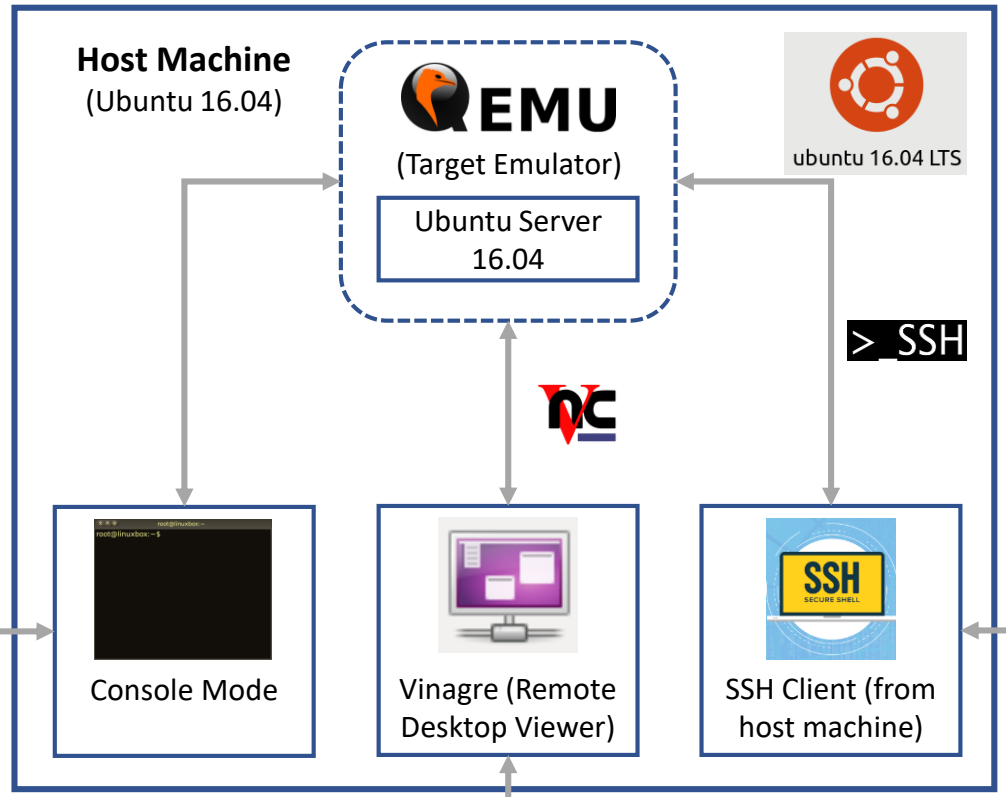


Console Mode

- Launching the virtual machine: Run

./launch_ubuntu_ARM.sh -display none -vmpath [path to store VM files]
Default path: openpilotricardo/tools/emu
To make it simpler run the following:
./launch_ubuntu_ARM.sh

- This will open the console with login options. Enter username and password to log-in
- Shutdown the VM using:

Sudo shutdown –h now

Remote Desktop Mode

- Launching the virtual machine using VNC: Run

./launch_ubuntu_ARM.sh -display vga
You will see a terminal indicating:
Display mode: vga
VNC server running on 127.0.0.1:5900

- Launch the Remote Desktop Viewer. Click the "Connect" option on top left corner and then fill the following fields:
  - Protocol: VNC
  - Host: 127.0.0.1:5900 and press "Connect"

SSH Mode

- Start the VM in console mode
- Open a terminal in host machine and run:

Ssh localhost -p 2222
Enter login details

- After successful login, you should see the QEMU shell, with pointer at:

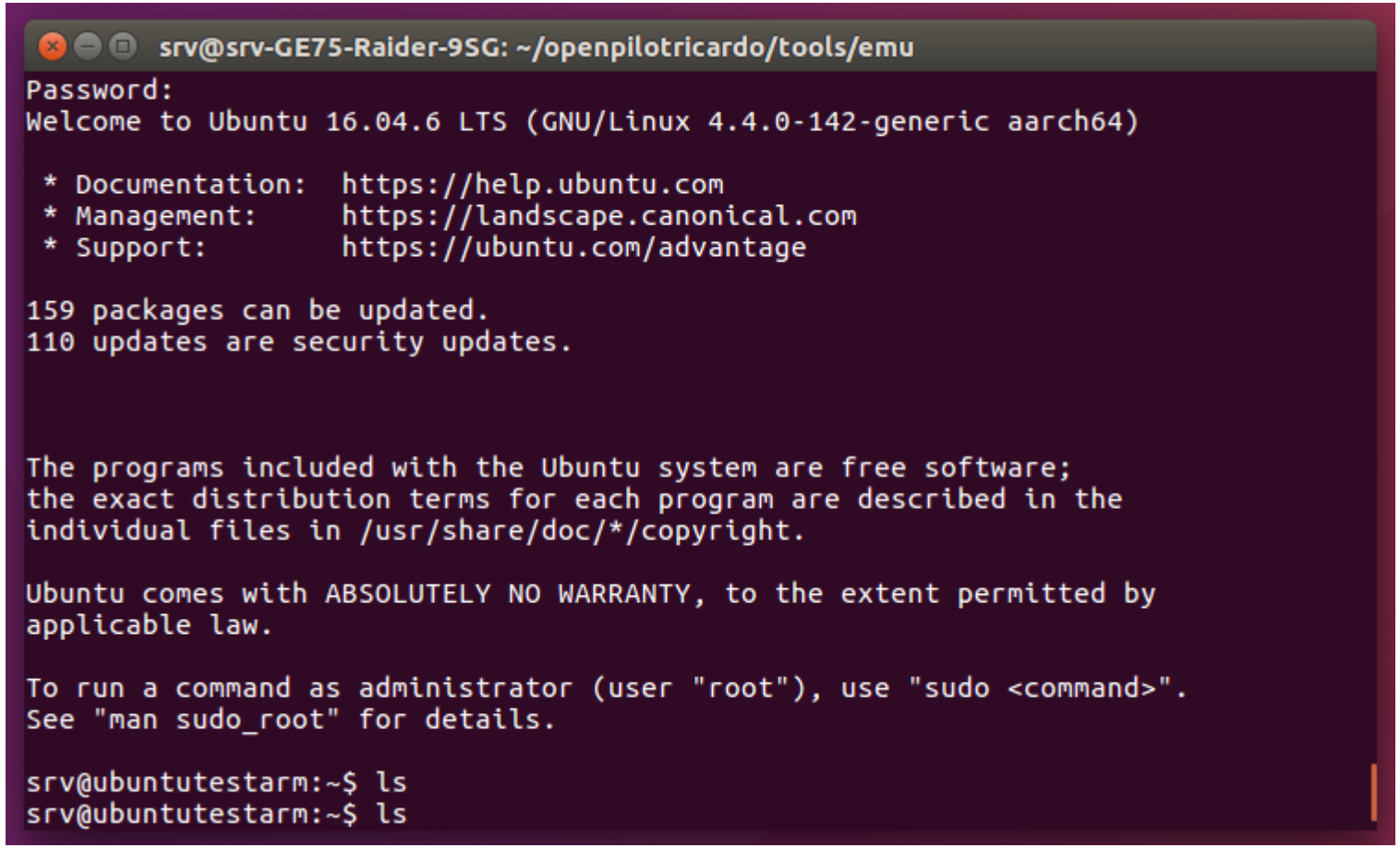
username@ubuntuARM:~$

- Copy a file from host to guest (virtual machine)

scp -P 2222 libcereal_shared.so username@localhost:/home/username/

CONSOLE MODE

Step1:
cd openpiltotricardo/tools/emu
./launch_ubuntu_ARM.sh
Step2: *Enter login details: ubuntu username and password. You will see the following on successful log-in*



