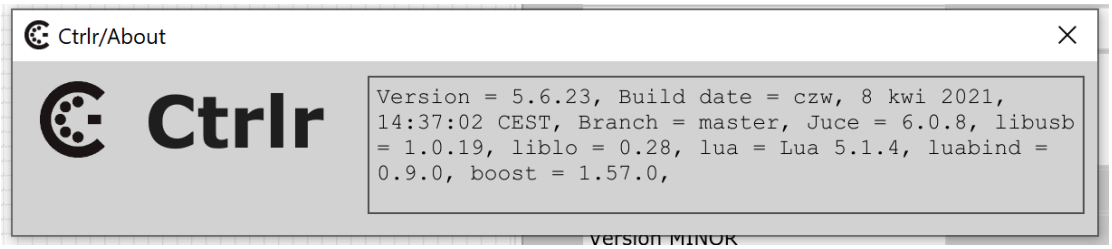
This document describes the steps I took to compile Ctrlr with Visual Studio 2019 on Windows 10.

Disclaimer: I'm primarily a Mac/Apple user, so I'm probably not able to answer typical technical Windows/Visual Studio questions.

Below is the About Ctrlr window of the compiled version.



The publishing date of this version is: April 8, 2021

My version of Visual Studio 2019 is: 16.9.4 and I installed it for the following 2 workloads:

- Universal Windows Platform development;
- Desktop development with C++.

I did use Windows 10 Pro English running virtual on my iMac with VMWare Fusion. I did use a fresh (but rather old) installment of Windows 10 and before I could install and run Visual Studio 19, I had to do every update available for Windows 10. (My copy of Windows 10 dates back from August 2015 and was originally probable too old.)

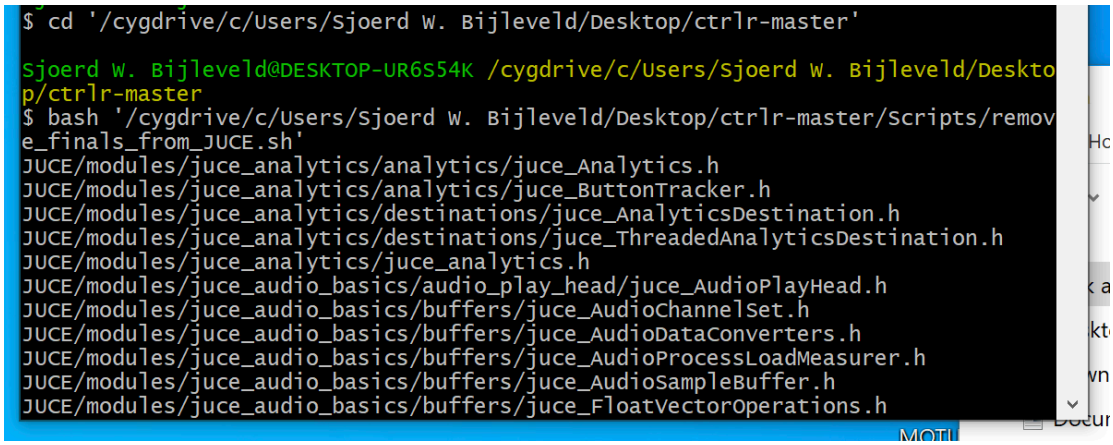
Windows specifications

Edition	Windows 10 Pro
Version	20H2
Installed on	4/29/2021
OS build	19042.964
Experience	Windows Feature Experience Pack 120.2212.2020.0

Download the Ctrlr source files
The first thing you have to do of course is download the latest master from the Ctrlr Github. First step you have to after downloading is unzipping 'boost.zip' You will find this file in ..\ctrlr-master\Source\Misc\boost\. Just unzip it and do nothing further.

