How to install HARMONICS for macOS

1 Install xcode

verified version 10.2

In case of previous versions, please download the following xcode.
https://itunes.apple.com/jp/app/xcode/id497799835?mt=12

2 Install Qt

verified version 5.10.1

In case of previous versions, please download the following Qt installer.
http://download.qt.io/official_releases/online_installers/qt-unified-mac-x64-online.dmg
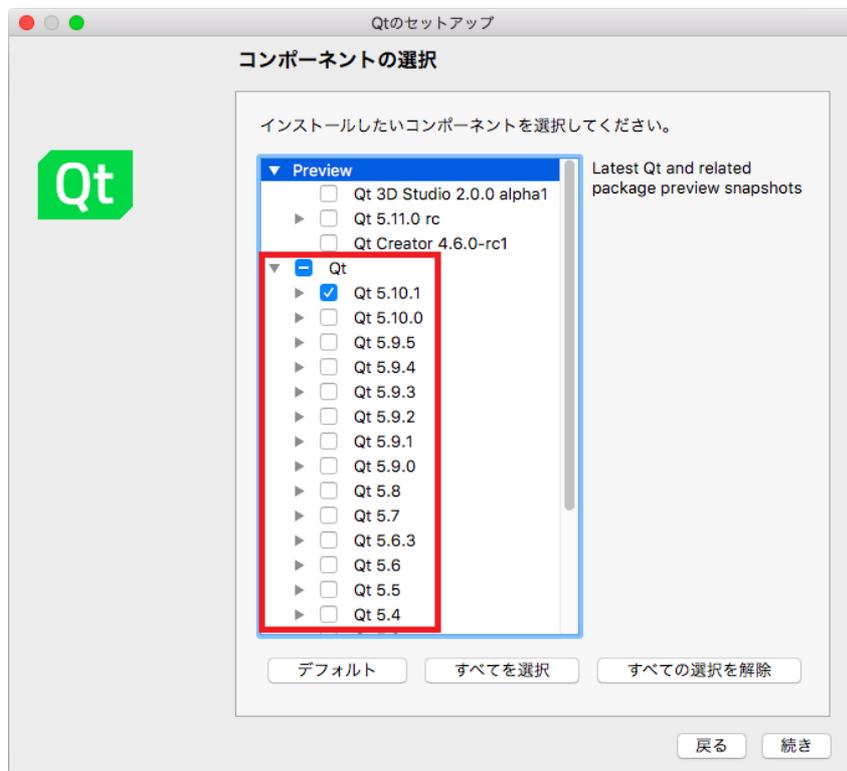Follow install instructions in the dmg.

Notes

Please set appropriate check-box.

When you select installing coponents, turn on the check-box of Qt 5.10.1.

If you finished withoug this confirmation, please use Maintenance Tool.app.

3 Set up homebrew

Test the following command in a prompt on your terminal.

$ which brew

In case displaying no setting of path, install the homevrew.

$ /usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"

Check status of homebrew installation.

$ brew doctor

Confirm the message "Your system is ready to brew."

Install required libratirs by this homebrew.

First carry out the following command and browse the list.

$ brew list

Note: verified by Imagemagick version 7+ and OpenCV version 4

```
alps-adminnoMacBook-Air:~ demo$ brew list
aom                    glib                   libheif                numpy                  shared-mime-info
```

```
cairo            gmp              libmpc           openblas         snappy
ccfits           gnutls           libogg           opencore-amr     speex
cfitsio          graphite2        libomp           opencv           sqlite
cspice           harfbuzz         libpng           openexr          tbb
curl             icu4c            libsamplerate    openjpeg         tesseract
eigen            ilmbase          libsndfile       openssl          theora
ffmpeg           imagemagick      libsoxr          opus             unbound
flac             isl              libtasn1         p11-kit          webp
fontconfig       jpeg             libtiff          pcre             x264
freetype         lame             libtool          pixman           x265
frei0r           leptonica        libunistring     python           xvid
fribidi          libass           libvorbis        python@2         xz
gcc              libbluray        libvpx           readline
gdbm             libde265         little-cms2      rtmpdump
gettext          libevent         mpfr             rubberband
giflib           libffi           nettle           sdl2
alps-adminnoMacBook-Air:~ demo$
```

If you don't have opencv, ccfits, webp, and sqlite, please install them by the following commands.

