How to start OpenSees and OpenSeesPy

2022/02/13

This document shows how to start OpenSees.

There are two ways to use OpenSees.

The first is to download "opensees.exe " directly.

The second method is to build "opensees.exe" from the source code of OpenSees.

The first method is simple, but "opensees.exe" can't change the source code.

So, please choose according to your application.

First, this document shows how to download "opensees.exe ".

Second, this document shows how to build "opensees.exe ".

After that, this document shows how to start OpenSeesPy.

this document shows how to build "opensees.pyd ".

○first way(download "opensees.exe " directly)

1.Go to the URL shown below, click "opensees~.exe" and download it.

URL:　 https://opensees.berkeley.edu/OpenSees/user/download.php

2.

Unzip the downloaded zip file and open "OpenSees3.2.2-x64.exe¥bin" . See the last page for how to run opensees.

名前	更新日時	種類	サイズ
OpenSees.exe	2021/05/11 19:17	アプリケーション	20,895 KB
vcruntime140.dll	2021/05/11 19:17	アプリケーション拡張	84 KB

〇Second way(build "opensees.exe" from the source code)

<Install Visual Studio Community（2019）>

１．Search "Visual Studio Community" by search engine.

visualstudio.microsoft.com › vs › community ▼
Visual Studio Community 2019 - Microsoft
2020/10/26 — Visual Studio Community. Web アプリケーションとクラウド サービスだけでな
く、Windows、Android、iOS 向けのモダン アプリケーションを作成するためのフル機能を装備
した、拡張可能な無料の IDE です。 Visual Studio ...

2．click "download Visual Studio"

Visual Studio Community
Web アプリケーションとクラウド サービスだけでなく、Windows、
Android、iOS 向けのモダン アプリケーションを作成するためのフル機能を装備した、拡張可能な無料の IDE です。

Visual Studio のダウンロード ↓

3. The installer is downloaded on the screen below, so run the installer.

4. select "install" of "Visual Studio Community 2019".

5. Select "Desktop development with C++ " for the workload, download and install it.
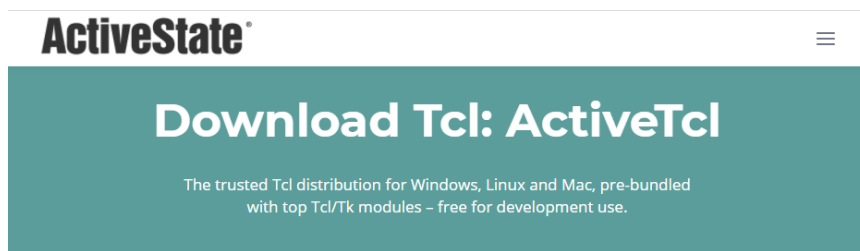
＜download tcl-file＞

6. for web site "Active State", download Active Tcl.

URL: https://www.activestate.com/products/tcl/downloads/

Select "C:¥Program Files¥tcl" for installation location.

7. Create your account

8. click "Fork Project"

https://platform.activestate.com/activestate/ActiveTcl-8.6/fork?actions=change_name

9. click "Download.exe" to download installer
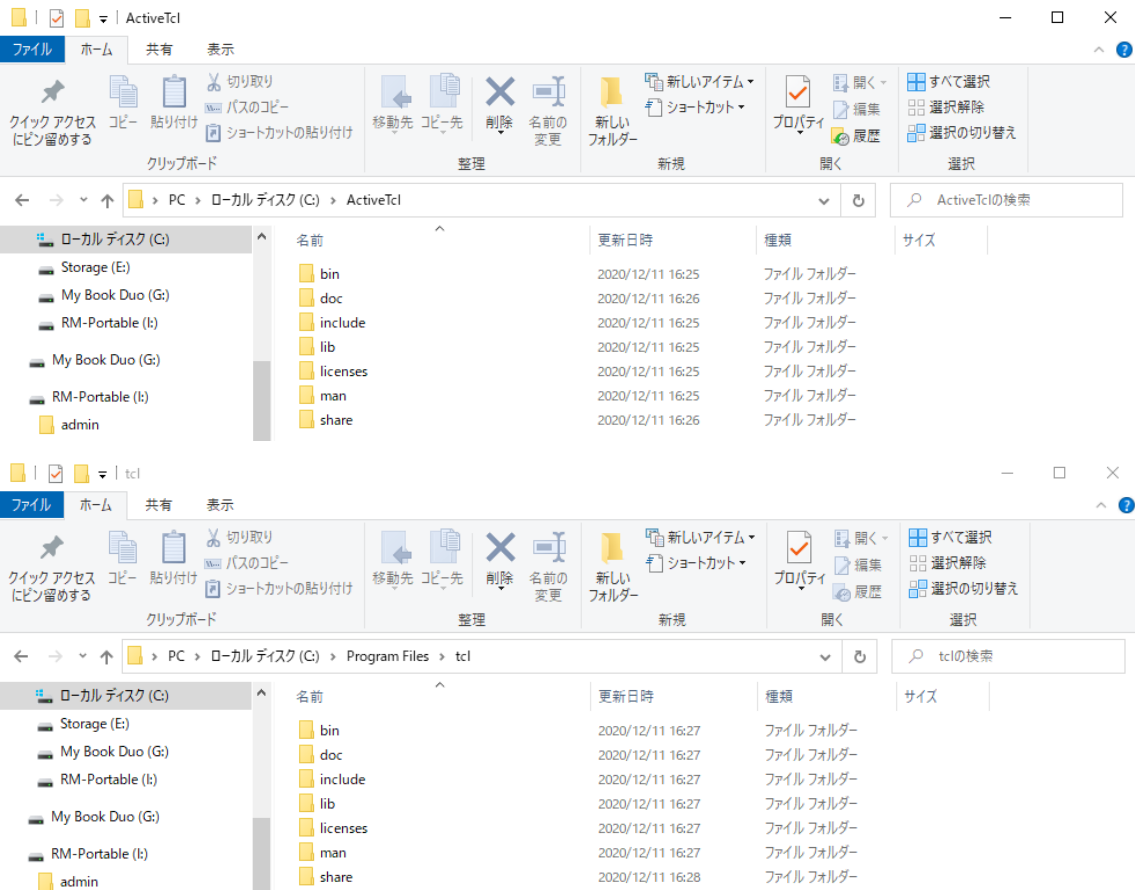
10. Install Active Tcl

