Week 5 Brief

10/5/21

Team Activities

- Tried getting previous team’s virtual camera to function by following step by step instructions
  - Mostly hindered by technical difficulties
  - Hard-to-understand documentation
    - Assumes proficiency in kernels, hardware design, linux, and virtual machines.
- Added potential IoT devices to our table
- Finished Requirements/Constraints Assignment and Lightning Talk

Team Activities Cont.

- Added documents to website
- Created a downloadable CDC
    - Configured and tested the 3 VMs

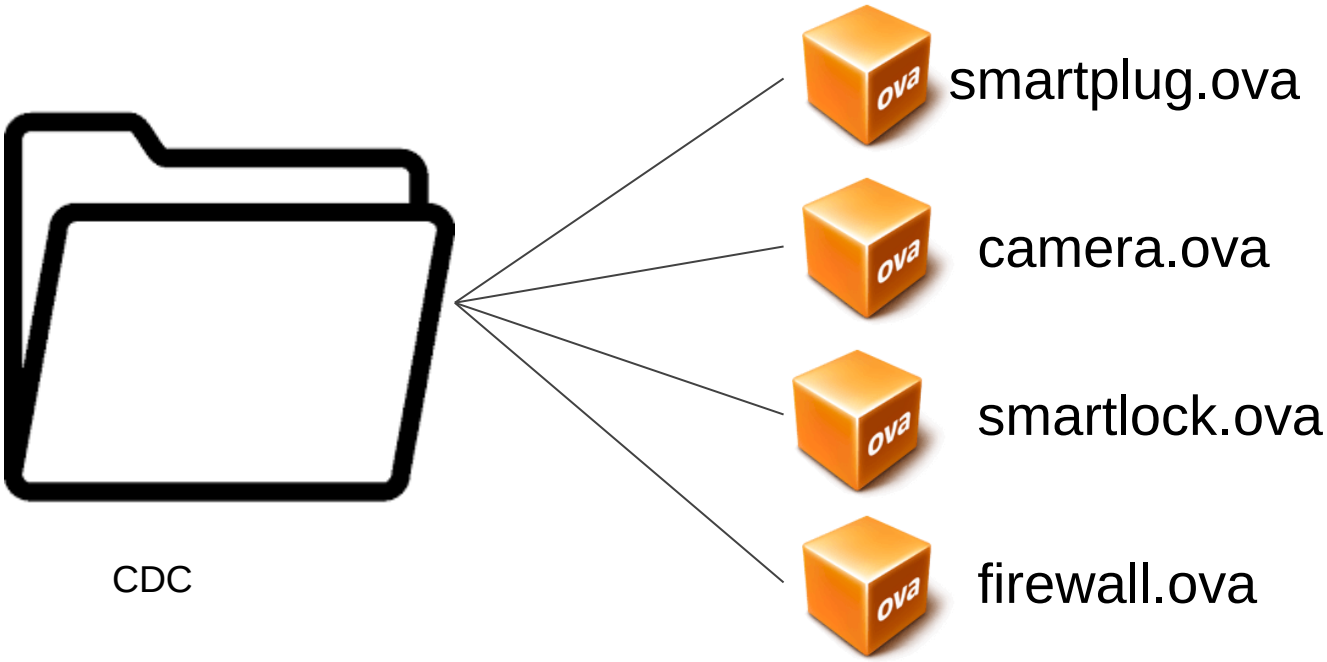
Current IoT Device List

Device	CVEs	Flashyness	Cost	CVSS Score	Hacking Difficulty	CDC Integration	Total Score
Jector Smart TV FM-K75	CVE-2019-9871	5	0 (Very Expensive)	9.8 (Critical)	4.0 (Easy)	3.0 (Somewhat Intregratable)	21.8
Yi Home Camera 27US	CVE-2018-3934	--	5 (Cheap)	9.0 (Critical)	2 (Hard)	--	--
TP-Link Archer A7 AC1750	CVE-2020-10888	--	5 (Cheap)	9.8 (Critical)	2 (Hard)	--	--
Eques Elf Smart Plug	CVE-2019-15745	3	5 (Cheap)	8.8 (High)	3 (Medium)	3 (Somewhat Intregratable)	22.8
XIAOMI XIAOAI speaker Pro LX06	CVE-2020-10263	3	5 (Cheap)	6.8 (Medium)	--	2 (Barely Intregratable)	--

