OpenWrt & Open Wisp Configuration

Sunday, April 12, 2020 9:47 AM

- My Understanding of OpenWrt and OpenWisp is that OpenWisp is the centralized controller would be the Device. It will have the Interface (Lan, Wifi) configured but the template will be contoller - OpenWisp.

- I will upload the templates, the readme file and possible the images. Finally will export the G project. I have used `openwrt-18.06.1-x86-64-combined-ext4.img and not`

CREATE 3 .VDI FILES FOR AP1, AP2 AND WIRELESS CONTROLLER

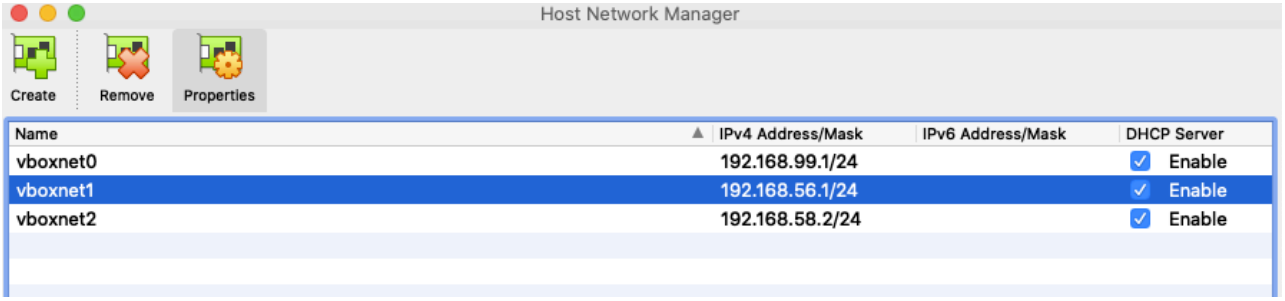
- ACCESS POINT 1
- `VBoxManage convertfromraw --format VDI openwrt-18.06.1-x86-64 openwrt-18.06.1-x86-64-combined-ext4-image.vdi`

- ACCCES POINT 2
- `VBoxManage convertfromraw --format VDI openwrt-18.06.1-x86-64 openwrt-18.06.1-x86-64-combined-ext4-image2.vdi`

- WIRELESS CONTROLLER
- `VBoxManage convertfromraw --format VDI openwrt-18.06.1-x86-64 openwrt-18.06.1-x86-64-combined-ext4-image3.vdi`

- `ssh root@192.168.56.56 -o UserKnownHostsFile=/dev/null : this commands helps if you change the ip configuration and try to login again`

- This Configuration is the first step in making setup work. I am using all the wireless device on vboxnet1 has been configured in the Virtualbox for the same.



and OpenWrt instance
pushed by the centralized

NS3 file as the portable

```
t openwrt-19.
```

```
-combined-ext4.img
```

```
-combined-ext4.img
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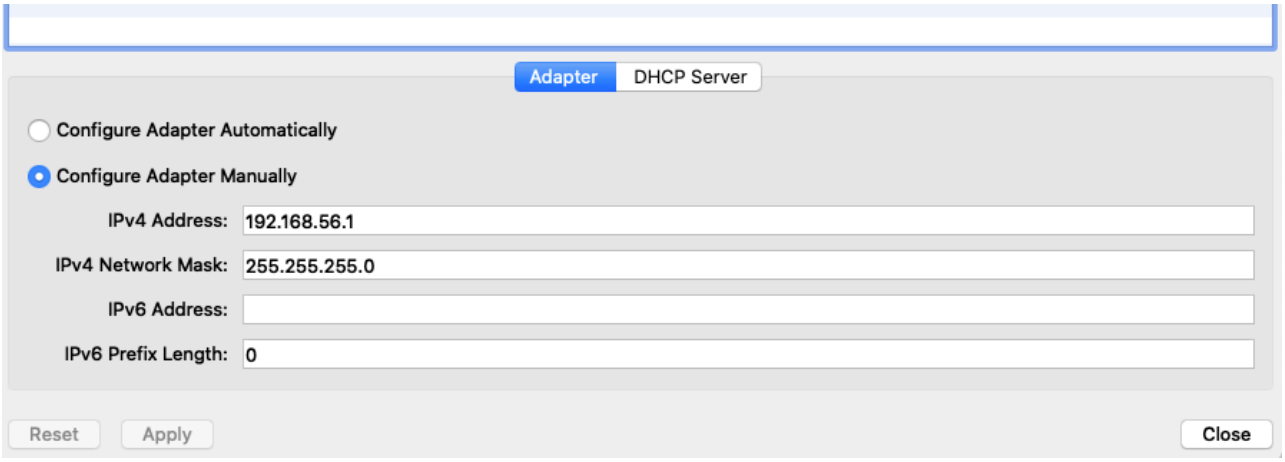
```
-combined-ext4.img
```

