
- speaker, reverb & effects feed direction in 3D and muting of sources in front of the output. possibility to surround the audience with speakers around and above
- level, height, HF damping maps for inputs/position (not available for reverb or effects return channels)

MAX PREFERENCES:

Queue Throttle are raised to 20000 automatically. This should solve incomplete saves and load.