“Downloadable” CDC

CDC.zip

“Downloadable” CDC



“Downloadable” CDC

“CDC Environment”

smartplug.ova

camera.ova

smartlock.ova

firewall.ova

Our Mission

smartplug.ova

“CDC Environment”

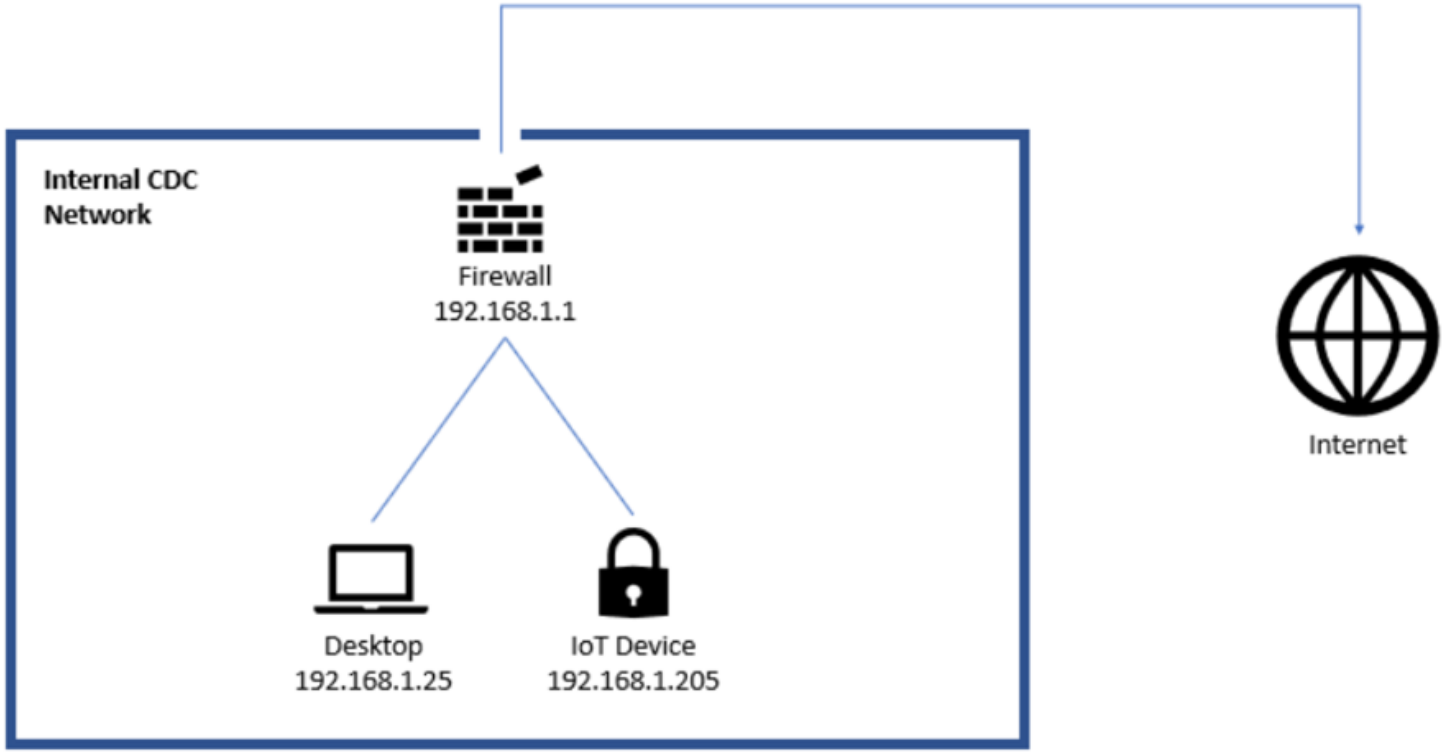
192.168.1.200
“smartplug”

Configured a downloadable CDC

- We have 3 virtual machines on our Gitlab
  - Desktop.ova
  - Firewall.ova
  - IoTDevice.ova