11. Select "Complete"
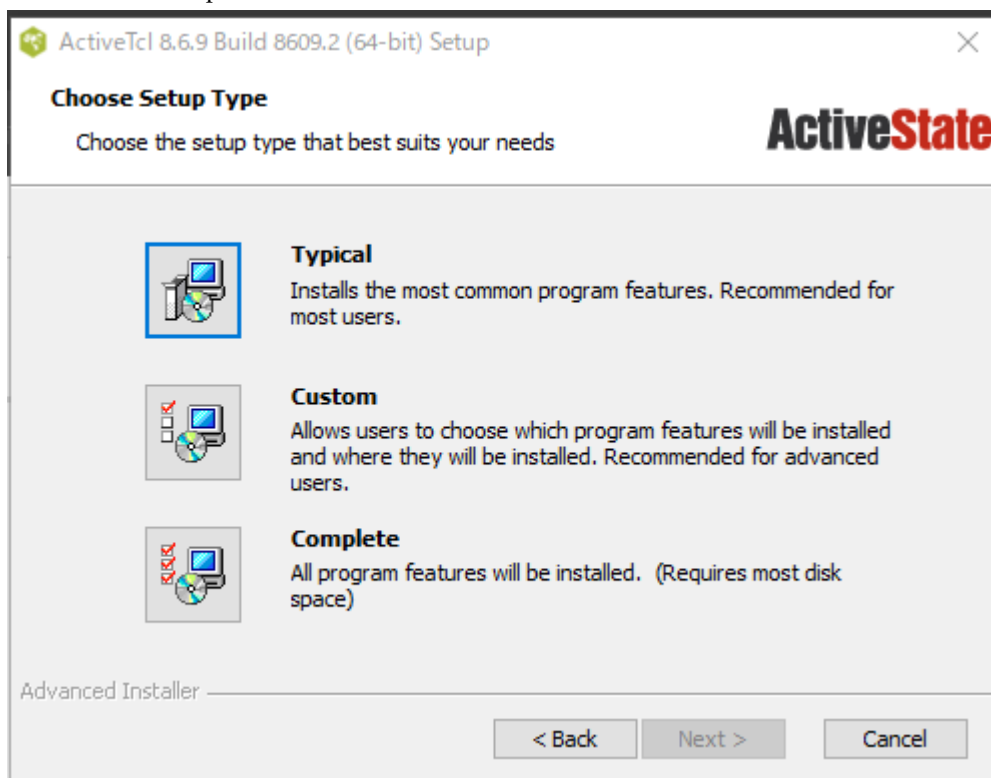
12. When installed, ActiveTcl is stored on the C drive, so copy the contents to "C:Program Files/tcl".