REMOTE DESKTOP MODE

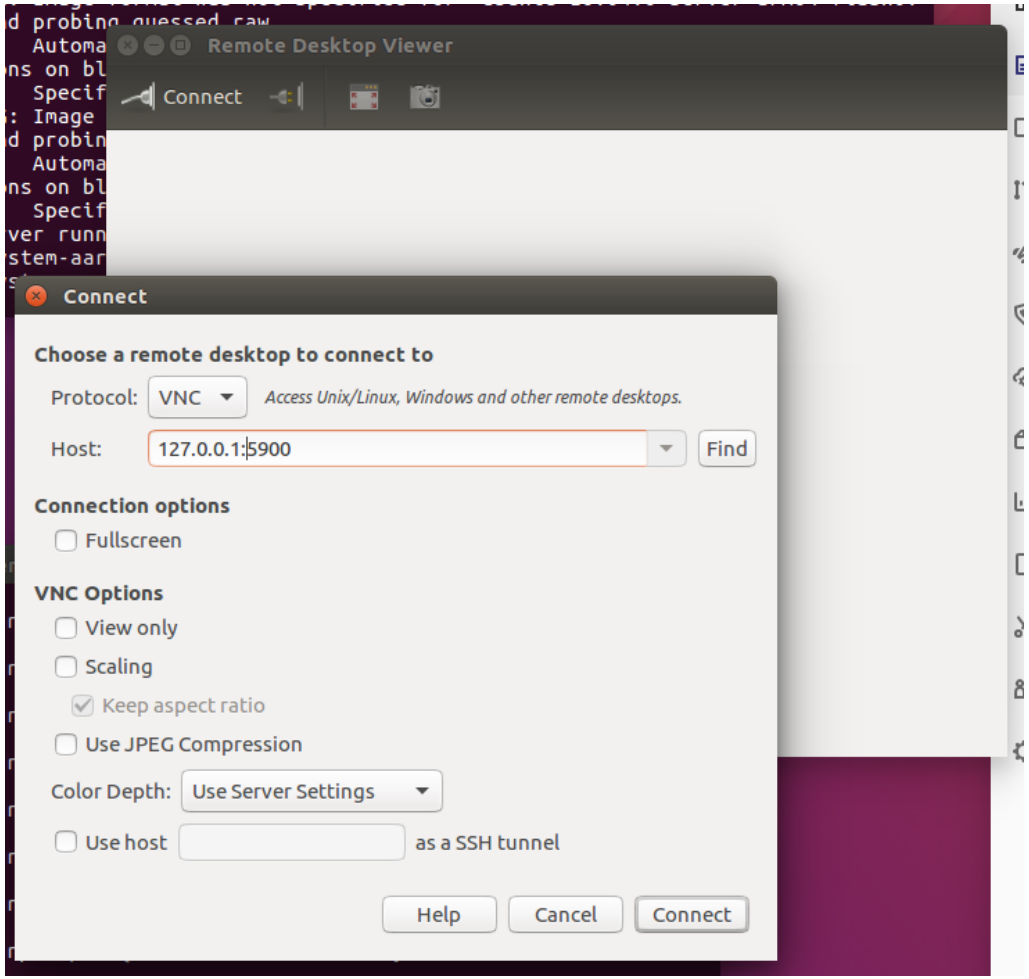
Step1:

cd openpiltotricardo/tools/emu

./launch_ubuntu_ARM.sh -display vga

```
srv@srv-GE75-Raider-9SG: ~/openpilotricardo/tools/emu
+ iso=ubuntu-16.04.6-server-arm64.iso
+ flash0=ubuntu-16.04.6-server-arm64-flash0.img
+ flash1=ubuntu-16.04.6-server-arm64-flash1.img
+ qemu-system-aarch64_5.0 -cpu cortex-a57 -device virtio-blk-device,drive=hd0 -d
rive if=none,file=ubuntu-16.04.6-server-arm64.img.snapshot.qcow2,id=hd0 -m 4G -m
achine virt -pflash ubuntu-16.04.6-server-arm64-flash0.img -pflash ubuntu-16.04.
6-server-arm64-flash1.img -smp 4 -device virtio-net-device,netdev=hostnet0,mac=3
c:a0:67:3e:fe:72 -netdev user,id=hostnet0,hostfwd=tcp::2222-:22 -device usb-ehci
 -device usb-kbd -device usb-mouse -usb -device usb-tablet -device cirrus-vga -v
ga std
WARNING: Image format was not specified for 'ubuntu-16.04.6-server-arm64-flash0.
img' and probing guessed raw.
         Automatically detecting the format is dangerous for raw images, write o
perations on block 0 will be restricted.
         Specify the 'raw' format explicitly to remove the restrictions.
WARNING: Image format was not specified for 'ubuntu-16.04.6-server-arm64-flash1.
img' and probing guessed raw.
         Automatically detecting the format is dangerous for raw images, write o
perations on block 0 will be restricted.
         Specify the 'raw' format explicitly to remove the restrictions.
VNC server running on 127.0.0.1:5900
qemu-system-aarch64_5.0: warning: guest updated active QH
qemu-system-aarch64_5.0: warning: guest updated active QH
```