Please type y and enter, if you're asked confirmation of this install.

$ brew install cfitsio

$ brew tap brewsci/science

$ brew install ccfits

$ brew install webp

$ brew install sqlite

$ brew install curl

$ brew install imagemagick

$ brew install opencv

4 Install cspice

$ brew install cspice

If you have any problems, please carry out the following steps.

Manual installation of cspice

If you use macports, you cannot install cspice by it. You install cspice manually.

http://naif.jpl.nasa.gov/pub/naif/toolkit//C/MacIntel_OSX_AppleC_64bit/packages/cspice.tar.Z

Uncompress cspice.tar.Z

Carry out the following commands on the uncompressed "cspice" directory.

$ sudo cp lib/*.a /usr/local/lib/
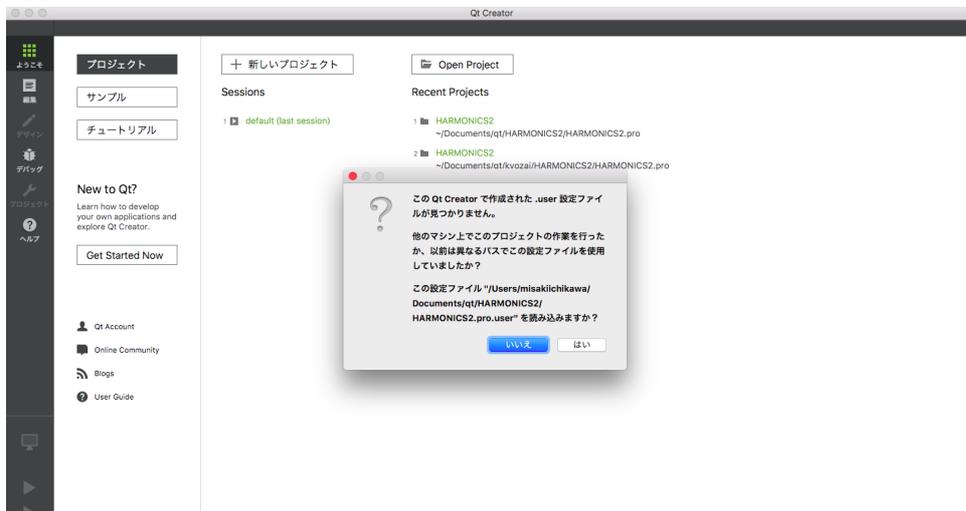
$ sudo cp include/* /usr/local/include/

$ sudo cp exe/* /usr/local/bin/

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5 Set up HARMONICS

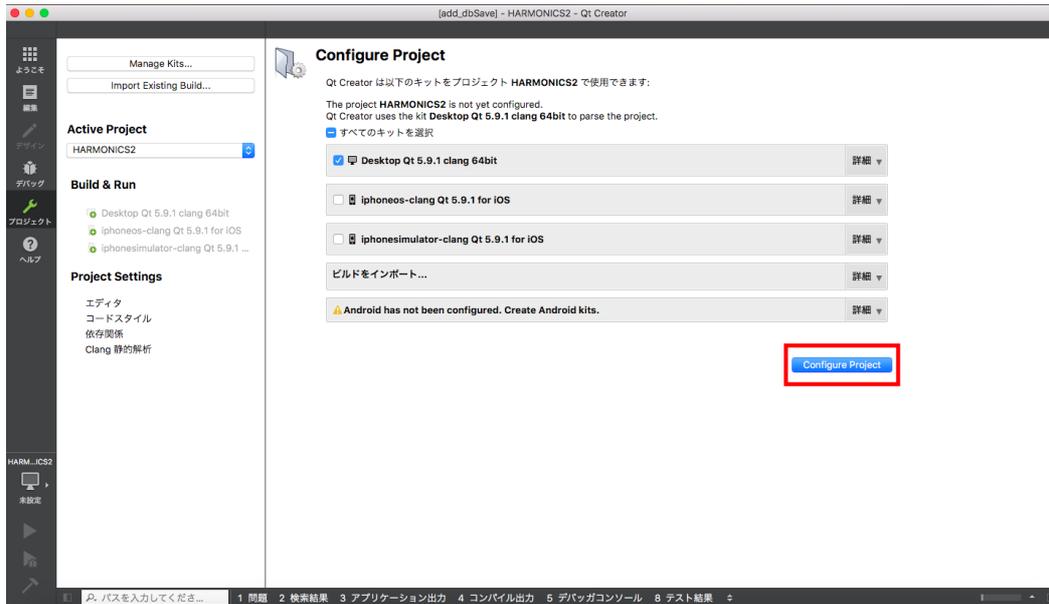Carry out HARMONICS2.pro in the project directory.