＜download source code of OpenSees＞

13.　For website "GitHub", download source code of OpenSees.

URL:　　https://github.com/OpenSees/OpenSees

14. Select Version 3.1.0

15. Click and download "Source Code(zip)" and unzip the file. The storage location can be anywhere, but this time please save to "C:¥opensees code".
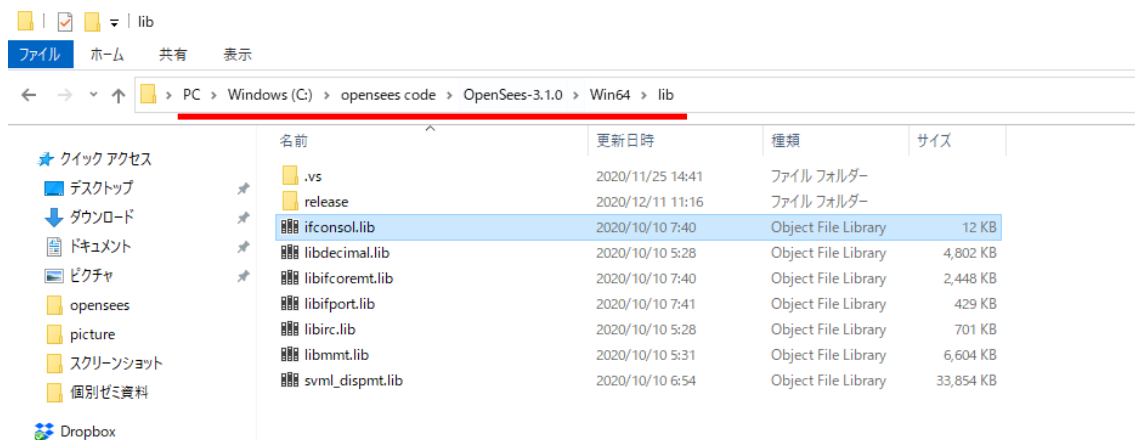
16. Go to the following URL in GitHub and download the lib file for Visual Studio. Please download libs.zip. It contains 7 lib files.
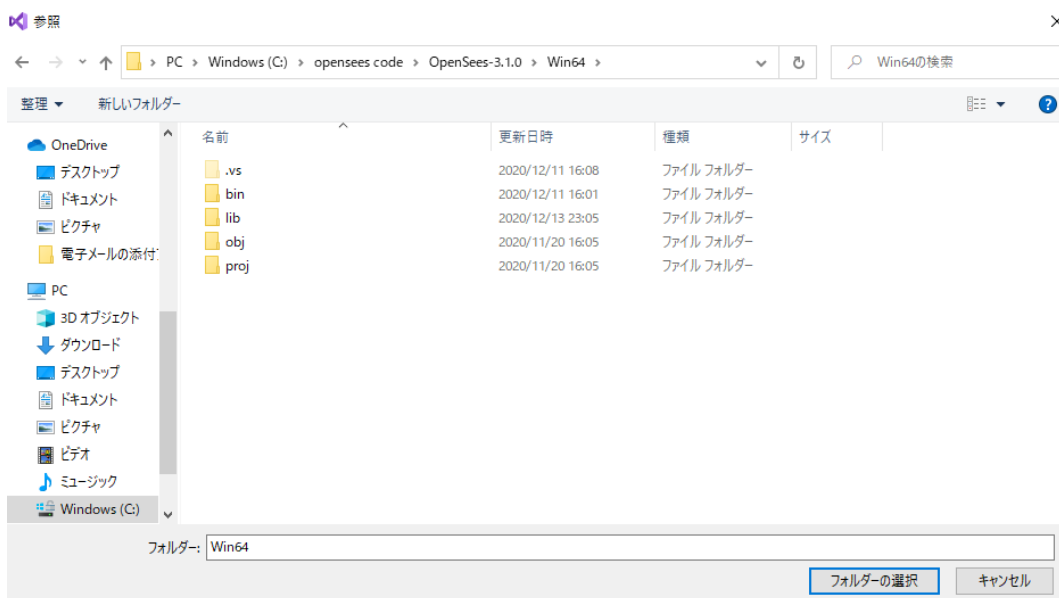
URL: https://github.com/yusukewatarai/OpenSees3.1.0Library
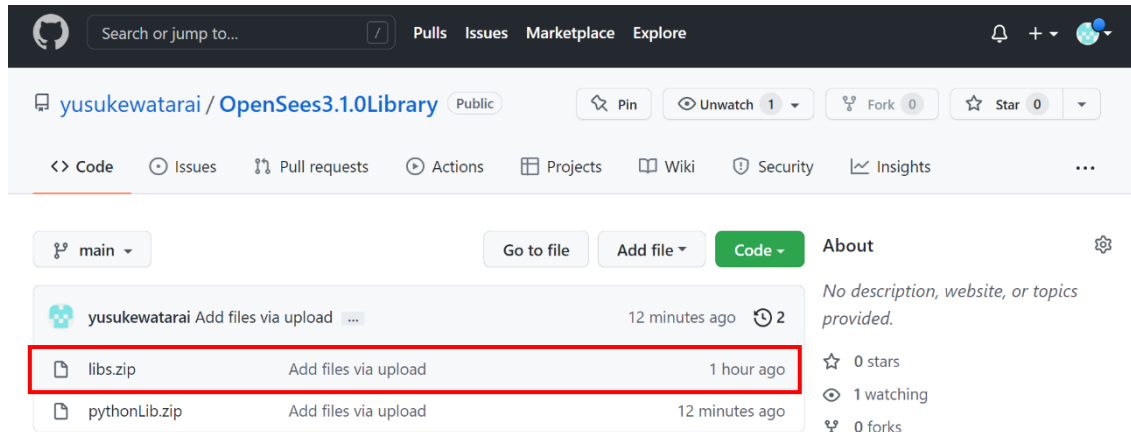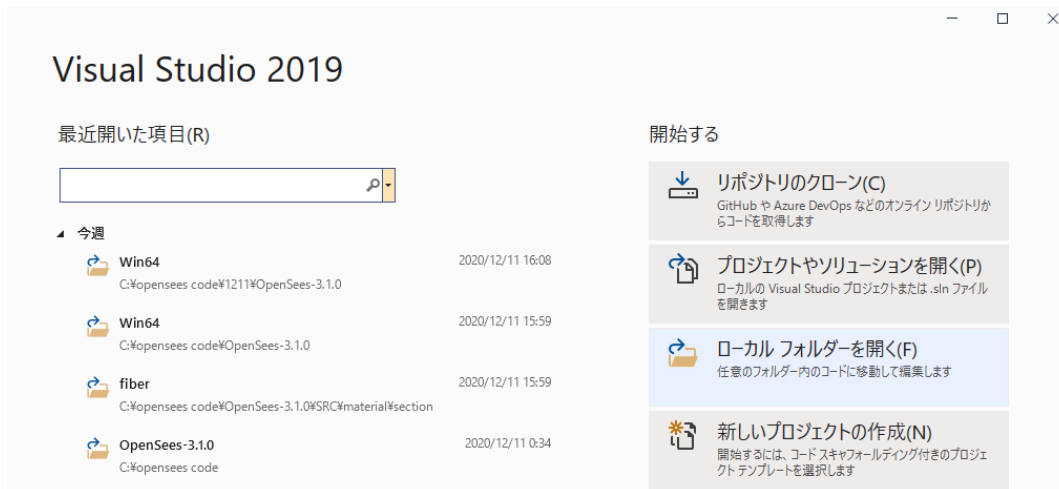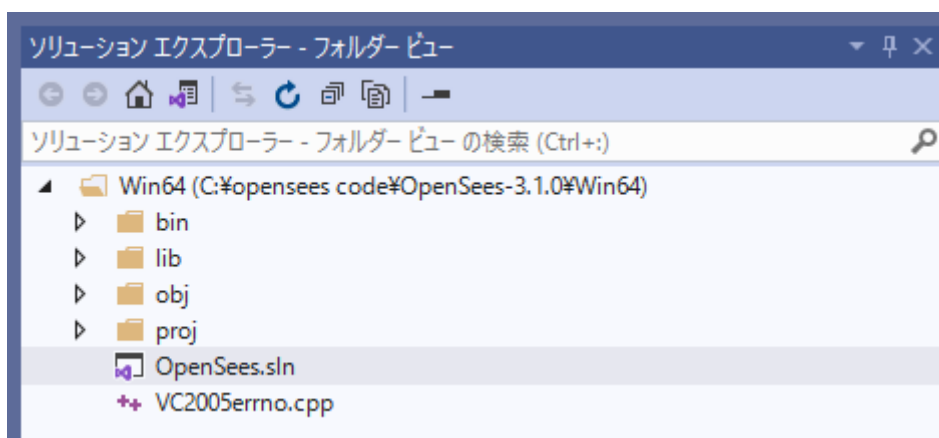

17. Add 7 downloaded lib files to " C:openseescode/OpenSees-3.1.0/Win64/lib " .

18. Start Visual Studio Community 2019 and select " C:openseescode/OpenSees-3.1.0/Win64" from "Open Local Folder", and press "Select Folder".

