WSL (Windows Subsystem for Linux)

Status: 2021/09

Microsoft added to Windows 10 (64 bit) the ability to run Ubuntu Linux in parallel with Windows: *Windows Subsystem for Linux (WSL)*, this is a very useful way to work with Linux-based software development tools from a Windows 10 machine.

See Also:

These links provided me with very useful information!

- https://walkingrandomly.com/?p=6011
- https://www.cs.odu.edu/~zeil/FAQs/Public/win10Bash/
- https://people.cs.clemson.edu/~hollowe/SoC%20Info/WSL.html
- https://docs.microsoft.com/en-us/windows/wsl/install-win10
- https://nickjanetakis.com/blog/using-wsl-and-mobaxterm-to-create-a-linux-dev-environment-onwindows
- https://nccastaff.bournemouth.ac.uk/jmacey/post/wsl/wsl/

Books:

- Pro Windows Subsystem for Linux (WSL)
- Learn Windows Subsystem for Linux

Youtube:

- https://www.youtube.com/watch?v=J4Giu5iWigQ

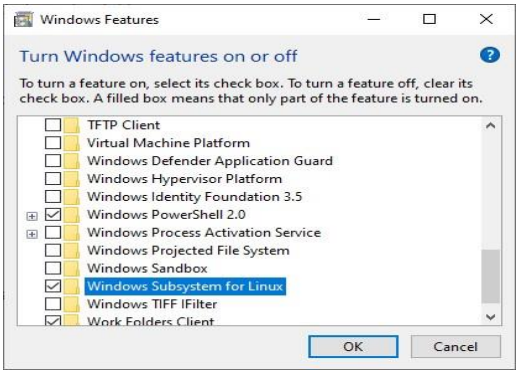
Getting Started

Nowadays there is WSL2 (WSL 2 is presented as a new architecture, a better platform for the WSL). To enable WSL2 the WSL feature needs to be activated and afterwards a linux distribution must be installed.

Follow the steps as described by Microsoft: https://docs.microsoft.com/en-us/windows/wsl/install-win10

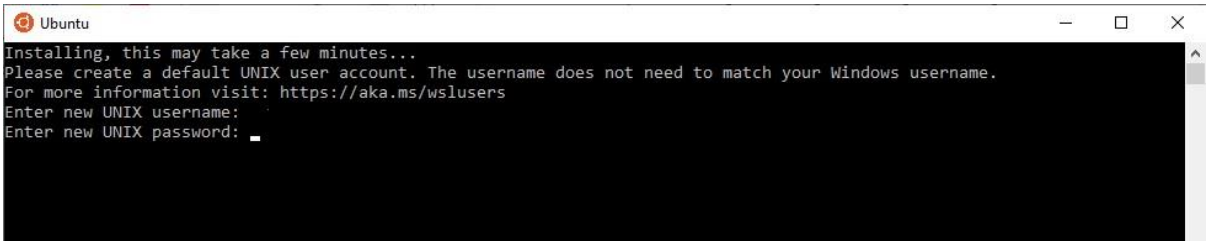
Stepping stones:

- Make sure you have Windows 10, 64-bit
- Turn on Developer Mode: Open Settings -> Update and Security -> For Developers and select the *Developer mode*. Close the Settings window.
- Enable Linux for Windows: From the taskbar, search for *Turn Windows features on or off*. A new window will pop up (Windows Features). Select *Windows Subsystem for Linux*. Click OK.

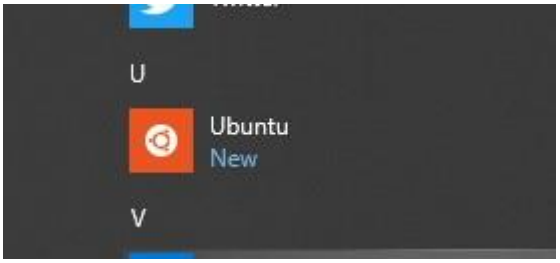


The files will be retrieved, and the system needs a reboot.

