

STEAMVR-OSVR compilation for noobs

Target

The processes and file below are to be used to build a driver for a 64 bit OSVR distribution. It has been tested on Win 10.

Prerequisite

- Cmake installed
- Git installed
- Visual studio 2013 installed
I lost a lot of time by using VS 2017, I only managed to have a working executable with the 2013 version
- OSVR SDK installed in c:\program file from <http://access.osvr.com/binary/osvr-sdk-installer>
You should have a "runtime" and a "SDK" dir in C:\Program Files\OSVR
 - I used the beta 0.8.0 install for playing, installation of the SDK is the only way I found to have the rendermanager files needed for compilation. So I keep both installs.
 - I still have a C:\Program Files (x86)\OSVR-Core install, but I do not know when and how it has been installed. I do not use it, but it has been referenced by default in makefile, see below.
 - The user VAR OSVR_SERVER_ROOT is set to C:\Program Files\OSVR\SDK\x64\bin
 - The system VAR OSVR_INSTALL_DIR is set to C:\Program Files\HDK-Software-Suite\
- A directory for putting packages : I chose **D:\dev**, you must change this directory for the one you want to use
- Windows environment set up for OSVR (see <https://github.com/OSVR/OSVR-Docs/blob/master/Developing/Windows-Build-Environment.md>)

That is :

- I installed chocolatey
- I used chocolatey to install openCV, that seems not to be used by STEAMVR-OSVR but it will be automatically included in the makefile. I do not know if it is mandatory..
- The boost libs install referenced by the link above is not working see below for boost
- jsoncpp-0yz-vc12-64bits-9 and libfunctionality-vc12-64bits-42 downloaded from <http://access.osvr.com/binary/deps> (for visual studio 2013 and 64b target) and unzipped in **D:\dev**
- boost lib boost_1_64_0.7z downloaded from <http://boost.org/>. Install directory renamed as "**D:\dev\boost**"
- "SteamVR-OSVR-master.zip" downloaded from github by the command "`git clone --recursive https://github.com/OSVR/SteamVR-OSVR.git`"
And rename as "**D:\dev\SteamVR-OSVR**"

- A directory “D:\dev\install\SteamVR-OSVR” is created and will be the target of compilation. As my OSVR package is in “program file” admin right must be used to write in it, so I copy manually compiled files from dev\install to it

Compilation

You must have a “build” dir in D:\dev\SteamVR-OSVR. If it exists, empty it, otherwise create it.

Open a cmd console and cd to this “build” directory.

Generate files for visual studio

- The first step is to create a good CMakeCache.txt for the target platform/compiler. The easiest way I found is to launch “cmake_gui ..” on the empty build dir and use the menu “tool/ configure” in order to choose “visual studio 12 2013 win64” option for the generator.

It will then launch the generation of file and show errors, close cmake-gui once it has finished.

- Edit the file CMakeCache.txt

Modify the following variables:

variable	Orig. value	New value
osvrRenderManager_DIR	osvrRenderManager_DIR-NOTFOUND	C:\Program Files\OSVR\SDK\x64\lib\cmake\osvrRenderManager
osvr_DIR	C:/Program Files (x86)\OSVR-Core/lib/cmake/osvr	C:\Program Files\OSVR\SDK\x64\lib\cmake\osvr
CMAKE_INSTALL_PREFIX	C:/Program Files/openvr_osvr	D:\dev\install\SteamVR-OSVR

- Launch cmake ..

You will have new errors:

```

C:\dev\SteamVR-OSVR\build>cmake-gui ..

D:\dev\SteamVR-OSVR\build>cmake ..
CMake Error at C:/Program Files/CMake/share/cmake-3.9/Modules/FindPackageHandleStandardArgs.cmake:137 (message):
  Could NOT find JsonCpp (missing: JsonCpp_INCLUDE_DIR JsonCpp_LIBRARY)
Call Stack (most recent call first):
  C:/Program Files/CMake/share/cmake-3.9/Modules/FindPackageHandleStandardArgs.cmake:137 (_FPHSA_FAILURE_MESSAGE)
  cmake/FindJsonCpp.cmake:334 (find_package_handle_standard_args)
  CMakeLists.txt:32 (find_package)

-- Configuring incomplete, errors occurred!
See also "D:/dev/SteamVR-OSVR/build/CMakeFiles/CMakeOutput.log".

D:\dev\SteamVR-OSVR\build>