19. Double-click "opensees .sln" in solution explorer.

20.Serect "debug" ⇒ "debug property of actor"
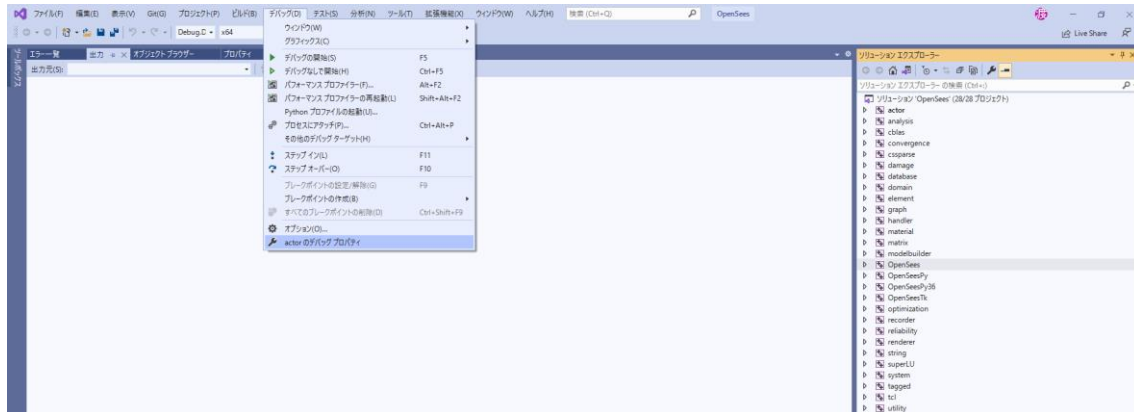
21. in debug property of actor, select "C/C++" ⇒ "make code".

in "make code", click the ⌄ button to the right of "Runtime library" and change it to "Multi-threaded Debug DLL (/MDd)".
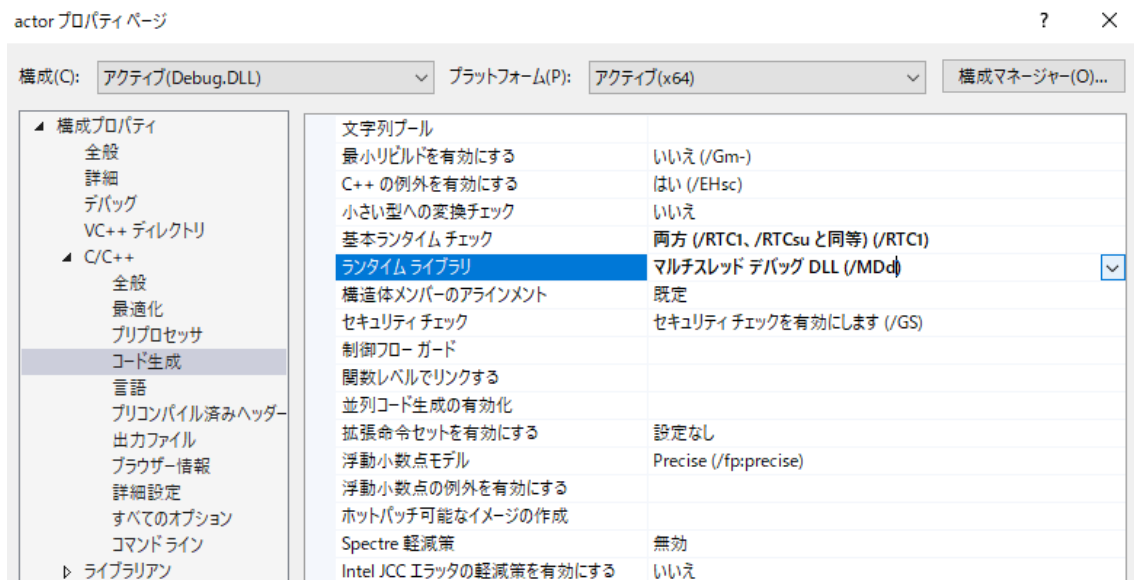
After the change, click "Apply" at the bottom of the page.