Run shell scripts when compiler complains about "final"
If the compiler complains you need to run shell scripts, otherwise you're lucky and may skip this part and continue with the section **Using the Projucer app**!I refer to this comment of Roman Kubiak. This means that part of compiling Ctrlr is first running so called shell scripts (files with extension .sh). These scripts only run in a Unix –like environment and from the terminal. Cygwin64 does provide this functionality for Windows, so first thing I had to do was installing Cygwin64. In the Ctrlr folder I found 2 .sh files. I decided to run both, because both seem to address the "final" issue.

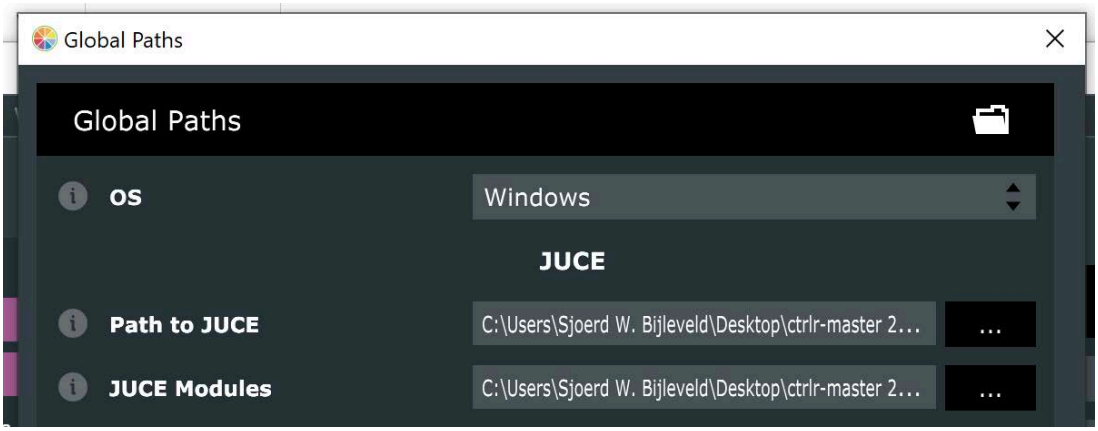
Running the shell scripts
Open Cygwin64 Terminal. Type ‘cd’ (without the quotes) and drag your Ctrlr folder into the terminal window and hit ENTER. This way you set the terminal to the Ctrlr directory. Next type ‘bash’, again without the quotes, and drag the script file ‘remove_finals_from_JUCE.sh (located in the scripts folder) into the terminal window and hit ENTER. A long list of files scrolls by. The window looks like this:



Do the same with the script file ‘remove_final.sh found in the JUCE directory. I’m not sure if this is really needed, but it seemed not doing any harm.

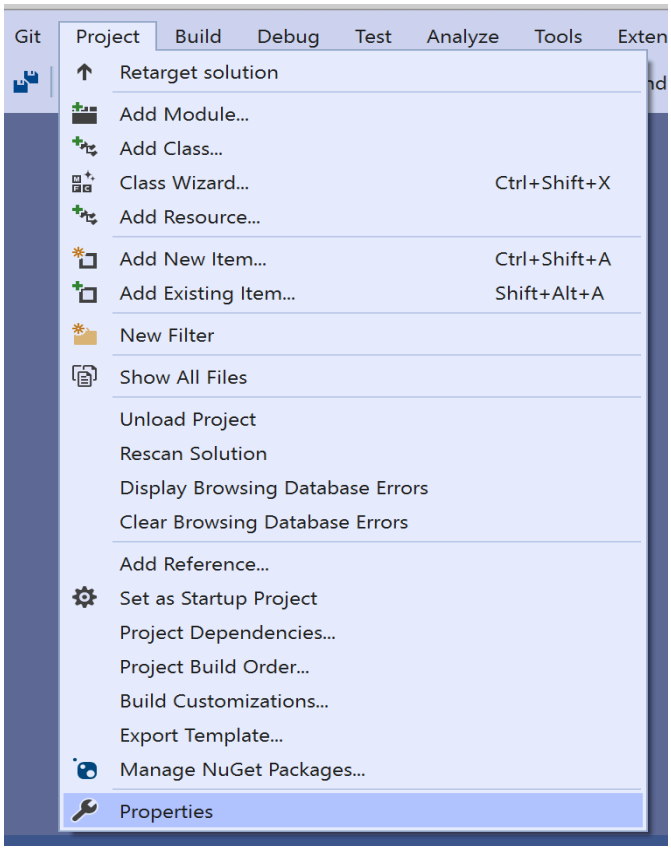
Using the Projucer app
Projucer is needed as an intermediate step to load the Ctrlr project properly into Visual Studio. So after you have downloaded and installed JUCE go to the JUCE folder, where you’ll find Projucer.exe. Start the program.

