

Virtual Clinical Trail (VCT)

Open Source

User Guide

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3 Introduction

This document describes how to get and compile the open source code for Virtual Clinical Trials (VCT). VCT is a framework made of different modules.

This document describes the software and hardware requirements you need to run VCT, how to get the code, how to build it, and how to add to it.

4 Software and Hardware Requirements

To compile and run VCT, you must have the following configuration:

- Windows XP SP3 or 7
- Visual Studio 2008 SP1
Note: Other versions of Visual Studio (2005, 2010, 2012, etc) are not currently supported.
- CMake 2.8.10.2 or higher: <http://www.cmake.org/>
- OpenCL, from the AMD.

Note: Once you have installed the SDK, make sure the environment variable AMDAPPSDKROOT has been created. Otherwise, create it.

Regarding hardware:

- Make sure you have at least 2 GB of free space on your Hard drive.
- If you plan to use OpenCL / CUDA, make sure you have a compatible graphics card.

5 Source Code Location

All source code is located at github:

<https://github.com/Barco-VCT/VirtualClinicalTrials>

Documentation is available at on github to download and clone the software.

6 Build VCT

From the root directory:

build opensrc

The build script creates the .sln file for use with VisualStudio. Go to the Win32 directory and open file in Visual Studio

Build_VCT.sln

To compile VCT, in Visual Studio, go to:

Build > Build Solution.

Following the number of modules to compile, the compilation can take a few minutes.

The VCT executable is added in a subdirectory of the win32 directory, named Debug or Release according to the compilation configuration you selected.

7 Test units

Some test units are available for running and testing the VCT simulation platform in the folder “test_units”.

There are 6 available test units. For running them a folder “vct” must be created and the vct executable must be copied as well as all necessary dlls (from OpenCV). Then for each test units, the run_simulation.bat file can be executed. In the folder “doc”, documentation can be found describing the different test units. Then the files in the output folder of each test unit will be overwritten.

8 Contribute

8.1 Add a new module

VCT uses CMake to build the Visual Studio solution. Consequently, to add a new module, we strongly advise you to do the following:

- Organize the files on your working copy (see illustration on figure 5.1):
 - Create, in the <root>/vct/src/**Modules** directory, a sub-directory with a name ending with "Module". The system is case sensitive.
 - For instance: **FourierTransformModule**.
 - The header and source file must have the same name than the directory name.
 - For instance: **FourierTransformModule.cpp** and **FourierTransformModule.h**.
 - The source file must be located in a sub-directory named **cpp**.
 - If additional files are required, then their names do not matter. You can locate all of them just like the previous ones: headers in module directory, and sources **cpp** directory.
 - For instance: **FourierTransformInternalProcess.h** and **cpp/FourierTransformInternalProcess.cpp**.
 - The folder **cpp** must contain a file named **BuildFull.cmake**. To make this file properly, you can go with your command prompt to the directory **vct/src/Modules** and type **makeBuildFull.bat** and give it in argument the name of the main class of the module (For example **HistogramModule**). It will create the file **BuildFull.cmake** and fill it with the name of the main header file and the main source file. If your module contains some other sources and header files, add them manually.
- Develop the module:
 - The module must inherit the class **Module**. You can include the file with
#include <Module.h>.
 - The **Module** class is an abstract class, and the following methods must be implemented:
 - * **SetParameter**
 - * **Simulate**

Note: For more information about implementation details, please refer to the VCT tutorial.

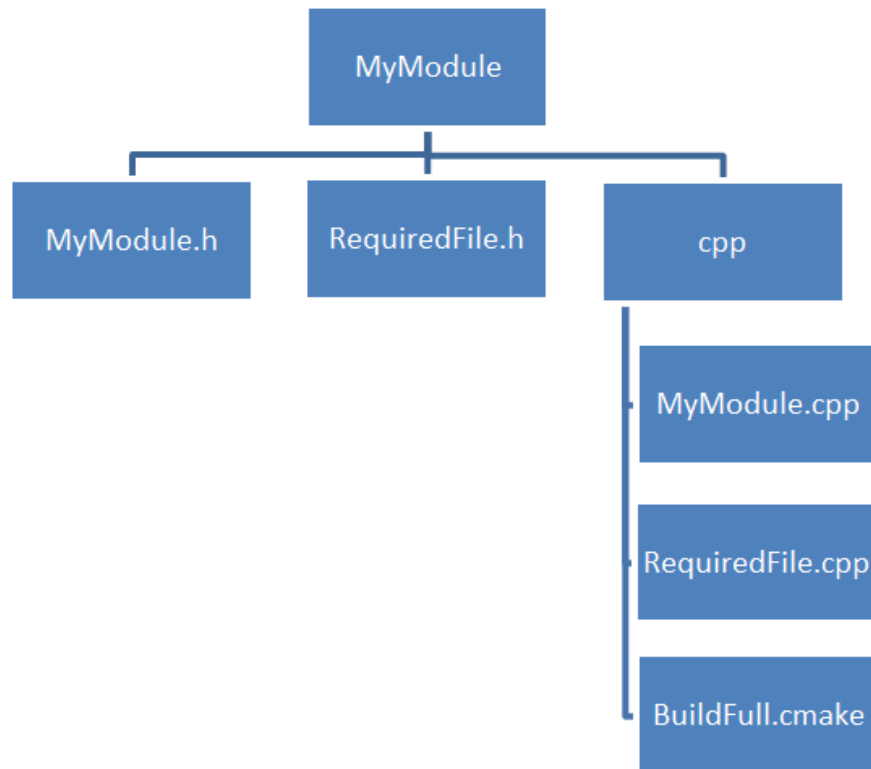


Figure 5.1: File organization for a new module

8.2 Add new dependencies, changing the core part of VCT, adding new functionalities to the XML ...

If you have to modify the core part of VCT, or if you need to add new dependencies, to change the functionalities of the XML ... please first contact us.

8.3 Documentation

Please document your code following the dOxygen style. If relevant, please provide as well a technical report describing the technical choices made for the developed algorithm. Templates can be provided on request.