IoT: Client Devices

Testing our Development Environment

Start up your VM

Log into your VM

- Start up virtualization
- Log in
- Open a few windows

Other Tools

- I use things like Tmux and Powerline (you don't have to)

Build an ARM Image

BUILDROOT

- Versatile Platform Baseboard
- Configure with defaults and Build
- cd to Buildroot directory
- $ make qemu_arm_versatile_defconfig

WHAT DOES THIS DO?

- Creates a base .config file with defaults for board
- Build stock version first

Now Add SSH

Why?

- We need to move a cross-compiled executable to the image

Navigate to Buildroot

- Open the configuration menu (make nconfig)
- Target Packages -> Networking applications -> openssh
- Rebuild (just type make)

Build Results

So what did we build?

- Take a look in $buildroot_home/output/images
- you should see: zImage, rootfs.ext2, versatile-pb.dtb
- what are these things?
  - zImage: Kernel image
  - rootfs.ext2: Root filesystem
  - versatile-pb.dtb: Device tree blob (contains hardware info)

Let's Run

Build Instructions

- $buildroot_home/board/qemu/arm-versatile/readme.txt
- The command line for the new QEMU image is in the readme (see next page for script)

Running in QEMU

Might be better as a script

qemu-versatile.sh:

```
qemu-system-arm \
-M versatilepb \
-kernel output/images/zImage \
-dtb output/images/versatile-pb.dtb \
-drive file=output/images/rootfs.ext2,if=scsi,format=raw -append "root=/
dev/sda console=ttyAMA0,115200" \
-serial stdio \
-net nic,model=rtl8139 -net user \
-redir tcp:2222:22
```