Building Ctrlr
Before you export to Visual Studio make sure you set the right global paths. Path to JUCE is the path to the Juce folder in your ctrlr-master folder. Path to JUCE Modules is the path to the modules folder inside the Juce folder of the ctrlr-master folder.

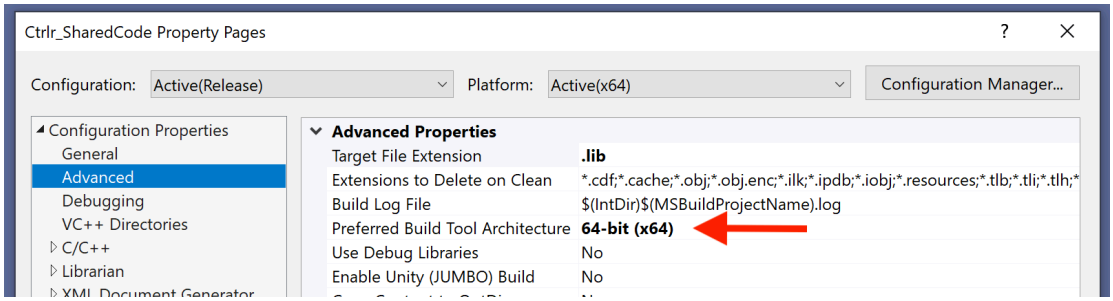


Now choose File>Open… and pick the file: \ctrlr-master**Ctrlr.jucer**. This file contains all the (source) files you need to build Ctrlr. Click on the export button of Projucer. Visual Studio will start and the Ctrlr project is loaded.

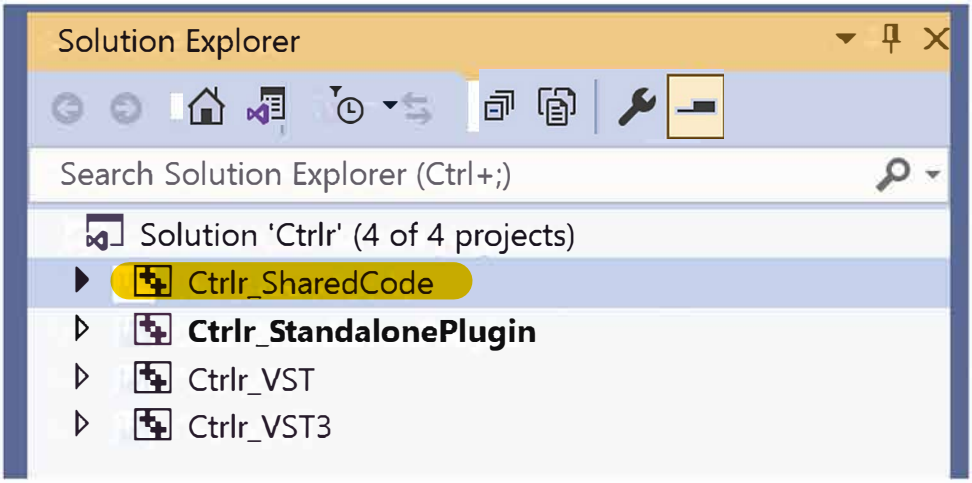
Building the Ctrlr_SharedCode
First step in building is to build the *Ctrlr_SharedCode*. Before you can do the actual building you have to adjust some settings in Visual Studio. The first one is the set the 'Preferred Build Tool Architecture' to **64-bit (x64)**.



