QEMU Simulator and Raspberry PI Setup

We setup a simulation environment with QEMU to run Raspberry PI code on your PC. The following instructions are for Windows 11.

**Step 1.** Follow the instructions in this video to setup QEMU and KVM (skip the last step of installing Ubuntu Linux)

QEMU Installation Guide for Windows PC [with KVM]

<https://www.youtube.com/watch?v=dPg8P5DYZNg>

First, from Search box, start “Turn Windows features on or off”, and enable these three options: HyperV, Windows Subsystem for Linux, Virtual Machine Platform.

From Windows Powershell, run:

wsl --install

wsl --set-default-version 2

From WSL, run:

sudo apt update && sudo apt upgrade -y

sudo apt install qemu-kvm libvirt-daemon-system libvirt-clients bridge-utils -y

sudo usermod -aG kvm $USER

From Windows Powershell, run:

wsl --shutdown

When starting WSL, always choose “run as administrator”.

Skip the rest of the steps to install Ubuntu Linux.

**Step 2.** Follow the instructions on this page to install Raspberry PI on QEMU:

Emulating a Raspberry Pi in QEMU

<https://interrupt.memfault.com/blog/emulating-raspberry-pi-in-qemu>

Make the following changes to the online instructions:

1) Run “sudo apt-get install -y qemu-system-aarch64” if you get an error message running “apt-get install -y qemu-system-aarch64”

2) In the echo command, replace the long hash string after pi: with what you got from running “openssl passwd -6” on you own computer, and replace userconf with userconf.txt. (Copy this command into a text file and edit it.)

$ echo 'pi:$6$rBoByrWRKMY1EHFy$ho.LISnfm83CLBWBE/yqJ6Lq1TinRlxw/ImMTPcvvMuUfhQYcMmFnpFXUPowjy2br1NA0IACwF9JKugSNuHoe0' | sudo tee /mnt/image/userconf.txt

You should now be able to boot up a Raspberry PI image and ssh to it.