Name	Last commit	Last update
..		
Desktop.ova	Made a smaller version of the Desktop for ac...	2 days ago
Firewall.ova	Proof of concept changes	3 days ago
IoTDevice.ova	Added LinuxServer/IoT VM	1 day ago

Network Configuration



Set up ssh on our “CDC LAN”

1. Install VirtualBox

1. Download VMs

1. Power on all 3 VMs (IoTDevice, firewall, Desktop)

   (Instantly Connected Internal Network)

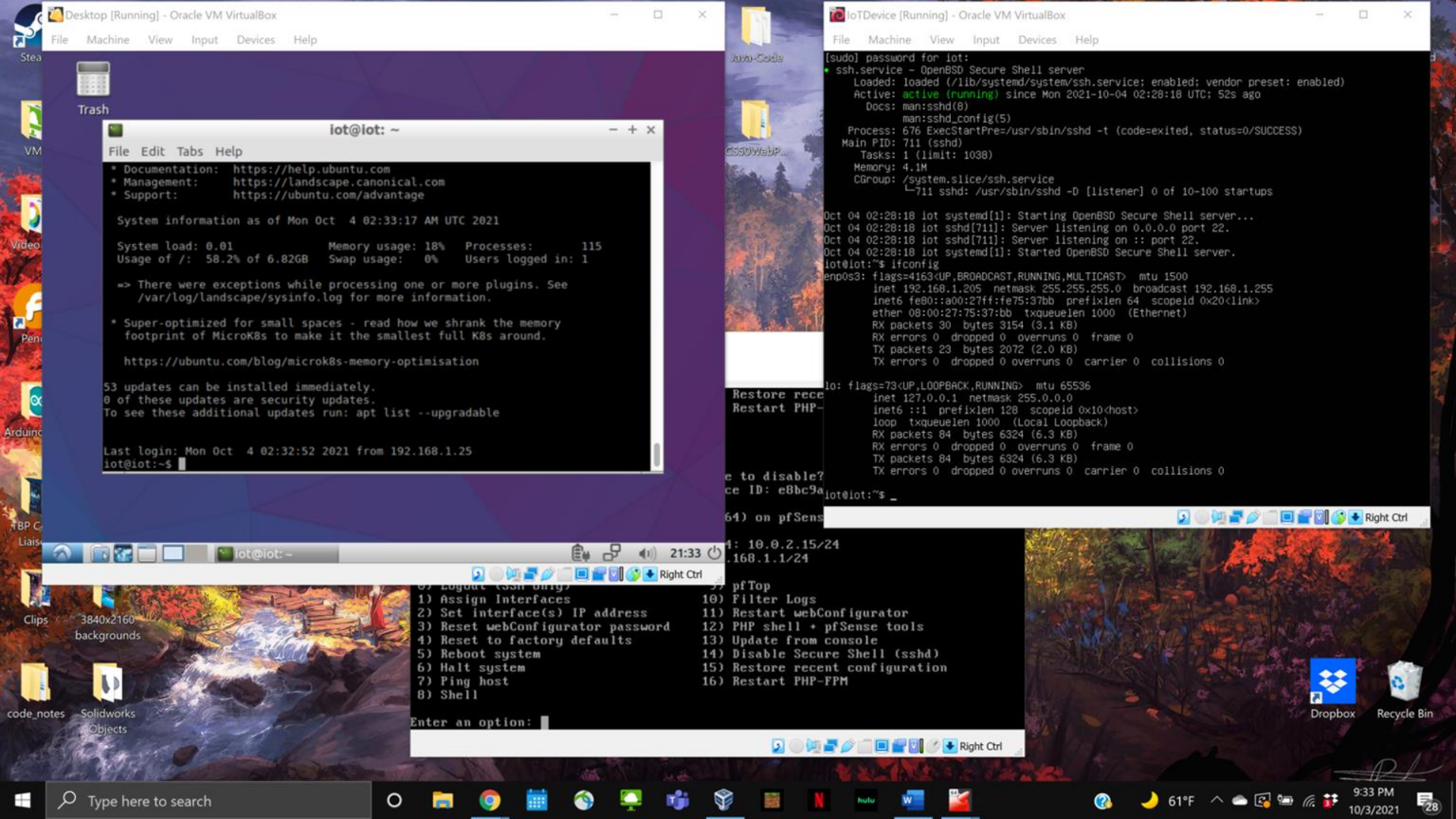
Set up ssh on our “CDC LAN”

