QEMU for Raspberry Pi Ubuntu 16.04 with qemu-system-arm as a deb package
12/7/19

https://azeria-labs.com/emulate-raspberry-pi-with-qemu/
Testing qemu on ws009 for raspberry pi
vidal@ws009:~$ cd qemu_vms

Steps below to prepare the image to boot using qemu. This only needs to be done once to prepare the 2017-04-10-raspbian-jessie.img for qemu.

vidal@ws009:~/qemu_vms$ unzip 2017-04-10-raspbian-jessie.zip
vidal@ws009:~/qemu_vms$ fdisk -l 2017-04-10-raspbian-jessie.img
Disk 2017-04-10-raspbian-jessie.img: 4 GiB, 4285005824 bytes, 8369152 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x402e4a57

Device	Boot	Start	End	Sectors	Size	Id	Type
2017-04-10-raspbian-jessie.img1		8192	92159	83968	41M	c	W95 FAT32 (LBA)
2017-04-10-raspbian-jessie.img2		92160	8369151	8276992	4G	83	Linux

92160 47185920

vidal@ws009:~/qemu_vms$ sudo mount -v -o offset=47185920 -t ext4 ~/qemu_vms/2017-04-10-raspbian-jessie.img /mnt/raspbian
[sudo] password for vidal:
mount: /dev/loop0 mounted on /mnt/raspbian.
vidal@ws009:~/qemu_vms$ sudo cp /mnt/raspbian/etc/ld.so.preload .
vidal@ws009:~/qemu_vms$ sudo cp /mnt/raspbian/etc/fstab .
vidal@ws009:~/qemu_vms$ sudo nano /mnt/raspbian/etc/ld.so.preload

vidal@ws009:~/qemu_vms$ sudo nano /mnt/raspbian/etc/fstab
vidal@ws009:~/qemu_vms$ diff fstab /mnt/raspbian/etc/fstab
2,3c2,3
< PARTUUID=402e4a57-01 /boot   vfat   defaults   0   2
< PARTUUID=402e4a57-02 /   ext4   defaults,noatime 0   1

> /dev/sda1 /boot   vfat   defaults   0   2
> /dev/sda2 /   ext4   defaults,noatime 0   1
vidal@ws009:~/qemu_vms$ sudo umount /mnt/raspbian

Command to start the virtual raspberry pi

Note: The yocto sdk qemu fails at startup.
vidal@ws009:~/qemu_vms$. /opt/poky/3.0.1/rpi4/environment-setup-cortexa7t2hf-neon-vfpv4-poky-linux-gnueabi

vidal@ws009:~/qemu_vms$ qemu-system-arm -kernel ~/qemu_vms/qemu-rpi-kernel/kernel-qemu-4.4.34-jessie -cpu arm1176 -m 256 -M versatilepb -serial stdio -append "root=/dev/sda2 rootfstype=ext4 rw" -hda ~/qemu_vms/2017-04-10-raspbian-jessie.img -redir tcp:5022::22 -no-reboot
qemu-system-arm: -redir: invalid option

Removing the -redir tcp:5022::22 boots okay to

Command to start the virtual raspberry pi

Note: The repo qemu-rpi-kernel https://github.com/dhruvvyas90/qemu-rpi-kernel is needed for this testing.

vidal@ws009:~/qemu_vms$ qemu-system-arm -kernel ~/qemu_vms/qemu-rpi-kernel/kernel-qemu-4.4.34-jessie \
     -cpu arm1176 -m 256 -M versatilepb -serial stdio \
     -append "root=/dev/sda2 rootfstype=ext4 rw" -hda ~/qemu_vms/2017-04-10-raspbian-jessie.img \
     -redir tcp:5022::22 -no-reboot
WARNING: Image format was not specified for '/home/vidal/qemu_vms/2017-04-10-raspbian-jessie.img' and probing guessed raw.
     Automatically detecting the format is dangerous for raw images, write operations on block 0 will be restricted.
     Specify the 'raw' format explicitly to remove the restrictions.
pulseaudio: set_sink_input_volume() failed
pulseaudio: Reason: Invalid argument
pulseaudio: set_sink_input_mute() failed
pulseaudio: Reason: Invalid argument
Uncompressing Linux... done, booting the kernel.

```
See 'systemctl status systemd-modules-load.service' for details.
systemd[1]: Failed to start Load Kernel Modules.
systemd[1]: Unit systemd-modules-load.service entered failed state.
systemd[1]: Time has been changed
[  OK  ] Started udev Coldplug all Devices.
systemd[1]: Started udev Coldplug all Devices.
systemd[1]: Mounted Configuration File System.
systemd[1]: Mounted FUSE Control File System.
systemd[1]: Starting Apply Kernel Variables...
          Starting Apply Kernel Variables...
systemd[1]: Starting udev Kernel Device Manager...
          Starting udev Kernel Device Manager...
systemd[1]: Starting Syslog Socket.
[  OK  ] Listening on Syslog Socket.
systemd[1]: Listening on Syslog Socket.
systemd[1]: Starting Journal Service...
          Starting Journal Service...
[  OK  ] Started Journal Service.
systemd[1]: Started Journal Service.
[  OK  ] Started Apply Kernel Variables.
[  OK  ] Started udev Kernel Device Manager.
          Starting Copy rules generated while the root was ro...
          Starting LSB: Set preliminary keymap...
[  OK  ] Started Copy rules generated while the root was ro.
```

Raspberry Pi at console.