

# How to Set up X-window Server on your PC or MAC

HPC Summer School R-CCS, 2021

# Contents

- We use X-window server on your PC or MAC (or Linux) to display visualization animation of Fluid simulation.
  - [https://en.wikipedia.org/wiki/X\\_Window\\_System](https://en.wikipedia.org/wiki/X_Window_System)
- How to set up
  - If you use Windows PC, please go to Slide 3.
  - If you use macOS, please go to Slide 7.
  - If you use Linux or X-window server is already available, nothing is needed.

**For Winows PC**

# Download and Install Cygwin

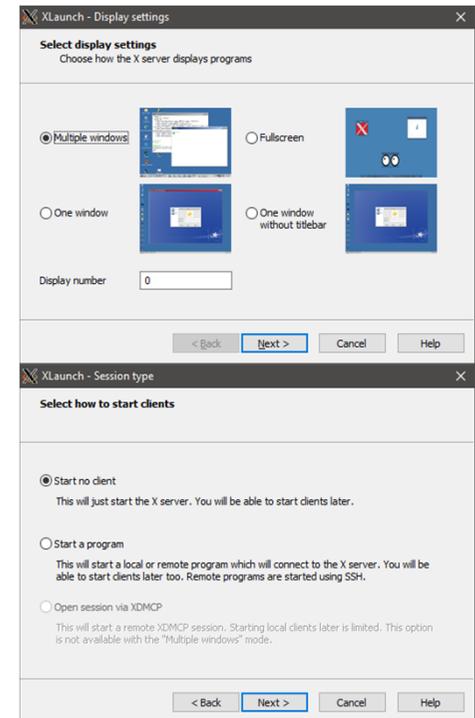
- Please get Cygwin installer from this link:

[https://www.cygwin.com/setup-x86\\_64.exe](https://www.cygwin.com/setup-x86_64.exe)

- Then proceed with the install process.
- Please follow “Software to be installed in your PC” for detailed guide on Cygwin Installation
- On the select package screen, please install the following additional package:
  - openssh
  - xinit
  - xorg-server
  - xlaunch

# Test X-windows on local machine

- After Cygwin installation is completed, run xlaunch to configure the X windows on your machine.
- Select “Multiple windows” then Next
- Then “Start no client” then Next
- Leave the default options the next 2 dialog then Finish



## Test X-windows on local machine (cont'd)

- Start a new Cygwin session.
- Check if `$DISPLAY` is set by typing `echo $DISPLAY`
  - If it is empty, set the default display with `export DISPLAY=:0.0`
- Try to run any x windows program like `xeyes` or `xclock` if available

# Test X-windows on Login node

- If `$DISPLAY` is set on your local machine, then you can test X over SSH
- Login to Fugaku Login node:

```
ssh -XY username@login.fugaku.r-ccs.riken.jp
```

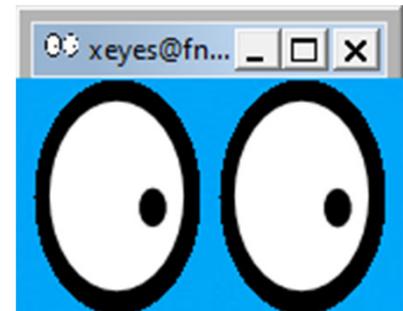
- Then run `xeyes`

```
. ../data/spack/share/spack/setup-env.sh
```

```
spack load xeyes
```

```
xeyes
```

- If the X is working then a pair of eyes will appear on your desktop!



For macOS

# Install Xquartz

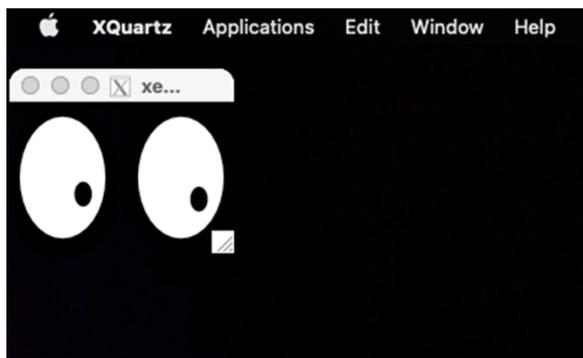
1. Access <https://www.xquartz.org/> and download the dmg file.  
(Xquartz version 2.8.1 was tested for writing this instruction)
2. Install Xquartz from the dmg file
3. Logout macOS once, then Login again

# Connect to X application on Fugaku from your mac

- Run the following commands

```
yourmac$ echo $DISPLAY # Check the environment variable value (Non empty value is expected)
/private/tmp/com.apple.launchd.XXxXXxXXxX/org.xquartz:0
yourmac$ ssh -XY username@fugaku.r-ccs.riken.jp
##### Login to a Fugaku login node #####
login3$ echo $DISPLAY # Check the environment variable value on the node (Non empty value is expected)
localhost:40.0
login3$ ../data/spack/share/spack/setup-env.sh
login3$ spack load xeyes
login3$ xeyes
```

- Then, you can find a window on your display like the following.



(The window will appear at upper left on your display.)

# Troubleshooting

- When \$DISPLAY value is empty on your mac
  - Try logout and login again
  - Try re-install Xquartz
- When \$DISPLAY value is empty on the Fugaku login node
  - Check the ssh option (“-XY” option required)
- When the xeye window does not appear on your display with multiple display
  - Turn off "Displays have different spaces" in Mission Control preferences in mac preferences, then logout and login macOS, or
  - Disconnect the additional displays and try it again