

How to install HARMONICS for macOS

1 Install xcode

verified version 9.2

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 5.9.1

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

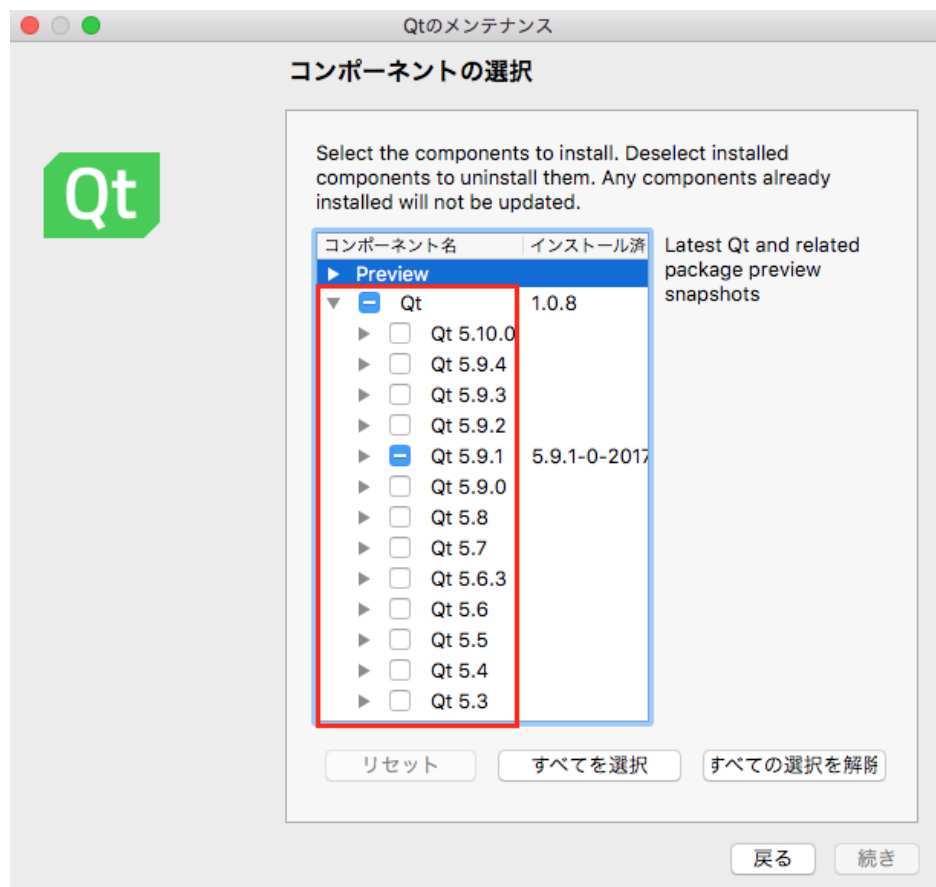
Follow install instructions in the dmg.

Notes

Please set appropriate check-box.

When you select installing components, turn on the check-box of Qt 5.9.1.

If you finished without 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 homebrew.

```
$ /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 libraris by this homebrew.

First carry out the following command and browse the list.

\$ brew list