```
to clear the ssh keys
```

network 192.168.56.1/24.



Step 1: OpenWisp2 Configuration:

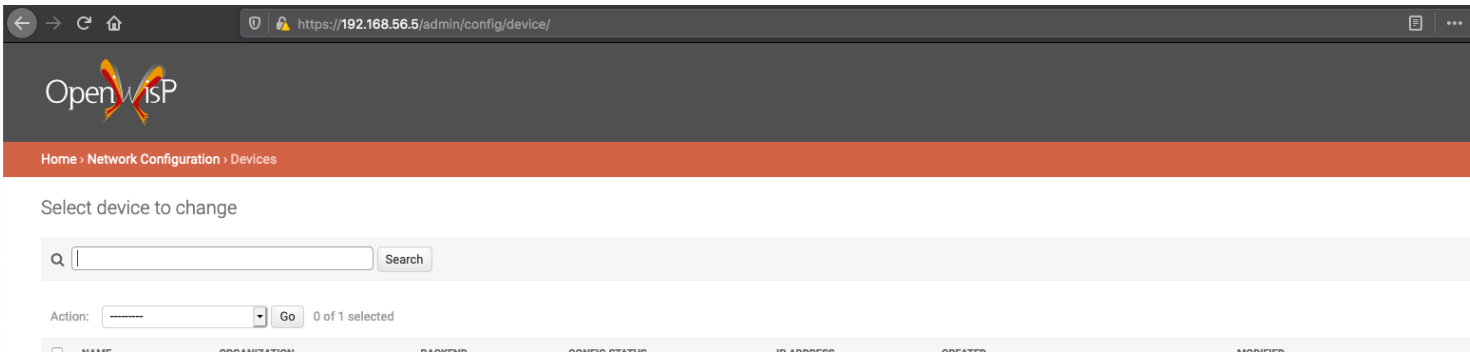
Configured the VM as per the Instructions in document using the "H
adapter using vnet0. Try out the templates and sample device confi
suggested. The device setup is just for our understand as to how t
configured with templates but normally that will done through Open
manually.

- Ansible with Windows is PAIN. So I am using Mac for my setup. But
  overcome this by manually running the OpenWisp VM without Vagrant

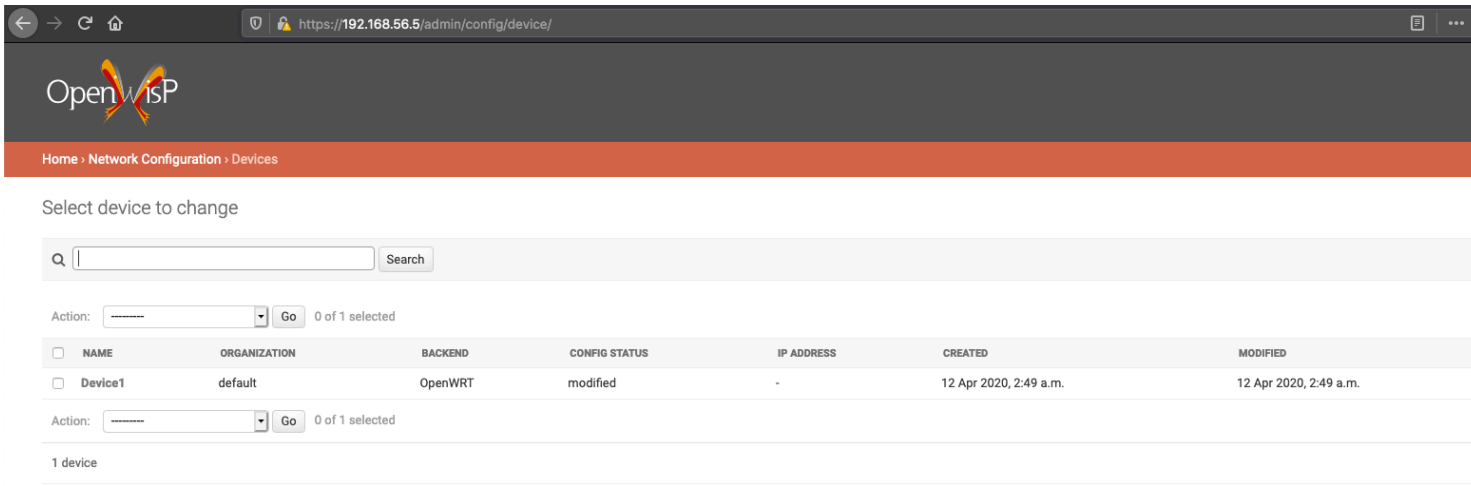
- I am using VirtualBox: vagrant up. Change the provider as per you
  supported but the image which comes with the debian image in Vagra
  not support HyperV. Changing the VagrantFile to a more appropriate
  make it work on HyperV.

- Once the service is up the you can see the

  URL: http://192.168.1.5
    - Username: admin, Password: admin



- Username: admin, Password: admin



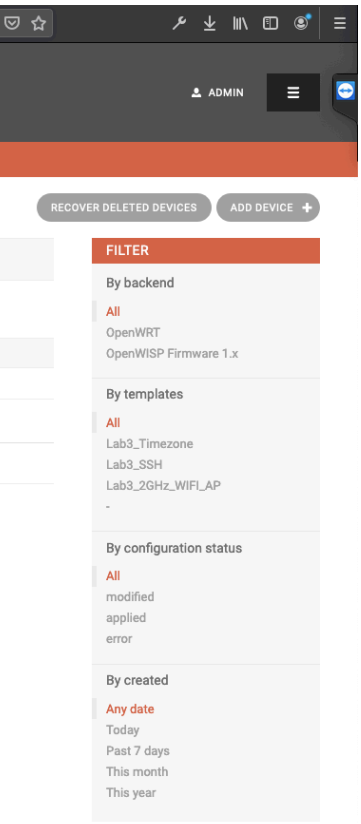
SSH Key I created has also been uploaded to GitLab:

```
-rwxrwxrwx  1 kalathilmenon  staff      422 Apr 11 21:38
cs498_iot_lab3_key.pub
-rwxrwxrwx  1 kalathilmenon  staff     1896 Apr 11 21:38
cs498_iot_lab3_key

Passphrase: cs498iotlab3
```

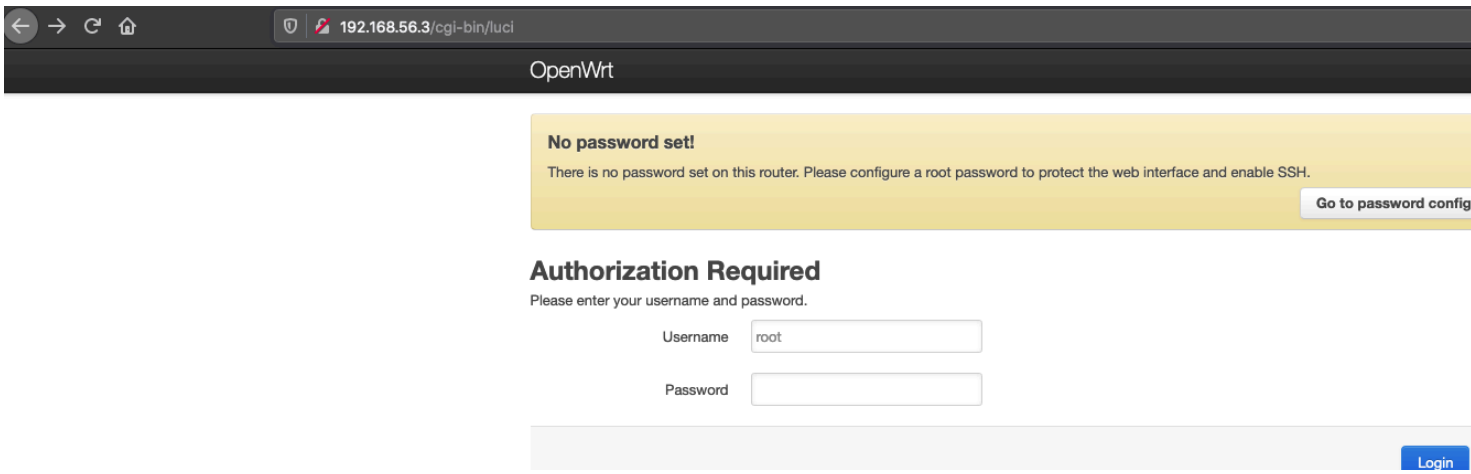
Step 2: OpenWrt Configuration (Replicate this for multiple devices to be created)

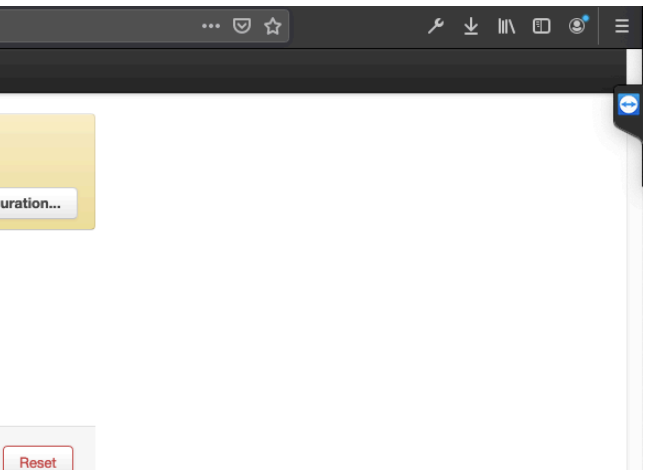
- Note: I am using the openwrt-18.06.1-x86-64-combined-ext4 version and not the 19th Version. I feel it has issues. I was not able to get the Internet working from within with the 19th Version.
    - Create multiple copies of the .vdi or .vmdk file so that you can simulate

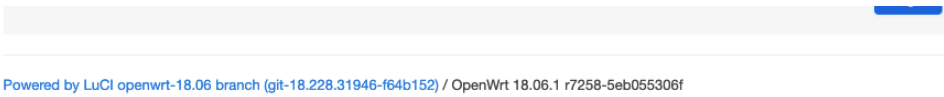

ADMIN
RECOVER DELETED DEVICES
ADD DEVICE
FILTER
By backend
All
OpenWRT
OpenWISP Firmware 1.x
By templates
All
Lab3_Timezone
Lab3_SSH