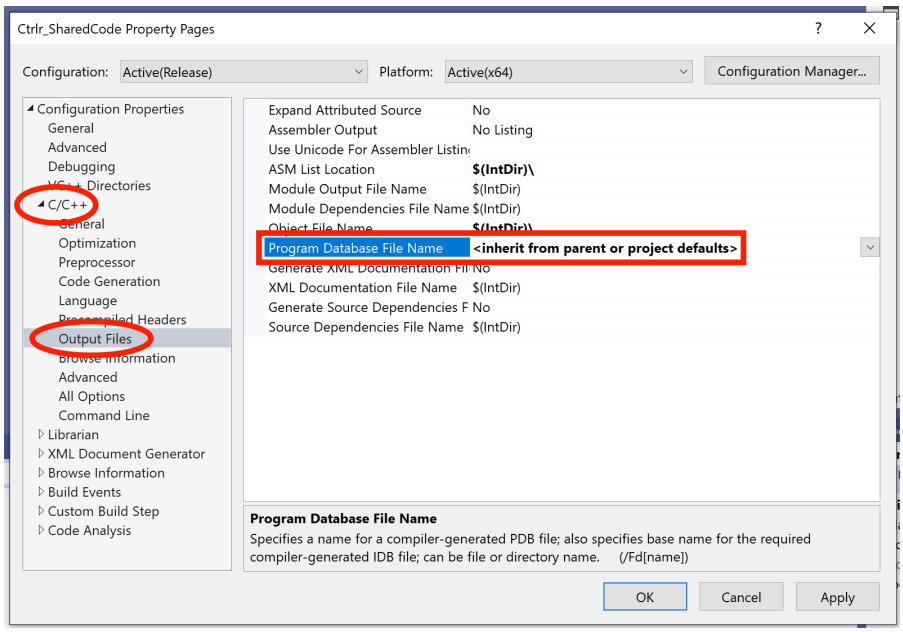
Choose option 'Properties' and in the Properties window choose Advanced and set the architecture:



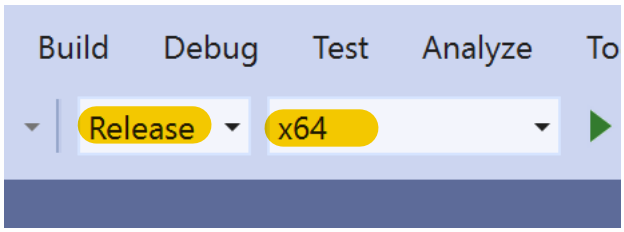
The second setting has to do with the so called C/C++ Output File. Before you set this, make sure you have selected the Ctrlr_SharedCode item in the 'Solution Explorer' side pane, because the setting will affect this item.



