General:

* The program can run on recent versions of Windows, Linux, and Mac
* The GUI can start without first selecting a file
* The scene can be moved by dragging the window background
* The scene can be zoomed by scrolling
* A grid is drawn on the background of the window (with spacing based on the current zoom level. The size of the grid spacing is shown.)
* A scene can be saved to a pstd file on the computer (this includes “save” and “save as”)
* Simulation results can also be saved to the same file
* A pstd file on the computer can be loaded again
* A scene can be exported as image (PNG, JPG, BMP)
* A single simulation frame can be exported as image (PNG, JPG, BMP)
* All simulation frames can be exported as images (one image per frame) without having to export every frame separately
* A graph of a receiver’s pressure level over time can be exported as image
* A scene’s pressure levels over time can be exparted as a video file
* The scene can be switched from 2D to 3D view
* An undo operation is provided which can undo any change in the scene
* A select tool is provided in the form of a lasso select and select all button, which can select any subset of the elements in the scene (walls, sources, receivers), with the possibility to change properties over the selected items or to delete them.
* A plot of the impulse response at the receiver is shown on the screen once the user clicks on a receiver.
* A command line interface could be created
* An option to listen to the sound at a receiver could be created

Scene:

* A domain can be added by drawing rectangles on the GUI, snapping to the dimensions of integer cell sizes (as predefined by the user).
* Dimensions of the walls are shown as a number next to the wall (on the outside where possible)
* A domain can be resized by dragging one of its walls
* A wall can be resized by double clicking the wall length number, and typing a different number
* Two touching domains can have their common wall removed
* A domain can be deleted from the scene
* A wall has an absorption coefficient that can be altered
* Drawing or resizing a domain anchors to the grid
* Rectangles can be drawn natively (without requiring to draw four separate walls)
* A source or receiver can be added by clicking on the GUI
* A source or receiver can be relocated by dragging it around
* A source or receiver can be deleted from the scene
* Drawing or relocating a source or receiver anchors to the grid
* An array of sources or receivers can be added to the scene without having to add every source or receiver separately

Operate:

* The current scene can be simulated by clicking a button
* The running simulation stops automatically after some time (defined in the settings menu).
* The running simulation can be stopped manually
* A stopped simulation can be continued from where it was stopped (provided the scene was not altered)
* The simulation results can be drawn on top of the scene per frame
* The drawn simulation results can be cleared from the screen, leaving the original scene
* During the simulation, a time estimation is provided in the form of number of simulated frames per second
* The simulation can run on multiple threads at once

Settings:

* The time between two simulated frames can be altered
* The density of air can be altered
* The speed of sound can be altered
* The “save every n-th frame” setting can be altered
* The GPU can be used for calculations rather than the CPU
* The anchoring functionality (during drawing) can be disabled
* The grid spacing can be changed manually

Menu structure:

* File | Edit | Module | Settings | Scene | View | Operate | About