After Qt started, you find the next dialogue.

Please select "No" in the dialogue.

Select Configure Project

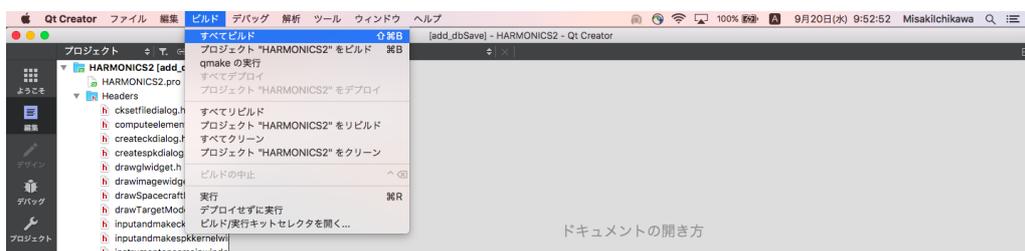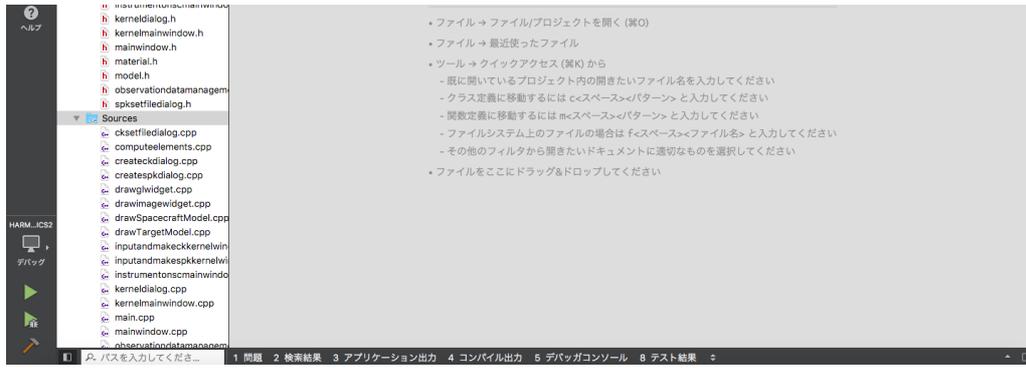Confirm loading *.h files and *.cpp files successfully.

Confirm the following path is written in .pro file.
"LIBS += /usr/local/opt/curl/lib/libcurl.dylib"

Select Build in menu-bar.
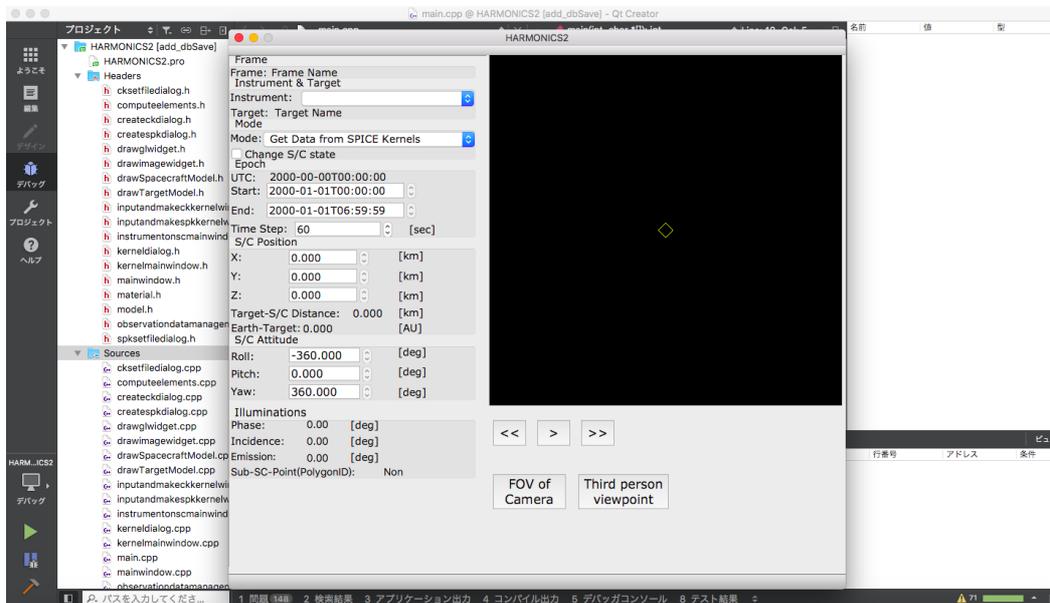It takes 5-10 min in the first building.