Lab3_2GHz_WIFI_AP
-
By configuration status
All
modified
applied
error
By created
Any date
Today
Past 7 days
This month
This year

different devices.

- Read this documents end to end to understand the network setup:
  - Link1 : http://openwisp.io/docs/user/configure-device.html#install-openwrt-on-virtualbox
  - Link 2: https://openwrt.org/docs/guide-user/virtualization/virtualbox-vm (link in above url as well)
- Once you have downloaded and set the OpenWrt in your VirtualBox, go first to your File --> Host Network Manager to understand how your vboxnet0, vboxnet1 … is configured.
- I am using vboxnet1 since its configured with 192.168.56.1 range of Ip address. Its DHCP enabled as well.
- As mentioned Link 2: Follow the network setup process and set the order of network adapters as follows
  - Adapter 1: Host Only Network with vboxnet1 and adapter type : Intel PRO/1000 MT …
  - Adapter 2: NAT and adapter type : Intel PRO/1000 MT …
  - Adapter 3: Bridged adapter to you eno: Ethernet
  - Adapter 4: Bridged adapter to you en1: Wi-Fi
- Start your VM and check the configuration: ifconfig | more
  - Default would be 192.168.1.1. Change that as per Link 2 or change in vim /etc/config/network
  - I set 192.168.56.3 and was able to ssh root@192.168.56.3.
    - 192.168.56.2 was not working for me. I think it was conflicting somewhere.
- 192.168.56.3 – I am able to the below LuCI webpage. Password is not required to login but I think needs to be set going forward from here.

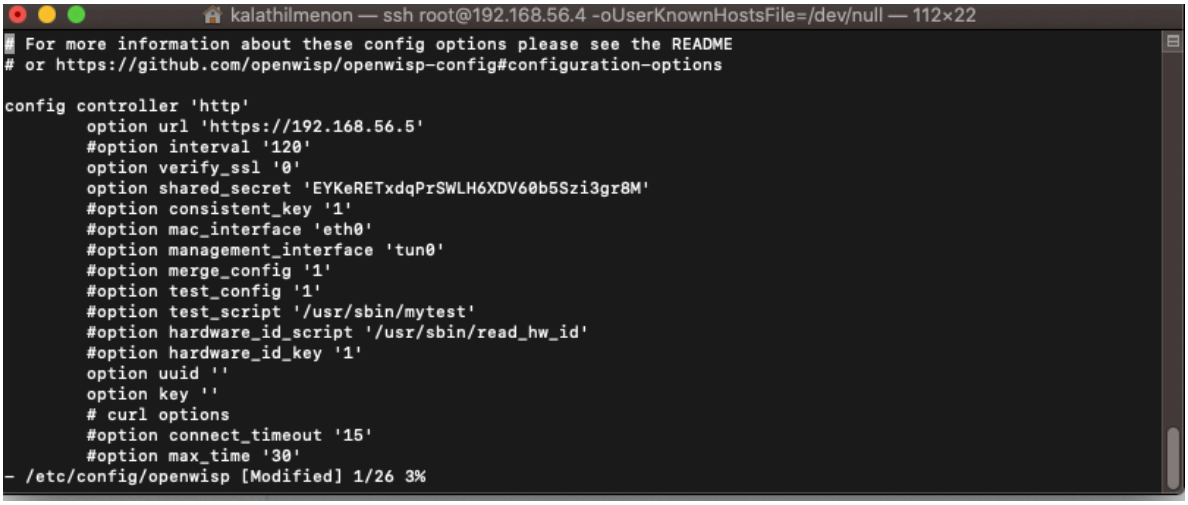



uration...
Reset

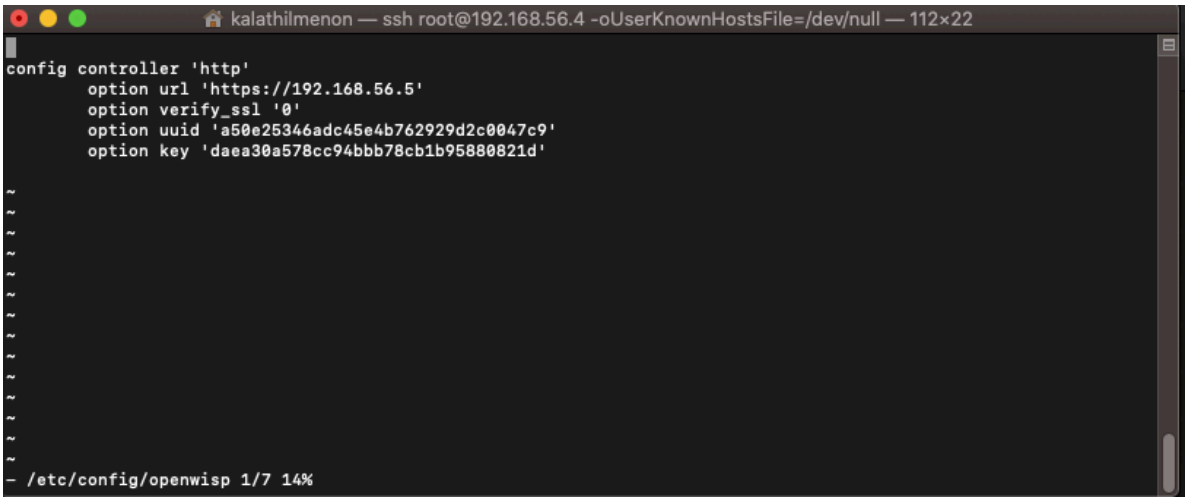


Connecting OpenWrt to OpenWisp requires openwisp to be installed on operwrt:

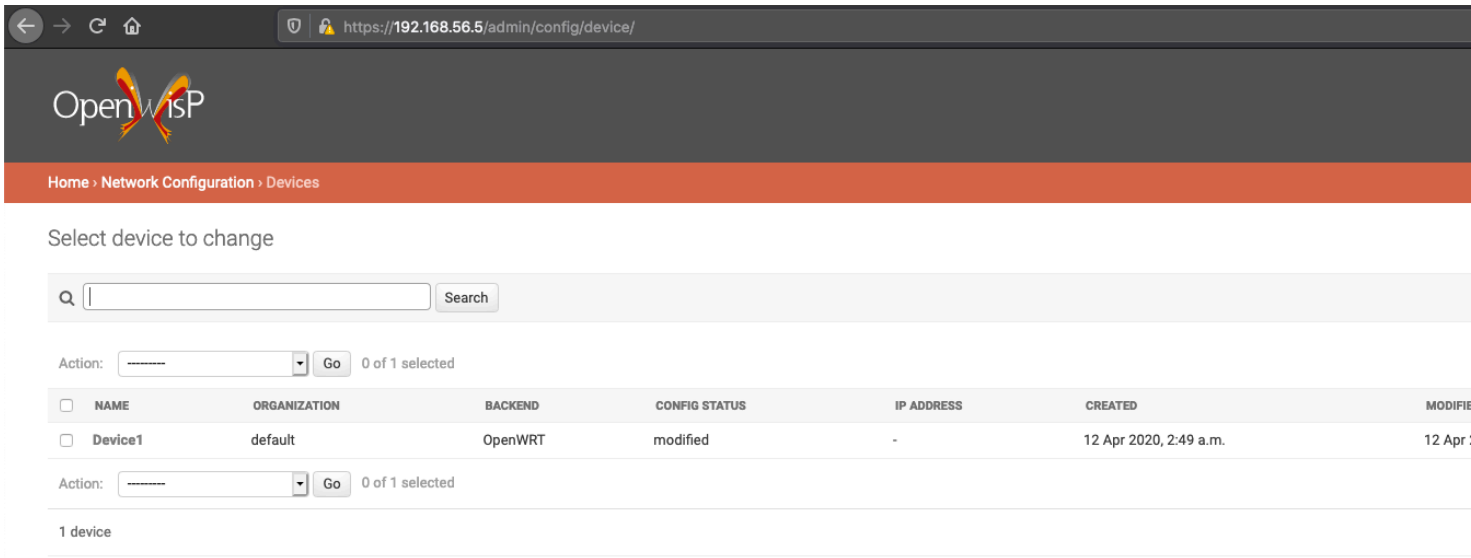
- Follow the link to correctly install, configure and restart openwrt with openwisp.
  - opkg update and opkg install http://downloads.openwisp.io/openwisp-config/latest/openwisp-config-openssl_0.4.6a-1_all.ipk : commands help to install openwisp on openwrt instance

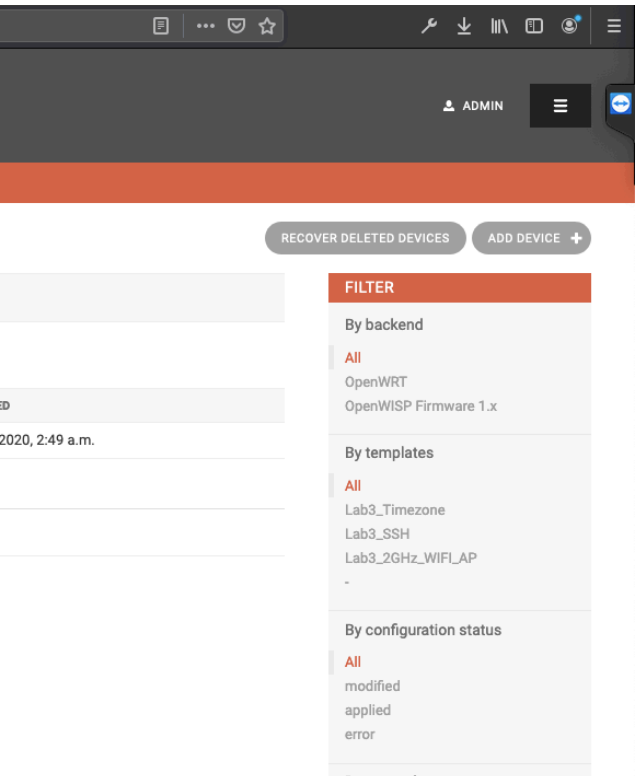
  - Then we do this step to get the openwrt get registered on the controller (openwisp). Not the url, verify_ssl and the shared_secret (need to get this from openwisp organization section) are only changed.
  - 

-
- `/etc/init.d/openwisp_config start`
  - Agent should get started after this.
  - Notice that the openwisp_config will be overridden by the controller as soon as you are connected successfully. Also a host name would be assigned.