4. Enable sshd on pfsense firewall
    a. Enter option "14" in firewall virtual machine, enter, then type y, enter
5. Check to make sure you have the ssh package installed on the IoT VM
    a. "sudo apt install openssh-server"
6. Enable and start ssh server
    a. "sudo systemctl enable ssh"
    b. "sudo systemctl start ssh"

Set up ssh on our “CDC LAN”

7. ssh to the IoT device from the Desktop vm
    a. "ssh iot@192.168.1.205"
8. You'll be prompted for a password --> type "iot" and hit enter

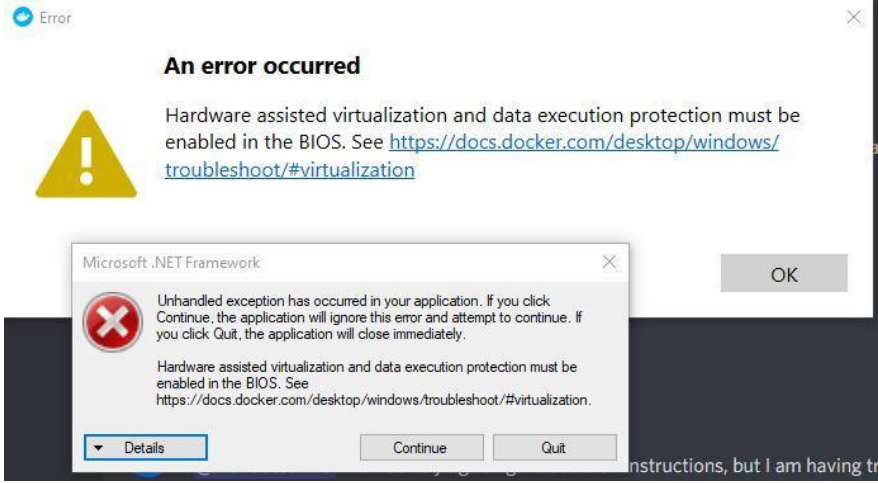
(note: you won't see your password being typed, but it is!)


Desktop [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Trash
iot@iot: ~
File Edit Tabs Help
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
System information as of Mon Oct 4 02:33:17 AM UTC 2021
System load: 0.01 Memory usage: 18% Processes: 115
Usage of /: 58.2% of 6.82GB Swap usage: 0% Users logged in: 1
=> There were exceptions while processing one or more plugins. See
/var/log/landscape/sysinfo.log for more information.
* Super-optimized for small spaces - read how we shrank the memory
footprint of MicroK8s to make it the smallest full K8s around.
https://ubuntu.com/blog/microk8s-memory-optimisation
53 updates can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable
Last login: Mon Oct 4 02:32:52 2021 from 192.168.1.25
iot@iot:~$
iot@iot: ~
21:33
Right Ctrl
ioTDevice [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
[sudo] password for iot:
ssh.service - OpenBSD Secure Shell server
Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
Active: active (running) since Mon 2021-10-04 02:28:18 UTC; 52s ago
Docs: man:sshd(8)
man:sshd_config(5)
Process: 676 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
Main PID: 711 (sshd)
Tasks: 1 (limit: 1038)
Memory: 4.1M
CGroup: /system.slice/ssh.service
└─711 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
Oct 04 02:28:18 iot systemd[1]: Starting OpenBSD Secure Shell server...
Oct 04 02:28:18 iot sshd[711]: Server listening on 0.0.0.0 port 22.
Oct 04 02:28:18 iot sshd[711]: Server listening on :: port 22.
Oct 04 02:28:18 iot systemd[1]: Started OpenBSD Secure Shell server.
iot@iot:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.1.205 netmask 255.255.255.0 broadcast 192.168.1.255
inet6 fe80::a00:27ff:fe75:37bb prefixlen 64 scopeid 0x20<link>
ether 08:00:27:75:37:bb txqueuelen 1000 (Ethernet)
RX packets 30 bytes 3154 (3.1 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 23 bytes 2072 (2.0 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 84 bytes 6324 (6.3 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 84 bytes 6324 (6.3 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
iot@iot:~$
Right Ctrl
Restore rece
Restart PHP-
e to disable?
ce ID: e8bc9a
64) on pfSens
1: 10.0.2.15/24
.168.1.1/24
pfTop
1) Assign Interfaces
10) Filter Logs
2) Set interface(s) IP address
11) Restart webConfigurator
3) Reset webConfigurator password
12) PHP shell + pfSense tools
4) Reset to factory defaults
13) Update from console
5) Reboot system
14) Disable Secure Shell (sshd)
6) Halt system
15) Restore recent configuration
7) Ping host
16) Restart PHP-FPM
8) Shell
Enter an option:
Right Ctrl
Java-Code
CS50WebP...
Clips
3840x2160 backgrounds
code_notes
Solidworks Objects
Dropbox
Recycle Bin
Type here to search
61°F
9:33 PM
10/3/2021

