Apache Thrift for C++ on Visual Studio 2015

Today we are going to see how to build Apache Thrift for C++ on Visual Studio 2015. Then for demonstration, we'll also build and run the C++ tutorial.

Disclaimer: this tutorial builds hugely on the one given by Adil Bukhari Configuring Apache Thrift for Visual Studio 2012. The reason I create a new one is that I followed his steps but stumbled upon a few problems preventing me from continuing it. Therefore, I find it quite helpful –for future learners– to complement that tutorial with the solutions to these problems.

Testing environment

- Windows 10 64bit.
- Microsoft Visual Studio 2015 (also tested with Visual Studio 2013).
- Apache Thrift 0.9.2.
- Boost 1.59.0.
- Libevent 2.0.22.
- OpenSSL 1.0.2d.
- Summer time

Requirements

1. Download *Apache Thrift* and *Thrift compiler for Windows* from the download page here.
2. Download and build *Boost* libraries (also follow Adil's tutorial here: Configuring C++ Boost Libraries for Visual Studio).
3. Download *libevent* library from the official webpage.
4. Download OpenSSL for Windows (when you are on the OpenSSL binaries page, follow the link they suggest under *OpenSSL for Windows – Works with MSVC++*), and then

install it.

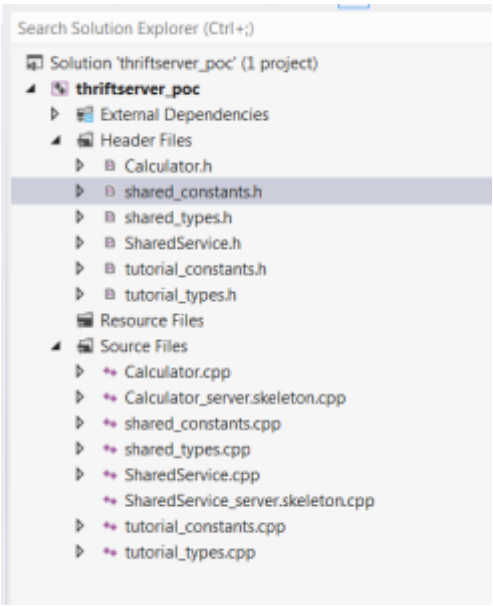
Building Apache Thrift libraries

1. Open the Developer Visual Studio 2015 Command Prompt that you find via [crayon-682be5ca51b67546385117-i/]
2. Therein, navigate to the unzipped libevent directory (where sit sub-directories such as “compat”, “include”, and “test”).
3. Run the command [crayon-682be5ca51b6e749241052-i/], which will build libevent.
4. Extract Apache Thrift tar file and navigate to {thrift_install_dir}\lib\cpp, then open *thrift.sln* project with Visual Studio 2015 (you’ll probably be prompted to upgrade the project, just accept it kindly!). The solution contains two projects: **libthrift** and **libthriftnb**.
5. Right-click on **libthrift** project and select **Properties**, then go to **C/C++ > General** and under **Additional Include Directories** enter the following line: [crayon-682be5ca51b70034682814-i/] , then to **Librarian > General** and under **Additional Library Directories** enter the following line: **[crayon-682be5ca51b71929826035-i/].**
6. Right-click now on **libthriftnb** project and select **Properties**, then go to **C/C++->General** and under **Additional Include Directories** enter the following line: [crayon-682be5ca51b72620014184-i/].
7. Inside **libthrift** project content, expand **concurrency** folder and Remove **BoostThreadFactory.cpp** file. This file causes compilation issues and must be removed in order to continue.
8. Select type of build: Debug or Release, and **Build** the two projects. Upon a success, you will see **libthrift.lib**

and **libthriftnb.lib** files inside Debug or Release directory respectively.

Building Apache Thrift Server

1. Download the **tutorial.thrift** file (from here) and **shared.thrift** file (from here) –save them to the location where *Thrift compiler for Window* (*thrift_x.y.z.exe*) is located.
2. Run these the following two commands to generate C++ code for both of these service definition files:
   [crayon-682be5ca51b74739211005/]
   [crayon-682be5ca51b77115201909/]
   This will generate a directory called **gen-cpp** in the same previous location.
3. Create a new Visual Studio project and drug-and-drop the content of the **gen-cpp** folder into it: **.h* files under *Header Files* and **.ccp* files under *Sources Files*, so it gives this structure:



4. Right-click on your project and select **Properties**, then go to **C/C++ > All Options**, and under **Additional Include Directories** enter the following line: [crayon-682be5ca51b78788539718-i/], then to **Linker > All Options**, and under **Additional Include Dependencies** enter the following

line: [crayon-682be5ca51b79220241281-i/]Beware:You'll modify these manually so be careful to the version numbers. In my case I downloaded Boost for Visual Studio 2015 (boost_1_59_0-msvc-14.0-64.exe), hence the presence of **cv14**, and **1_59**. Change these two values following your Boost version you downloaded.

Note: The above two libraries are located under {boost_install_dir}/stage/lib…..,…then to **Linker > All Options** and under **Additional Library Directories** enter the following line: [crayon-682be5ca51b7a834212404-i/]

Note: The second item in the path could end with **\Release**, if you used the Release configuration instead of Debug while compiling Apache Thrift (I used Debug for this tutorial).

1. Remove skeleton files (*.skeleton.cpp) from the project.
2. Build the project. If it succeeds than you can start the server.

Building Apache Thrift Client

1. Create a new Visual Studio project and drug-and-drop the content of the **gen-cpp** folder into it: *.h files under *Header Files* and *.ccp files under *Sources Files*,
2. Download the **CppClient.cpp** file (from here) –save it under *Sources Files.*
3. Remove skeleton files (*.skeleton.cpp) from the project.
4. Right-click on the project and select **Properties**, then go to **C/C++ > All Options** and under **Additional Include Directories** enter the following line: [crayon-682be5ca51b7b908795275-i/], then to **Linker > All Options** and under **Additional Library Directories** enter the following line: [crayon-682be5ca51b7e762440882-i/]
   Beware & note: [see point 4 of the previous section

(Build Apache Thrift Server)].

…then to **Linker > All Options** and under **Additional Library Directories** enter the following line: [crayon-682be5ca51b7f374434318-i/]

Note: [see point 4 of the previous section (Build Apache Thrift Server)].

5. Build the project. If it succeeds than you can start the client (Ensure that your Server is already running).

Hula hoop! enjoy watching client and server running business

NB: as anticipated in the introduction, the above steps have been also tested under Visual Studio 2013 with slight changes that you can guess yourselves, I guess