```
[ichikawa-no-iMac:~ ichikawa$ brew list
autoconf      imagemagick    mpfr           rpm2cpio
c-ares        isl@0.14       mysql          ruby-build
ccfits        jpeg           numpy          solr
cfitsio       lame           opencv         sqlite
eigen         libmpc         opencv3        tree
ffmpeg        libpng         openexr        webp
freetype      libtiff        openssl        x264
gcc-arm-none-eabi libtool       pkg-config     xvid
gcc@5         libwebsockets python          xz
gdbm          libxml2        python3
gmp           mongoddb      rbenv
ilmbase       mosquito      readline
```

If you don't have opencv3, 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 opencv3

\$ brew install cfitsio

\$ brew tap brewsci/science

\$ brew install ccfits

\$ brew install webp

\$ brew install sqlite3

\$ brew install curl

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/* /usr/local/lib/

\$ sudo cp include/* /usr/local/include/

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

5 Install AlphaDSK

Download DSKSubSystem via following site, then uncompress it.

https://naif.jpl.nasa.gov/pub/naif/misc/alpha_dsk_N0065/C/

Install this by `./makeall.csh` in the umcompressed directory of `alpha_dsk_c`.

Carry out `"cd .."` and the following.

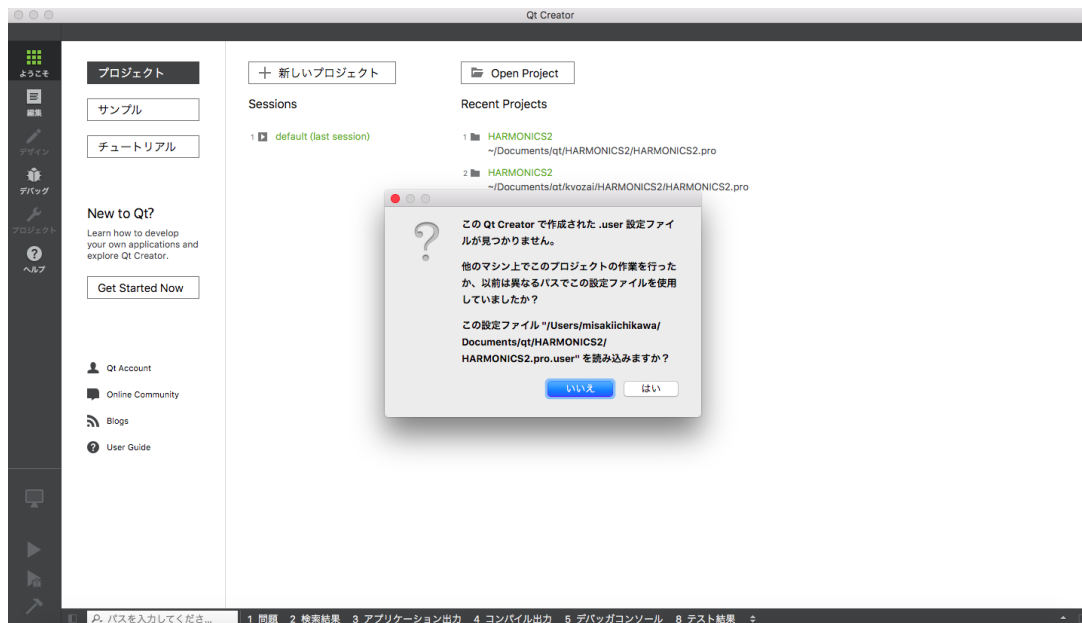
`"sudo cp -r alpha_dsk_c /usr/local"`

6 Set up HARMONICS

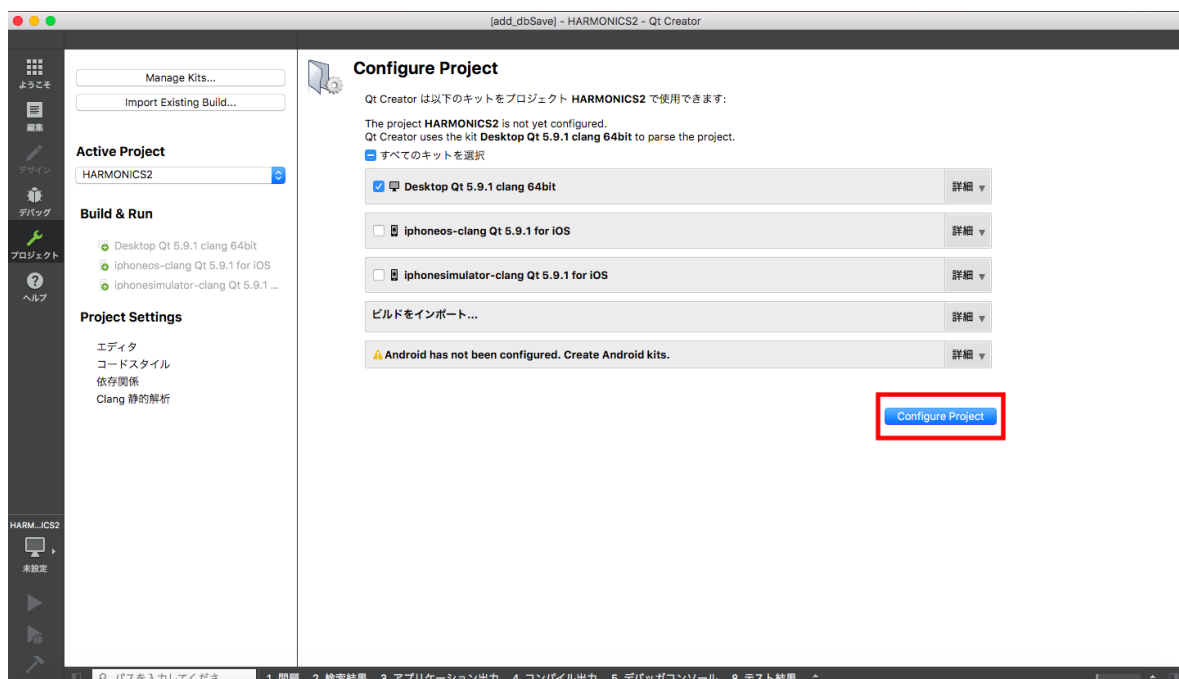
Carry out `HARMONICS2.pro` in the project directory.

After Qt started, you find the next dialogue.