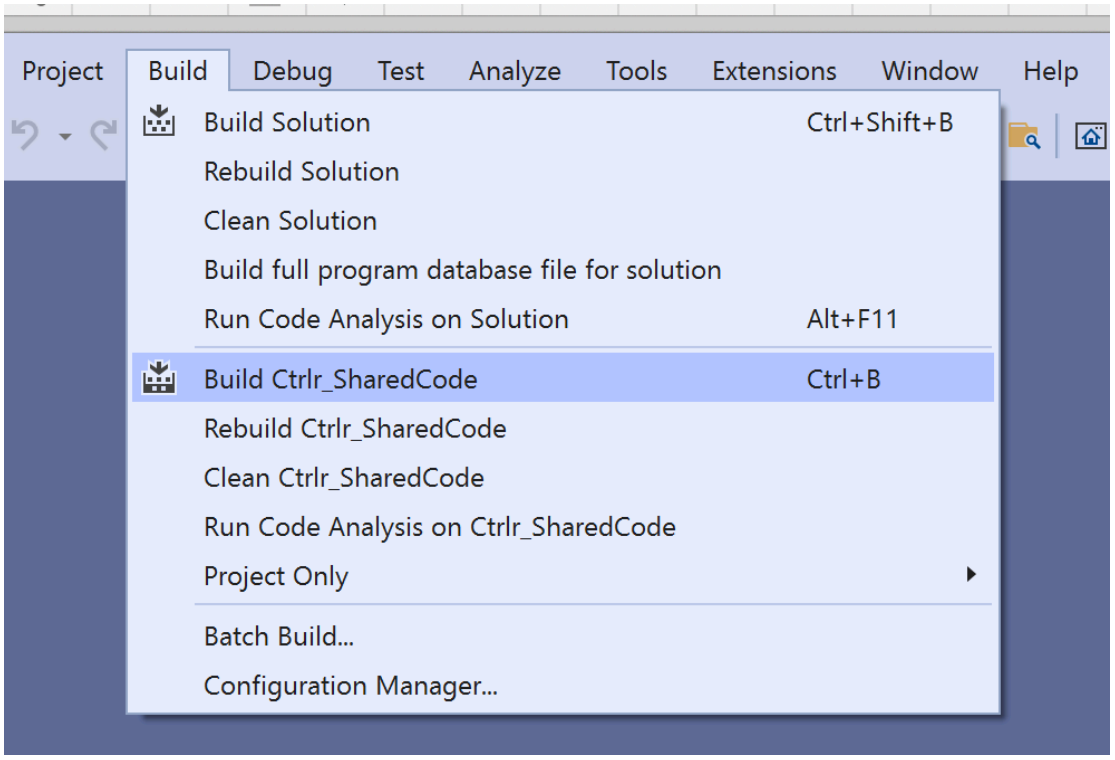
Now go again to Project>Properties (the same menu option when setting the Build Architecture, see above) and choose C/C++> Output Files>Program Database file Name, and choose (*or in case of not showing the text,* ***type***):
<inherit from parent or project defaults>



This has to be done because of the problem discussed **here**. Click OK and set the build to Release and x64, you may choose otherwise:



Next start the actual building:



After a few minutes and many warnings, mostly of type C4459, if all is well the build succeeds. Next task is building the Ctrlr_StandalonePlugin project.

Building Ctrlr_StandalonePlugin
In fact the procedure for building this plugin is pretty much the same as for the Ctrlr_SharedCode project. First you select in the 'Solution Explorer' the Ctrlr_StandalonePlugin item and then make sure that *firstly* the Preferred Build Tool Architecture is set to **64-bit (x64)** as explained in the build for Ctrlr_SharedCode section above and *secondly* the Program Database File Name for the C/C++ Output File is set to **<inherit from parent or project defaults>** After this settings you can build the plugin, which takes a rather long time, so be patient. If again all is well, the build succeeds. You will find the generated **Ctrlr-x64.exe** in:
..\ctrlr-master\Builds\VisualStudio2019\x64\Release\Standalone Plugin\

So this is the build for CTRLR 64-bit. Building for 32-bit does succeed only in Debug mode, but this build gives problems when running on a computer without Visual Studio installed or the proper redistributable 'VC_redist.x86' for the 32-bit architecture installed. (See my post further down in this thread about running the application without an installment of Visual Studio.)

About this build
I did test the application on my laptop with Windows 7, using a simple USB MIDI interface. The interface was connected to my Kurzweil K2500R. The panel for this instrument loaded OK and the K2500R responded as expected to the various sysex messages send from this panel. I will test this build further and keep you of course posted about my findings.