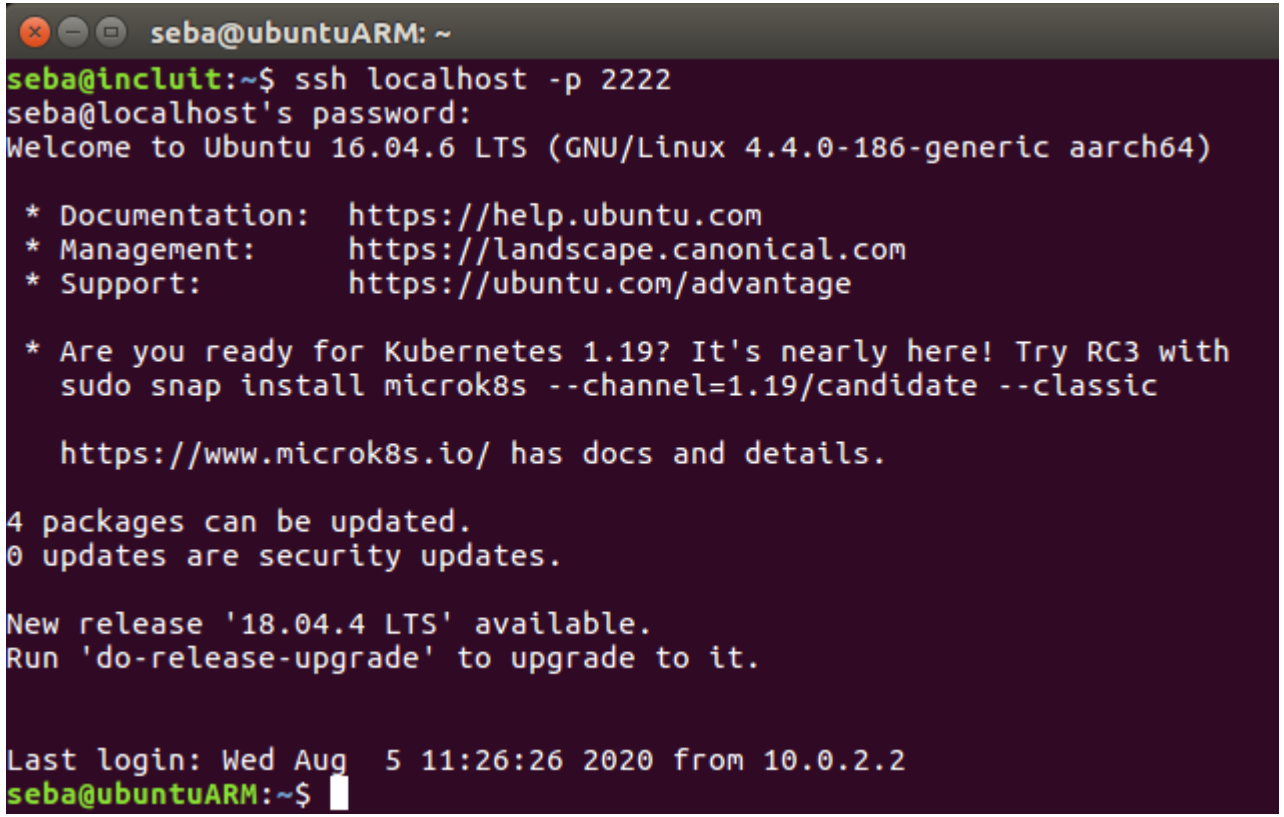
Step2: *Launch Remote Desktop Viewer*



After successful log-in, you will see the graphical interface of the VM

SSH Mode

Step1: Run VM in Console Mode/Remote Desktop Mode (follow steps in above slides)

Step2: In host machine new terminal

Ssh localhost -p 2222