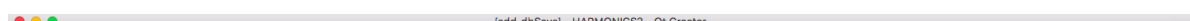
Please select "No" in the dialogue.



Select Configure Project



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



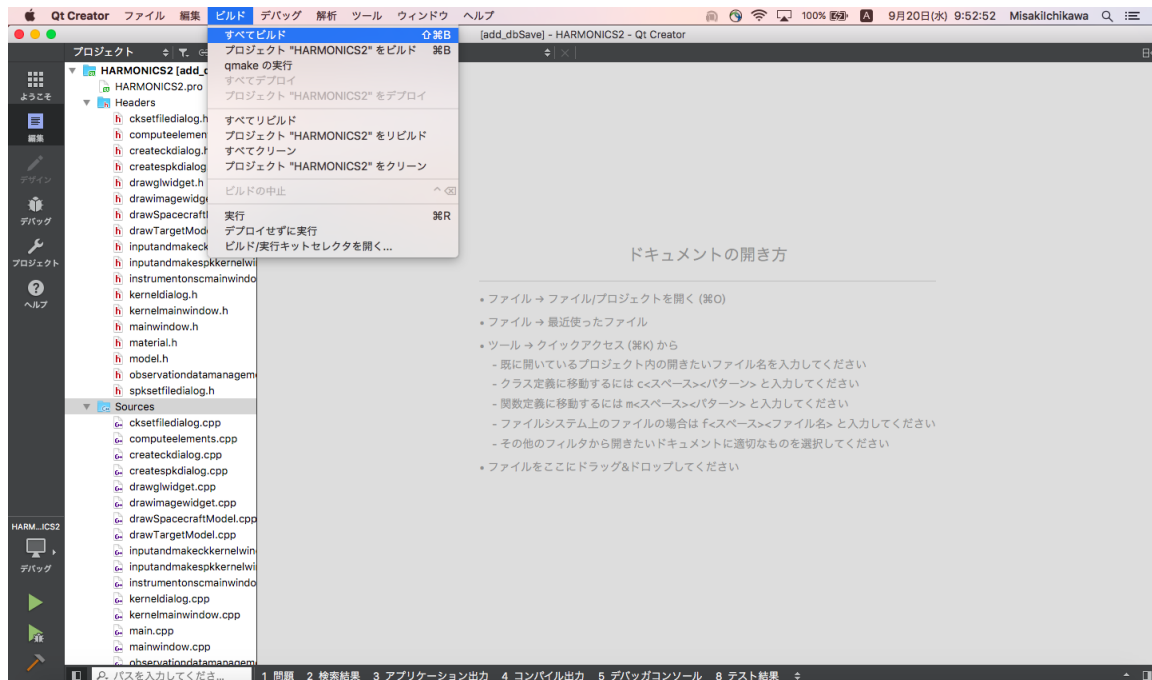


Confirm the following path is written in .pro file.

"LIBS += /usr/local/opt/curl/lib/libcurl.dylib"

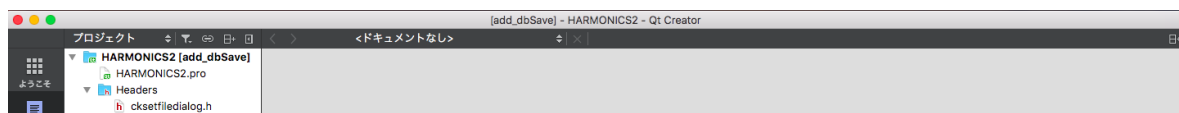
Select Build in menu-bar.

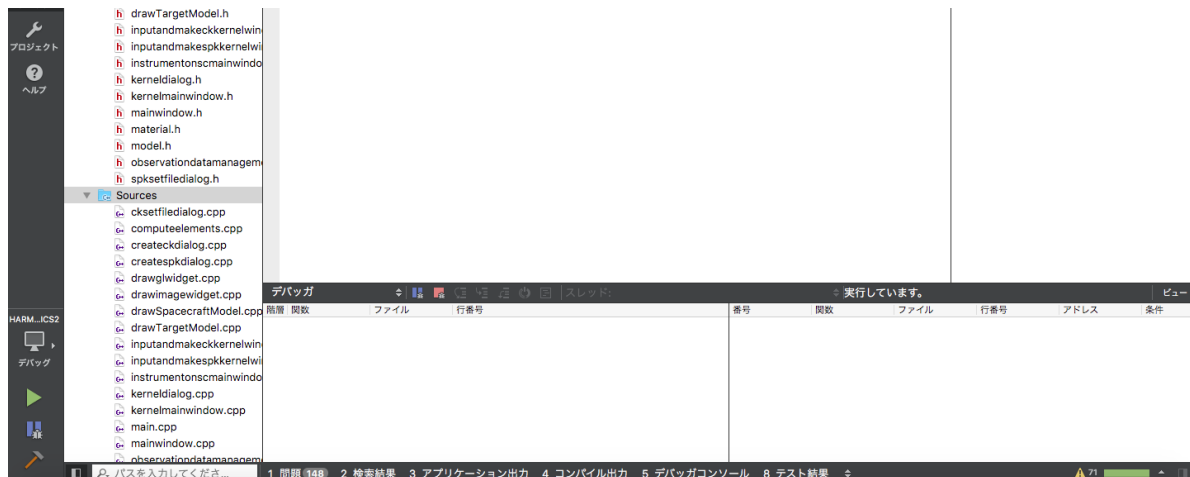
It takes 5-10 min in the first building.



Start-up HARMONICS

You can select preferable modes.





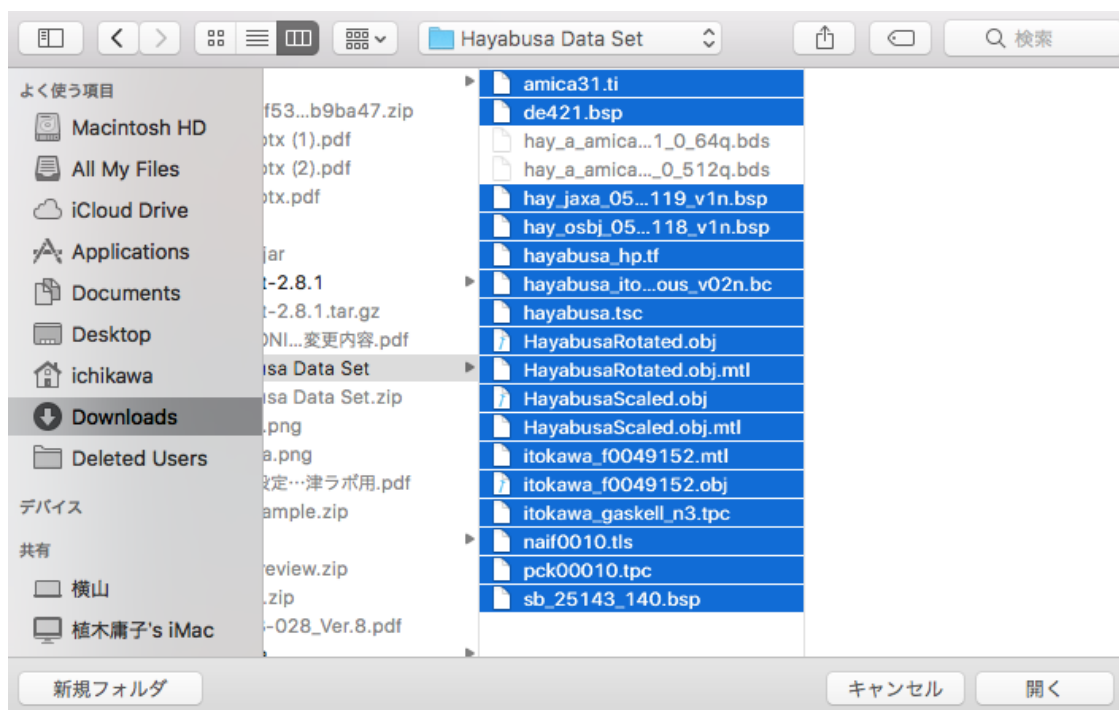
Loading dataset

Touch Menu-bar

Select "File -> Read Data Set"

Select files in the next opening dialogue.

Select "Open" button



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"))):
```