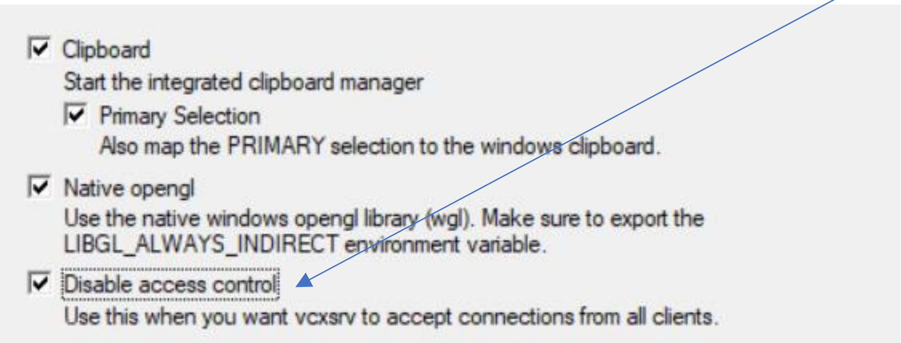
Duration: ~5 minutes

I tested this on **WSL 2** with both an Ubuntu 20.04 installation and a Kali Linux installation.

First, if you haven't yet, install 64-bit VcXsrv from https://sourceforge.net/projects/vcxsrv/.

Run the XLaunch program (can be done from start menu if you did a default installation of VcXsrv)

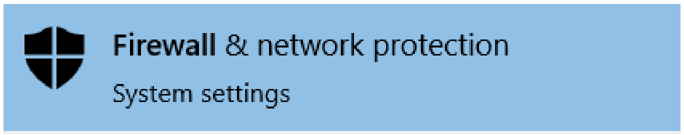
Make sure you select "disable access control" when you start XLaunch



☑ Clipboard
Start the integrated clipboard manager
☑ Primary Selection
Also map the PRIMARY selection to the windows clipboard.
☑ Native opengl
Use the native windows opengl library (wgl). Make sure to export the LIBGL_ALWAYS_INDIRECT environment variable.
☑ Disable access control
Use this when you want vcxsrv to accept connections from all clients.

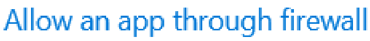
After you've started XLaunch, close the program in your system tray (bottom right of your screen).

Next, open Firewall and Network settings from the start menu



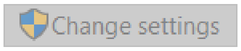
Firewall & network protection
System settings

Click on "Allow an app through the firewall" at the bottom of this window.



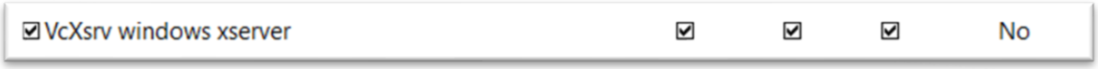
Allow an app through firewall

Click on "change settings" in the next window. You will have to authorize using your localmgr account if your user account isn't an administrator.



Change settings

Then, navigate to the VcXsrv entry in the list. Check the boxes for Private, Domain, and Public.



☑ VcXsrv windows xserver	☑	☑	☑	No

If you don't see an entry for VcXsrv, you may need to restart your computer. Once you confirm the settings change, restart XLaunch from the startmenu. **Make sure you select "disable access control" when you start XLaunch.** You'll have to do this every time you start it.

Next, install x11-apps on your WSL instance.

sudo apt install x11-apps

This will install a few programs, including xeyes, which is what we will use to test our setup.

After the install finishes, run the following command

sudo nano ~/.bashrc

Scroll to the bottom of the file and add the following lines

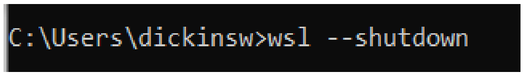
#Auto-configure display for X server

export DISPLAY=$(awk '/nameserver / {print $2; exit}' /etc/resolv.conf 2>/dev/null):0

export LIBGL_ALWAYS_INDIRECT=1

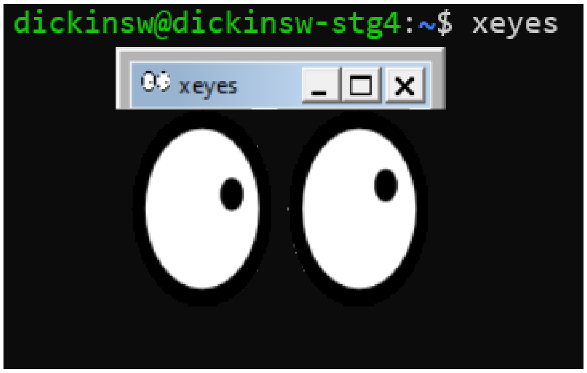
The **.bashrc** file determines what happens when bash is started. By adding the 2nd bolded line above, we made it so that our DISPLAY environment variable will always be set to interface with the X server running on Windows. The third bolded line makes it so that that the X server machine does the graphic rendering, rather than WSL doing it.