Start-up HARMONICS

You can select preferable modes.
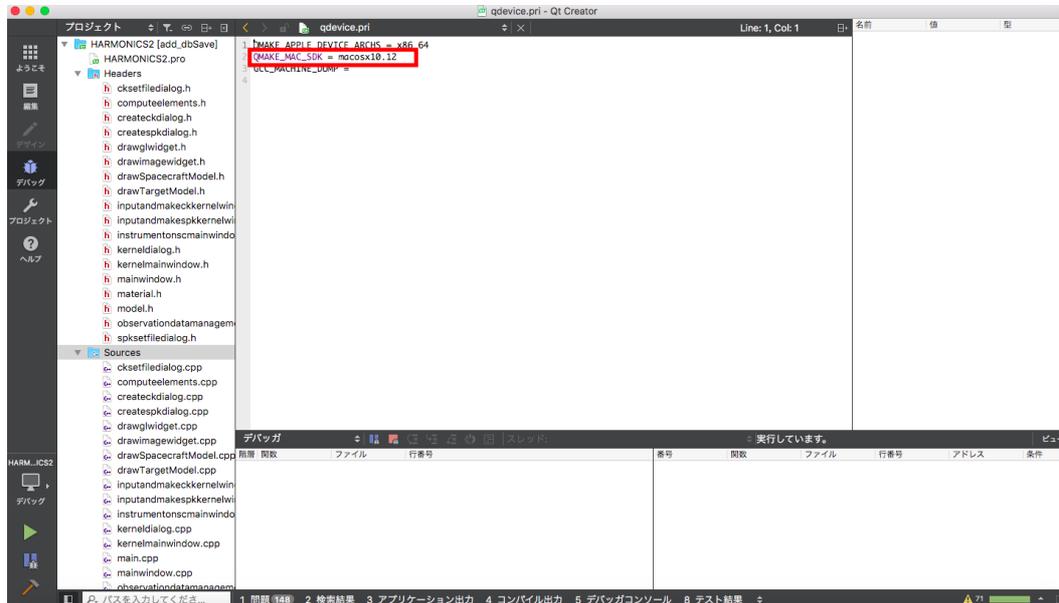

Open HARMONICS window

Notes:

If you have a message "'TargetConditionals.h' file not found", then please edit the following file.
/Users/"Your_Account"/Qt/5.9.1/clang_64/mkspecs/qdevice.pri

(Before)
QMAKE_MAC_SDK = macosx
(After)
QMAKE_MAC_SDK = macosx10.13

Notes:
Initial status is too far to see the asteroid Itokawa.
You find Itokawa setting start-time as 2005-9-11.

******************************* Error Message in Start-up of HARMONICS ************************

In case "Project Error: Xcode not set up properly."
Change your current working directory to Qt directory, then carry out the followings.
grep –rn /usr/bin/xcrun .
Edit "Qt_Directory/5.x/clang_64/mkspecs/features/mac/default_pre.prf
Change line 14-15 as follows.
(Before)
isEmpty($$list($$system("/usr/bin/xcrun -find xcrun 2>/dev/null"))):
(After)
isEmpty($$list($$system("/usr/bin/xcrun -find xcodebuild 2>/dev/null"))):