- After restart, open the Microsoft Store from the Start menu, and search for *Linux* in the store. To install a Linux distribution, click it, and then click the *Get* or *Install* button to install it like any other Store application. In the Store environment, on the current page go to the top and start the application (it can take a while). This example uses Ubuntu.
- A username and password is required



- In the list of installed programs Ubuntu will appear



- Start the Ubuntu environment. Try some simple Linux commands such as `ls`, `cd`, and `pwd`. You'll find that your Windows lettered disc drives are available under `'/mnt'`. For example, your C: drive is available under `/mnt`. Close your bash session for now by giving the command `exit`.

X (running graphical programs on WSL)

Source:

- https://virtualizationreview.com/articles/2017/02/08/graphical-programs-on-windowssubsystem-on-linux.aspx
- http://www.alvinsim.com/my-experience-with-wsl/

Microsoft doesn't support graphical programs on WSL, it is intended for running *command-line* programs that developers might need, but it's possible to run graphical Linux desktop programs.

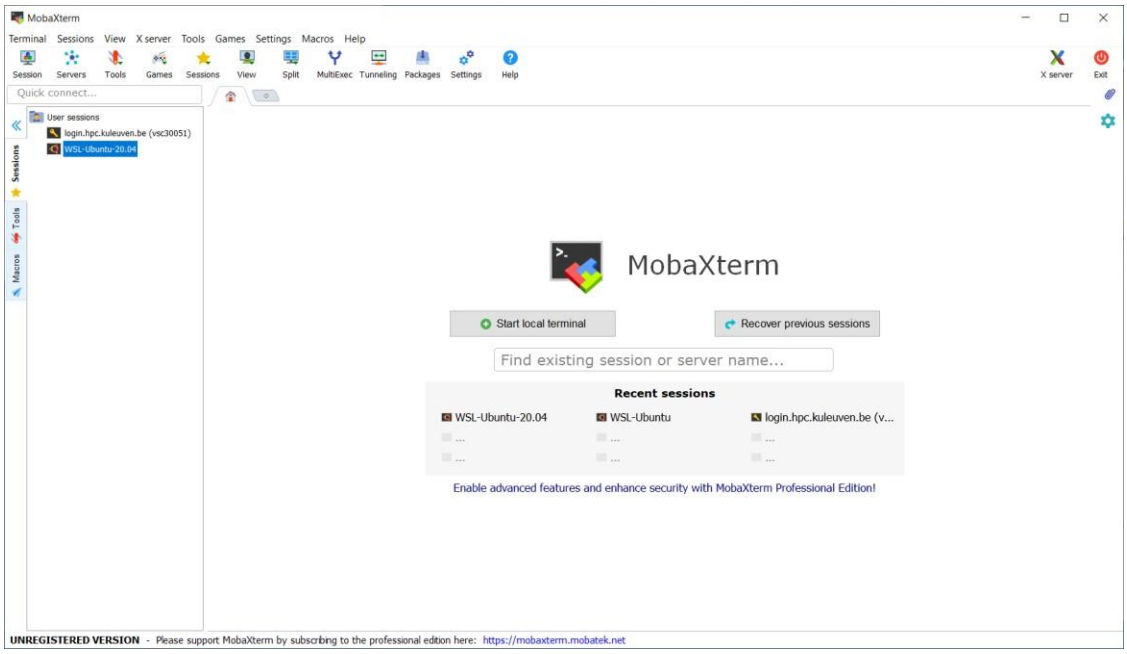
To use WSL with graphical programs, an X server will need to be installed and running on the Windows side.