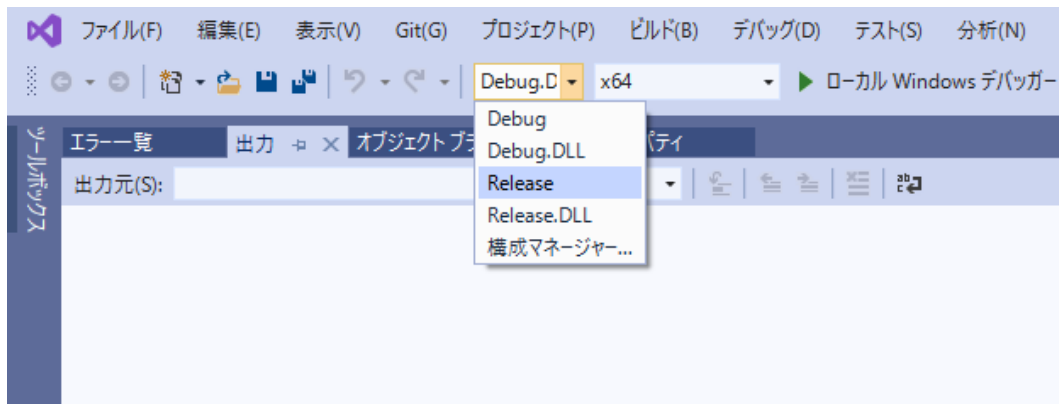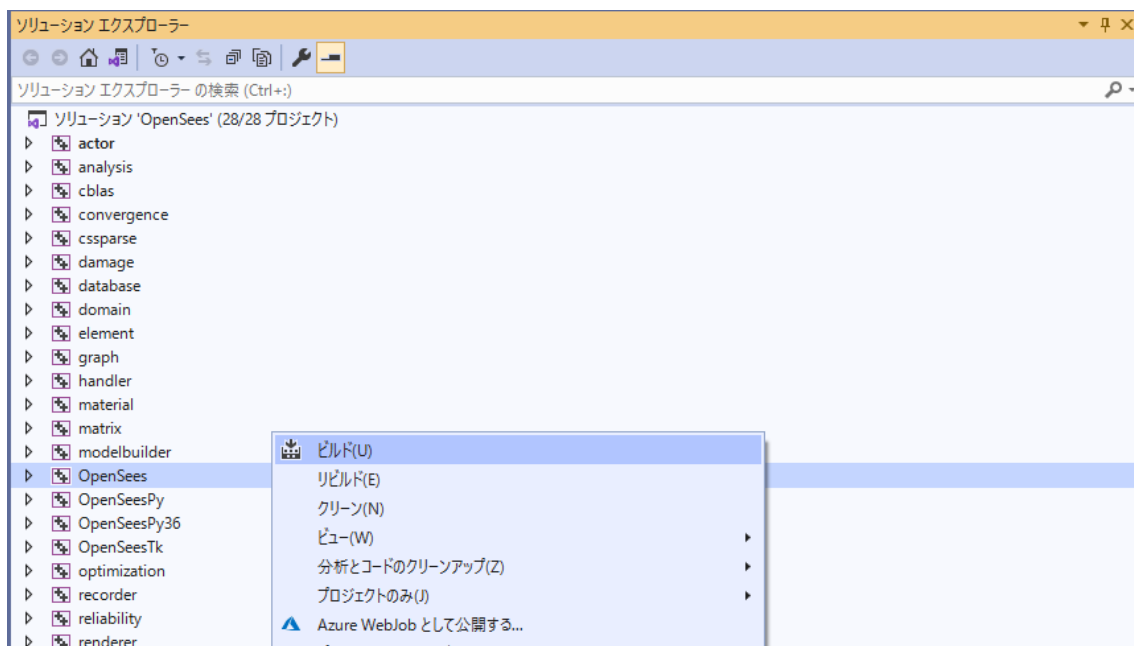22. Change the "Debug.DLL" on the main page of Visual Studio Community 2019 to "Release".

23. Right-click "OpenSees" in solution explorer and click "build".

24. It takes about 10 minutes to build (depending on PC performance). During build, you'll see countless errors, but it's okay.

At the end of the output field, you're seeing if the build was successful.
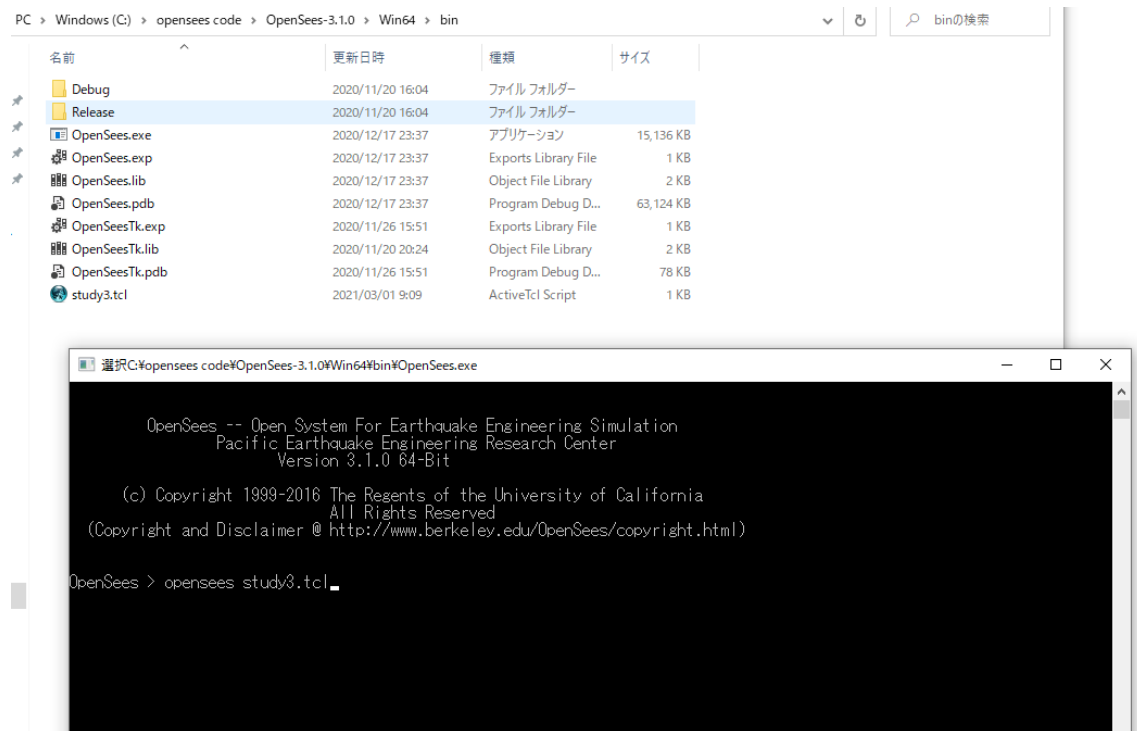
========== すべてリビルド: 25 正常終了、0 失敗、0 スキップ ==========

If everything is completed normally like this, it is OK.

