How to set up a Qt for WebAssembly development environment

This guide is written for Windows 10 users. Qt 5.12 for WebAssembly does not support Windows 10 so the Windows Subsystem for Linux will be used.

If you cannot access the Windows Store see <https://docs.microsoft.com/en-us/windows/wsl/install-manual> for instructions on installing WSL.

The following modules are supported: module-qtbase module-qtdeclarative module-qtquickcontrols2 module-qtwebsockets module-qtmqtt module-qtsvg module-qtcharts Other modules may but it’s not guaranteed.

Enable Windows Subsystem for Linux by running the following command in PowerShell as Administrator.

Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux

From the Windows Store install Ubuntu 18.04.

Open Ubuntu 18.04 and follow the instructions to finish the installation.

Update the system with the following commands

sudo apt-get update

sudo apt-get upgrade

Install packages required to build Qt for WebAssembly

sudo apt-get install python nodejs build-essential

Download, install and activate emscripten and set the PATH variables. In this guide emscripten is downloaded in “~”.

git clone https://github.com/emscripten-core/emsdk.git

cd emsdk

./emsdk install sdk-1.38.16-64bit

./emsdk activate sdk-1.38.16-64bit

source ./emsdk\_env.sh

Download and unpack the Qt 5.12 sources. In this guide the Qt sources are downloaded in “~”

wget https://download.qt.io/official\_releases/qt/5.12/5.12.0‌/single/qt-everywhere-src-5.12.0.tar.xz

tar -xvf qt-everywhere-src-5.12.0.tar.xz

Create a directory where to install Qt. In this guide Qt will be installed to “~/QtWasm”

mkdir QtWasm

cd QtWasm

From this directory call configure. When the script is “checking for valid makespec...” it may seem like it's hanging but it just takes a long time. Up to 10 minutes is not rare.

~/qt-everywhere-src-5.12.0/configure -xplatform wasm-emscripten -nomake examples -prefix $PWD/qtbase

Make the modules you require. Building may take a long time. Building modules qtbase, qtdeclarative, qtquickcontrols2, qtwebsockets and qtcharts took about 3 hours.

make module-qtbase module-qtdeclarative [any other modules you require]

Find your project. access the windows files with. Replace “c” with the correct drive.

cd /mnt/c

Build the project. It will take some time. Building a simple hello world application took about 5 minutes.

In the project directory run

[path to qmake] && make

For example:

~/QtWasm/qtbase/bin/qmake && make

Serve the files to any http server. For example with python (replace 8080 with another port if necessary):

python -m SimpleHTTPServer 8080

Open localhost:8080/your\_project\_name.html in a browser.