The next thing we need to do is restart WSL. Close any terminals and VS Code instances connected to WSL. Open a new cmd window and type wsl –shutdown (wsl (dash)(dash)shutdown)



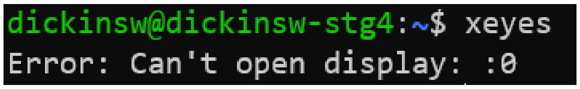
```
C:\Users\dickinsw>wsl --shutdown
```

Start WSL back up and run xeyes. You should see a new window appear. If xeyes works, your setup is good to go.



```
dickinsw@dickinsw-stg4:~$ xeyes
```

Troubleshooting: Issue 1



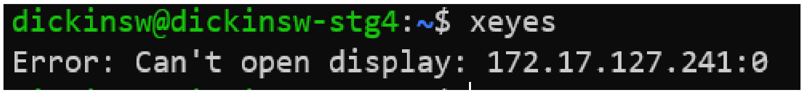
```
dickinsw@dickinsw-stg4:~$ xeyes
Error: Can't open display: :0
```

This means you didn’t configure your .bashrc correctly. Revisit that step, or try typing the following commands:

export DISPLAY=$(awk '/nameserver / {print $2; exit}' /etc/resolv.conf 2>/dev/null):0

export LIBGL_ALWAYS_INDIRECT=1

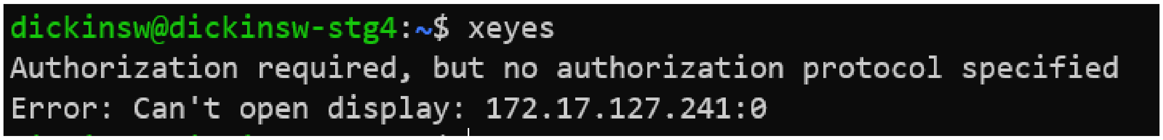
Issue 2



```
dickinsw@dickinsw-stg4:~$ xeyes
Error: Can't open display: 172.17.127.241:0
```

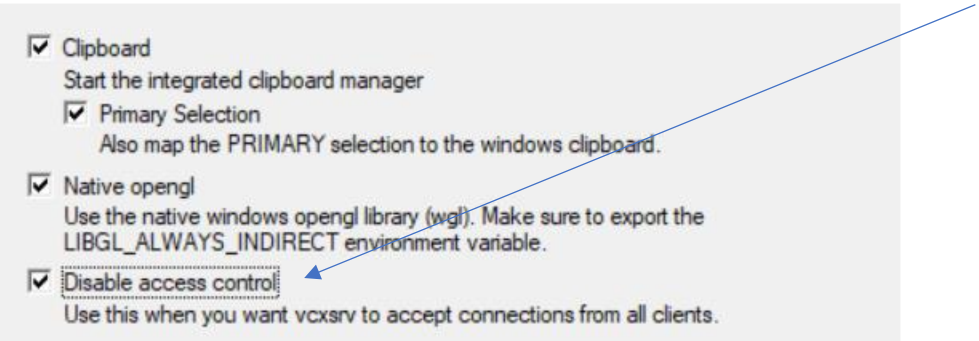
The IP you see will probably be different from mine. In general, this error indicates WSL is having trouble connecting to the X server, or vice versa. Ensure your firewall was adjusted properly. You may have to try additional network settings and/or firewall rules.

Issue 3



```
dickinsw@dickinsw-stg4:~$ xeyes
Authorization required, but no authorization protocol specified
Error: Can't open display: 172.17.127.241:0
```

This indicates that “Disable access control” was not selected when starting XLaunch. Close VcXsrv from the system tray (bottom right of windows) and restart with the setting selected.



☑ Clipboard
Start the integrated clipboard manager
☑ Primary Selection
Also map the PRIMARY selection to the windows clipboard.

☑ Native opengl
Use the native windows opengl library (wgl). Make sure to export the LIBGL_ALWAYS_INDIRECT environment variable.

☑ Disable access control
Use this when you want vcxsrv to accept connections from all clients.