25. If everything is successful, there is Opensees.exe in "C:openseescode/OpenSees-3.1.0¥Win64¥bin".
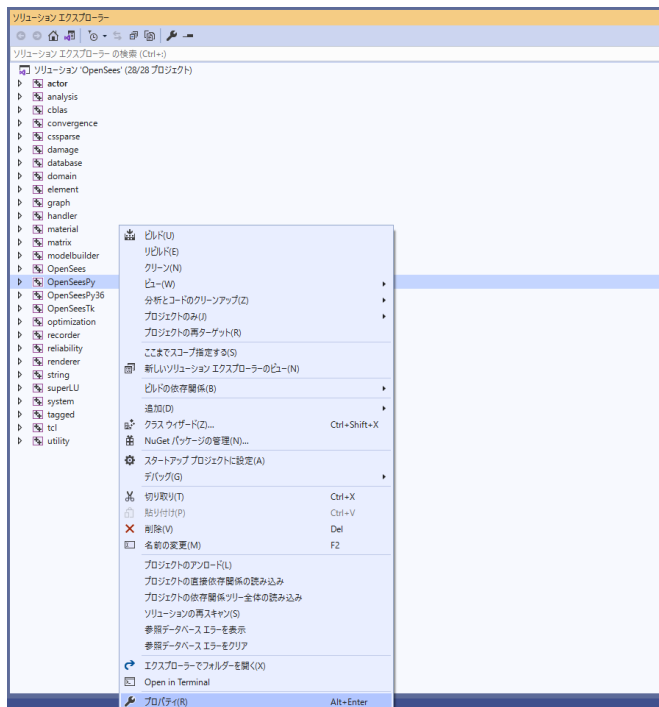
26. Start "opensees.exe" and then type "opensees ~~~.tcl" to run. In this case, tcl-files must be in the same folder.

○build "opensees.pyd"

To build OpenSeesPy, you need to build OpenSees, so build OpenSees first.

1. Right-click "OpenSeesPy" in solution explorer and click "property" in Visual Studio Community 2019

2. in property of OpenSeesPy, select "VC++ directory" ⇒ "include directory".
in "include directory", click [▽] the button and click "edit".