MobaXterm

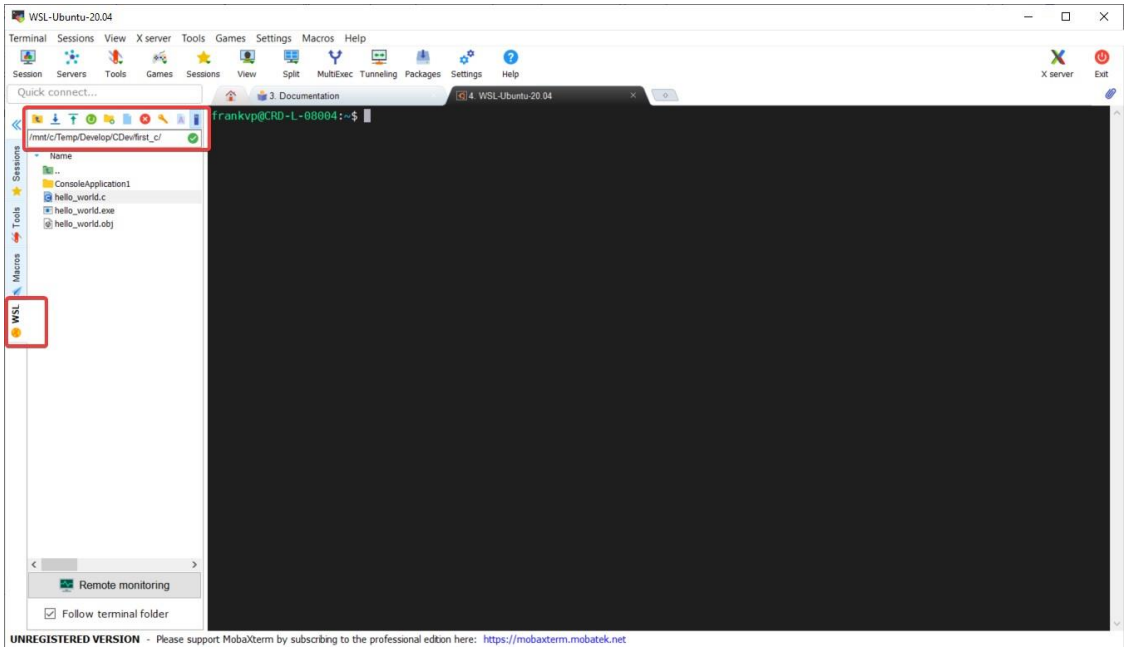
Check:

- https://www.youtube.com/watch?v=KRpgYS-eHj8

An easy and quick way to get started is provided by MobaXterm (https://mobaxterm.mobatek.net/). A portable version can be downloaded and when you start the software, you can select for opening a WSL session, no hassle.



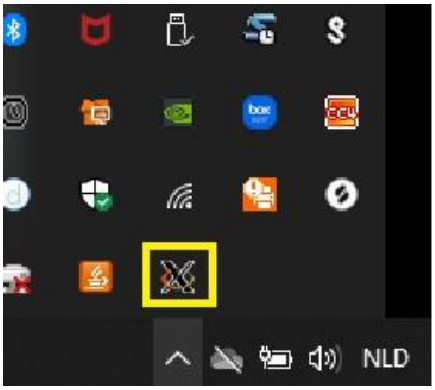
In the recent versions of MobaXterm, a WSL tab is available in the desktop, enabling you to walk through the files in the WSL system, double clicking the file starts the MobaXterm editor, making life easy.



Xming

Another way to run X windows is Xming. Download the software from https://sourceforge.net/projects/xming/ and follow the installation wizard.

The default settings are used; after launching it, Xming appears in the system tray, running in the background and waiting for a graphical WSL program.



Testing the graphical environment:

Things to note (http://www.macs.hw.ac.uk/~gabbay/F28PL/WSL.pdf)

- WSL is 64-bit only. This means that 32-bit Linux programs won't run, and WSL cannot be enabled on 32-bit systems.
- Since WSL is limited to a single window, programs that try to open in a new window (for example, gimp) won't run.
- The Windows file system can be found under /mnt; so for example to get to the C-drive:
  `cd /mnt/c/`
- Check the WSL version: open a powershell: `wsl –list –v`

The version will be displayed.