Virtual Camera

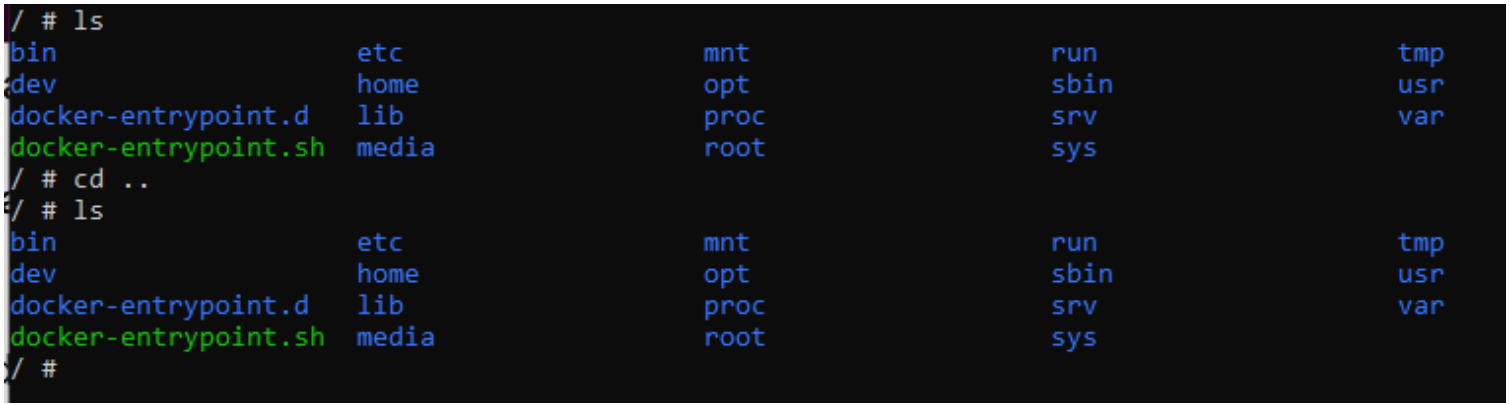
Docker Installation Issues (we should add troubleshooting)

- Many potential issues and no troubleshooting help
- Upon attempting to run, I was given the error on the right
  - Says to turn on various features in Windows Features including optional Hyper-V
    - Hyper-V is non compatible with Windows 10 Home
  - Site also says virtualization must be enabled but does not say how to enable
    - Must adjust BIOS settings to enable virtualization
      - For my computer I had to turn on I0MMU, AMD, and SVM
  - Must also install WSL 2 to make docker run



Virtual Camera

- Step one on instruction is to navigate to their folder which may be downloaded from Github
  - When using docker, I seem to be unable to exit the base docker directory
  - When searching for the base docker directory to instead move the previous team's folder into there, I cannot find where the directory is stored in the docker files
- Next step is to figure out a way to get to their folder or move their folder into the docker base directory



Virtual Camera

- **Option 1:** Figure out how to follow last years documentation

- **Option 2:** Remake last year's CameraVM from scratch
  - Build a lightweight linux server
  - Reimplement vulnerabilities
  - Make services all over again
  - Thoroughly document the process for next year

This week “To Do”

- Project Plan Assignment
  - Along with lightning talk
- Prepare for and participate in fall CDC (this saturday)
- Continue configuring and adding services to our VMs
- Prep for in-class presentation next week (Oct. 14)