3. If you have installed anaconda3 and the following folder contains "Python.h", please add new directory with the link of folder.If you not, please install anaconda3.
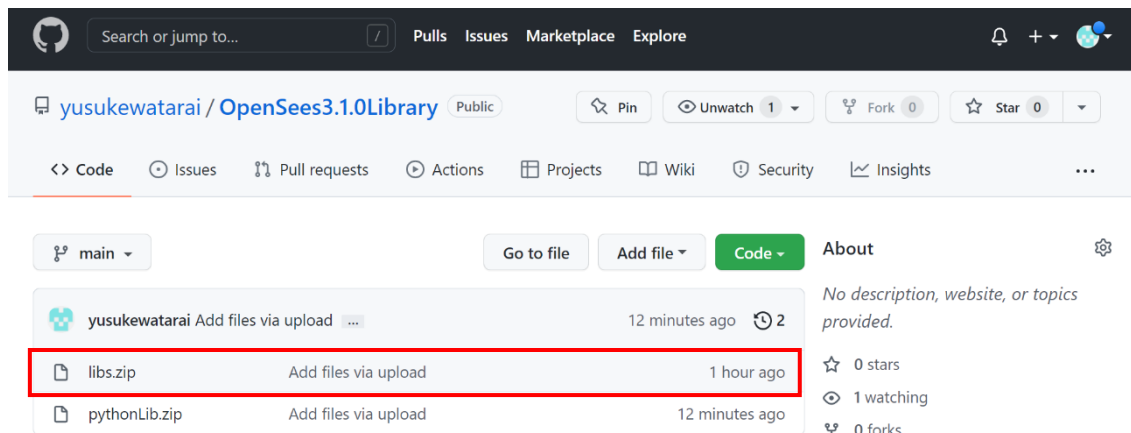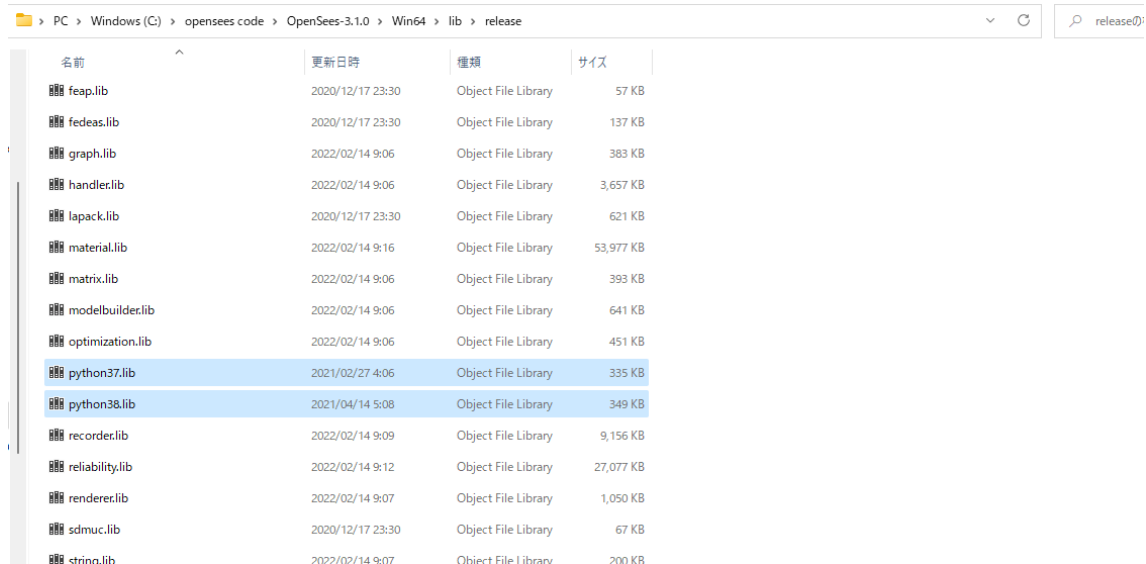Folder: C:¥Users¥(users name)¥anaconda3¥include
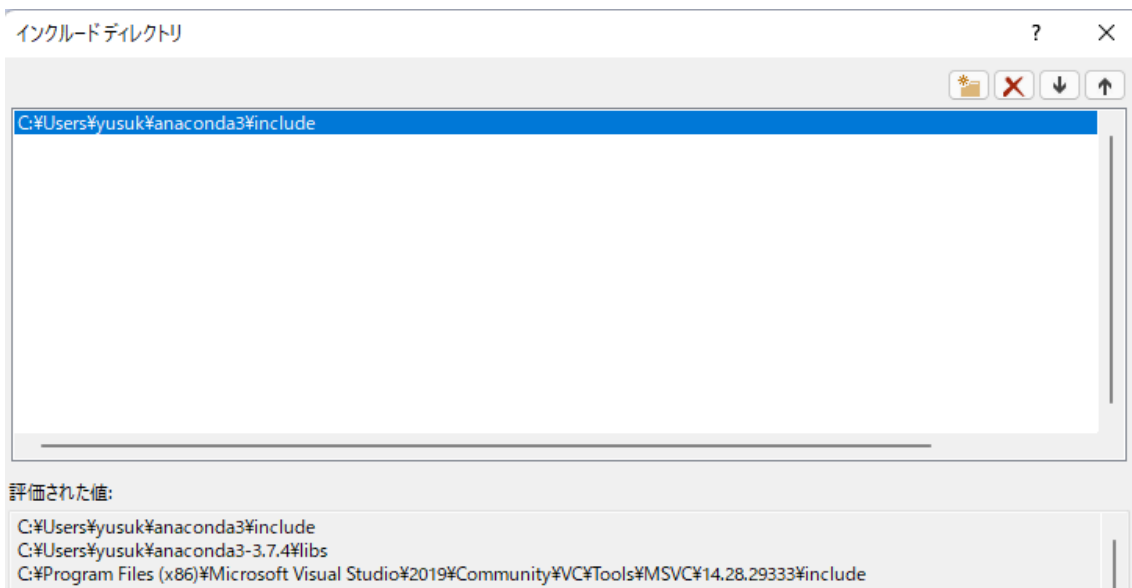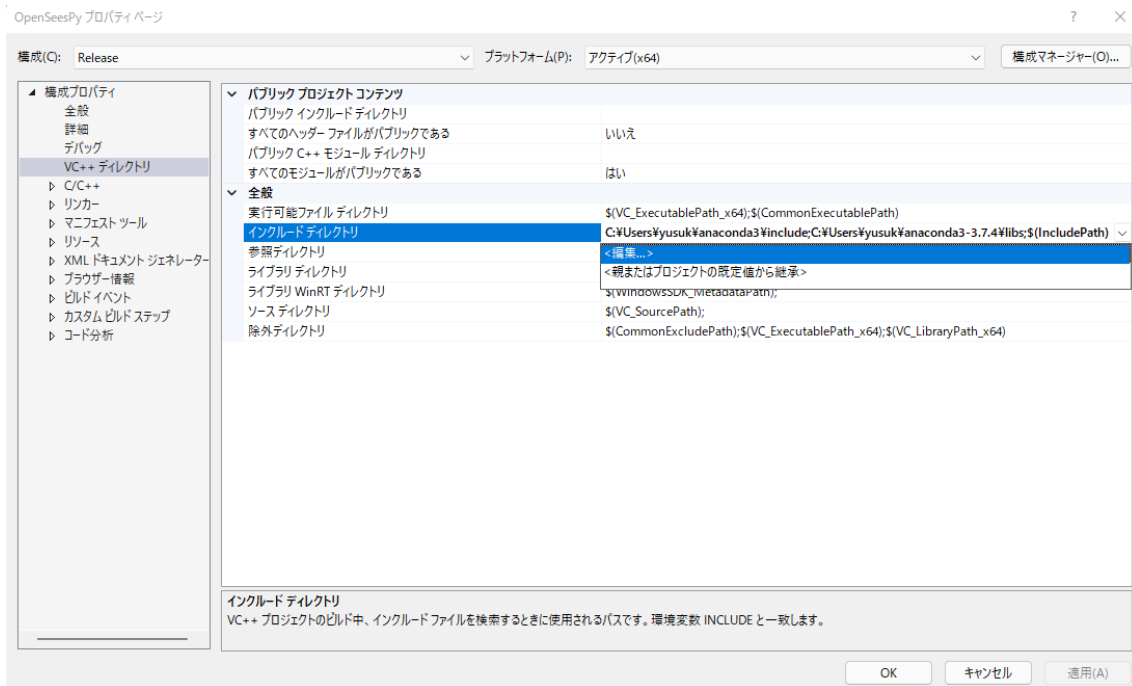
After the change, click "OK" at the bottom of the page.

