

To Do List and Open Issues

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To Do

Build Options

Before development can go fully underway, build and compilation options need to be defines in the makefile. Some options to bear in mind:

- Debug vs Release builds. (Note: If using VSCode, the different builds should be reflected in the JSON option files)
- Warning and error flags (`-Wall`, `-pedantic`, `-std=...`)
- Optimizations, `-Og` for debugging and `-O2`, `-O3` for release.

Read in simulation metadata

The data files necessary to make the code run are different depending on whether the code is running a 2- or 3-dimensional problem. The common files are:

- SimulationValues.txt
 - Mach number
 - Angle of Attack
 - Reynolds Number
- Sizes.txt
 - # of domain nodes (including body boundary nodes)
 - # of body boundary nodes
 - # of farfield boundary nodes
 - (Only in 3D code) # of symmetry nodes
 - # of cloud nodes per domain/body boundary node (for differential quadrature)
 - # of ghost nodes per body boundary node (for differential quadrature, should equal (cloud-1)/2)
 - # of extrapolation nodes per farfield boundary node
 - # of total nodes (= domain + farfield + ghost*body)

The current task is to write a subroutine to read those files. The subroutine should reside in a separate module, since file I/O is not inherently a SOMA-specific task.

Data architecture

Geometry and simulation data is structured a certain way in the C++ code (to be documented later). There could be room for improvement in the structure – not necessarily for performance, but for readability of the code.