Building CSALT

Step by Step Setup Instruction

# Assumptions

* The build machine you are using has build tools installed.
  + Visual Studio on Windows
  + GCC (including C++ and Fortran) on Linux
  + XCode and GFortran on Mac
* You have a licensed copy of SNOPT on the build machine.

# Preparation

1. Clone the lowthrust repository  
   git clone <URL or path to the repository> BuildCsalt  
     
   (In these instructions, the CSALT code is in a folder named BuildCsalt)
2. Check out the C++ development branch

git checkout CPlusPlusMigration

1. Set up the dependencies:
   1. Boost
      1. Download Boost from www.boost.org, and unpack it in the CPlusPlus/depends folder
      2. Rename the folder “boost”, if necessary. (e.g. Unzipping the latest download gave me a “boost\_1\_64\_0” folder, which I renamed “boost”.)
   2. SNOPT
      1. Unpack SNOPT into the CPlusPlus/depends folder. (CSALT currently uses SNOPT 7.5)
      2. Rename the folder “snopt”, if necessary. (e.g. I needed to rename “snopt7” the more generic “snopt”.)
      3. Depending on your platform:

**Mac or Linux**: Build the SNOPT and SNOPT C++ libraries

**Windows**: Unpack the SNOPT libraries into the depends/snopt/lib folder

# CMAKE Configuration

1. Open the cmake-gui.
2. Set the source folder to the top level CSALT folder (e.g. “BuildCsalt”)
3. Set the build folder to the folder you plan to use for the build configuration. (I use “BuildCsalt/WinBuild” on Windows, and “BuildCsalt/Release” or “BuildCsalt/Debug” on Linux or Mac.)
4. Check the SNOPT configuration. If the \*\_Library variables point to “.dll” files, change the extension to “\*.lib”
5. Press the “Configure” button.
   1. Select the project type (e.g. a Visual Studio version on Windows, Unix Makefiles on Linux, etc.)
   2. (Optional – feeling lucky?) Check the build settings.
6. Press the Generate button.

# Build CSALT

**On Linux or Mac:**

1. Open a terminal.
2. Change directories to the build folder.
3. Run “make all”

**On Windows:**

1. Open the File Manager and browse to the build folder.
2. Open the CSALT\_Tester solution in Visual Studio.
3. Press F7 to build the solution.