4. Go to the following URL in GitHub and download the lib file for Visual Studio. Please download pythonLib.zip. It contains 2 lib files.
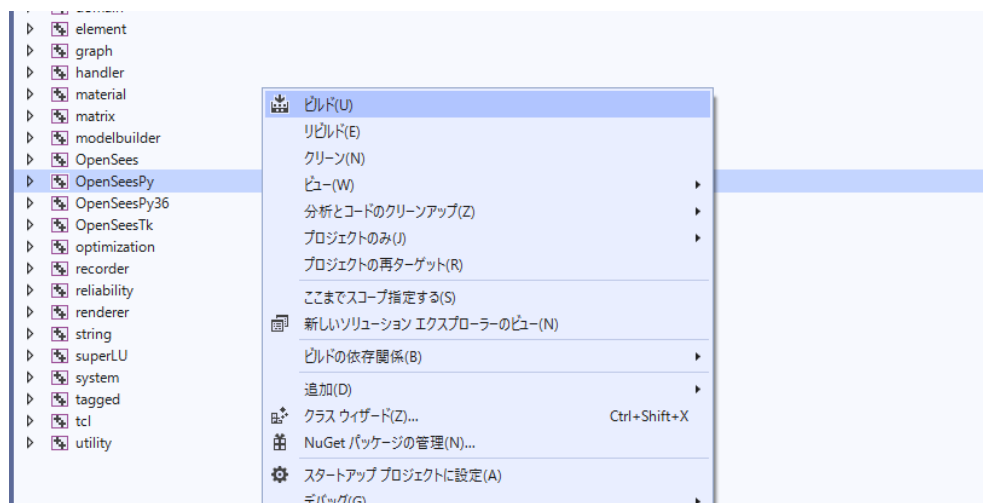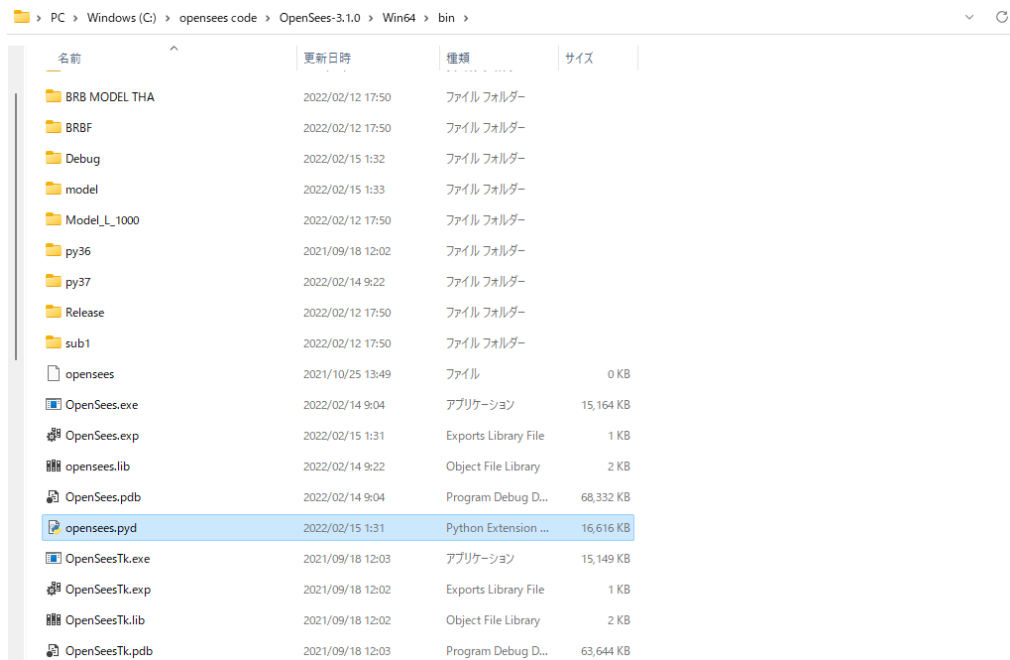
URL: https://github.com/yusukewatarai/OpenSees3.1.0Library

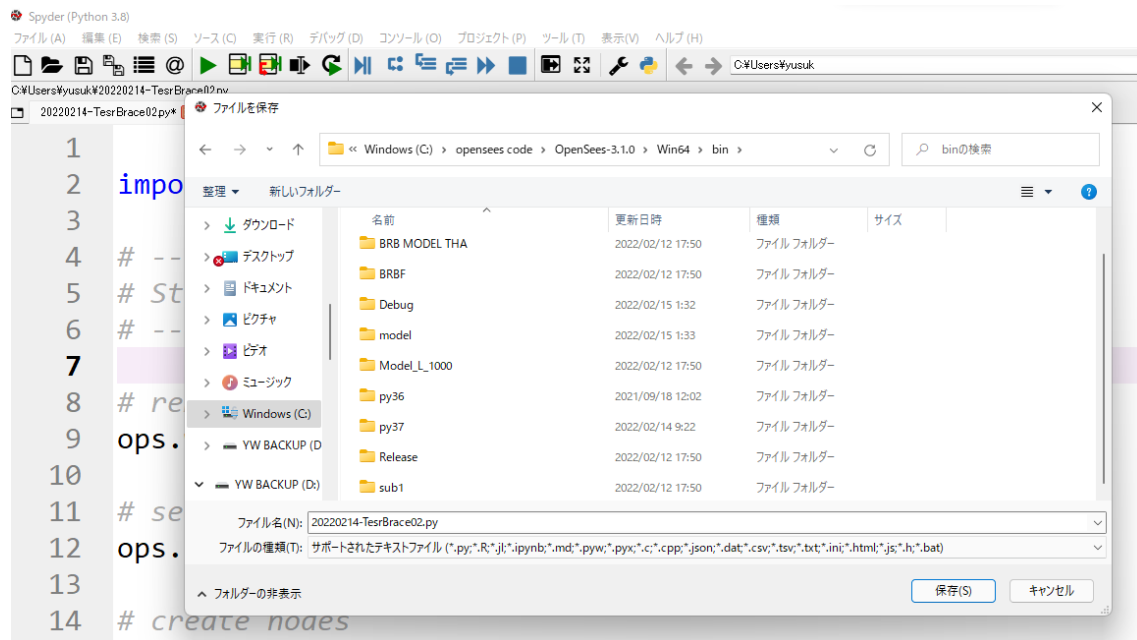5. Add 2 downloaded lib files to " C:openseescode/OpenSees-3.1.0/Win64/lib/release " .

6. In Visual Studio, Right-click "OpenSeesPy" in solution explorer and click "build".

7. If everything is successful, there is Opensees.pyd in "C:openseescode/OpenSees-3.1.0¥Win64¥bin".

8. In this case, tcl-files must be in the same folder.

Open spyder of anaconda3. Add the model file to the same folder as "openseespy.pyd" you just created.

At the beginning of the code in the model file, add the following code.

Code: import openseespy.opensees as ops