```

- Edit again the file CMakeCache.txt

Modify the following variables:

variable	Orig. value	New value
JsonCpp_INCLUDE_DIR	JsonCpp_INCLUDE_DIR-NOTFOUND	D:\dev\jsoncpp-0yz-vc12-64bits-9\install\include
JsonCpp_LIBRARY	JsonCpp_LIBRARY-NOTFOUND	D:\dev\jsoncpp-0yz-vc12-64bits-9\install\lib\jsoncpp.lib

- Lauch cmake .. again

You will have new errors:

```
CMake Error in src/CMakeLists.txt:
  Imported target "osvr::osvrClientKitCpp" includes non-existent path

    "Boost_INCLUDE_DIR-NOTFOUND"

  in its INTERFACE_INCLUDE_DIRECTORIES. Possible reasons include:

  * The path was deleted, renamed, or moved to another location.

  * An install or uninstall procedure did not complete successfully.

  * The installation package was faulty and references files it does not
    provide.

-- Generating done
-- Build files have been written to: D:/dev/SteamVR-OSVR/build

D:\dev\SteamVR-OSVR\build>
```

- Edit again the file CMakeCache.txt

Modify the following variables:

variable	Orig. value	New value
Boost_INCLUDE_DIR	Boost_INCLUDE_DIR-NOTFOUND	D:\dev\boost

- Lauch cmake .. again
All should be OK.

Compile with visual studio

- I do not know why, but it was impossible to select anything than debug dll for building the driver. So I had to modify the file "build/src/driver_osvr.vcxproj" with notepad++ and do the following replacement:
 - "Display\Debug\osvrDisplay_static.lib" by "Display\MinSizeRel\osvrDisplay_static.lib"
 - osvrRenderManagerd.lib by osvrRenderManager.lib
 - osvrClientKitd.lib by osvrClientKit.lib
 - osvrUtild.lib by osvrUtil.lib

Of course that mean that there is no more possibility to compile debug version of the driver, but this is not what we want. Otherwise if you want to have the files for the debug version, simply suppress all files and directory in "build" except CMakeCache.txt and execute "cmake .." again

- Now click two times on "openvr_osvr.sln" in order to lauch visual studio.
 - Select "MinSizeRel" for solution configuration and "x64" for solution Platform.
 - In the solution explorer windows, select "Solution 'openvr_osvr'" and choose the menu "build solution"
This will lauch compilation and build, you should have 0 errors in the output windows.
 - In the solution explorer windows, select "install" and choose the menu "build"

You should have in the dir pointed by CMAKE_INSTALL_PREFIX (that is “D:\dev\install\SteamVR-OSVR “ for this example) the result of the compilation:

(D:) > dev > install > SteamVR-OSVR > lib > openvr > osvr > bin > win64

Nom	Modifié le	Type	Taille
d3dcompiler_47.dll	02/02/2017 17:37	Fichier DLL	4 384 Ko
driver_osvr.dll	01/07/2017 23:21	Fichier DLL	198 Ko
glew32.dll	02/02/2017 17:37	Fichier DLL	423 Ko
osvrClient.dll	02/02/2017 14:52	Fichier DLL	1 198 Ko
osvrClientd.dll	02/02/2017 14:28	Fichier DLL	2 364 Ko
osvrClientKit.dll	02/02/2017 14:52	Fichier DLL	411 Ko
osvrClientKitd.dll	02/02/2017 14:29	Fichier DLL	760 Ko
osvrCommon.dll	02/02/2017 14:49	Fichier DLL	1 376 Ko
osvrCommond.dll	02/02/2017 14:26	Fichier DLL	2 670 Ko
osvrRenderManager.dll	02/02/2017 17:37	Fichier DLL	1 863 Ko
osvrUtil.dll	02/02/2017 14:48	Fichier DLL	596 Ko
osvrUtild.dll	02/02/2017 14:24	Fichier DLL	1 185 Ko
SDL2.dll	02/02/2017 17:37	Fichier DLL	1 163 Ko

- Copy all files into the current SteamVR-OSVR driver location
For my case, as I used the 0.8.0 installer, the target dir is: “C:\Program Files\HDK-Software-Suite\OSVR-SteamVR\osvr\bin\win64”