  -

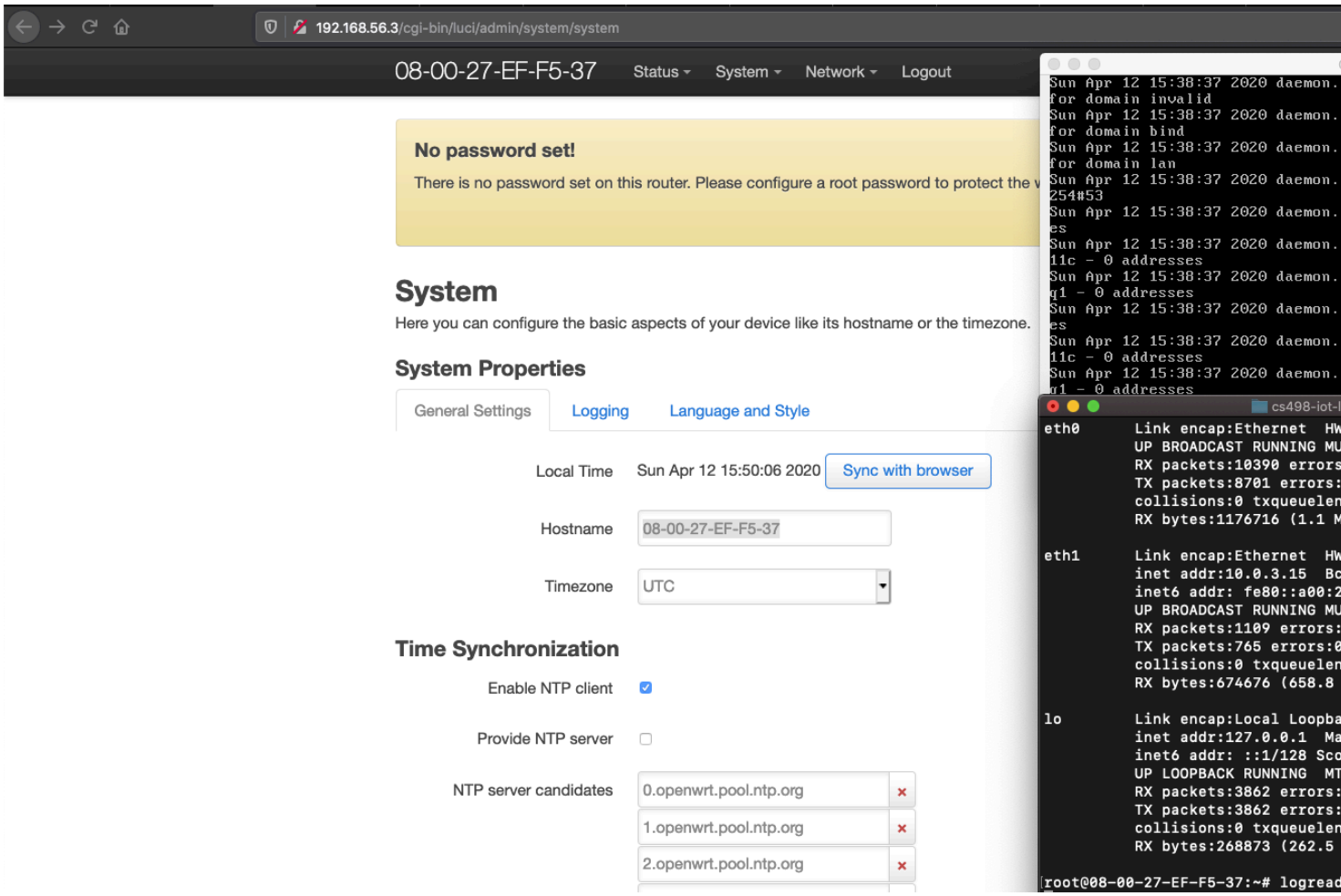


- My OpenWisp is running at 192.168.1.5 as shown below. Here I was able to set the templates and the devices
- vim `/etc/config/openwisp : I have used 192.168.1.5.`
- `logread –f : command to check the logs as to what is happening and whether you are able to connect to OpenWrt.`
- /etc/init.d/openwisp_config restart : everytime you change the openwisp config do restart'




ADMIN
RECOVER DELETED DEVICES
ADD DEVICE
FILTER
By backend
All
OpenWRT
OpenWISP Firmware 1.x
By templates
All
Lab3_Timezone
Lab3_SSH
Lab3_2GHz_WIFI_AP
-
By configuration status
All
modified
applied
error
2020, 2:49 a.m.

On successful connection you will see the hostname change automatically as well to something like : 08-00-27-EF-F5-37 from a previous



By created

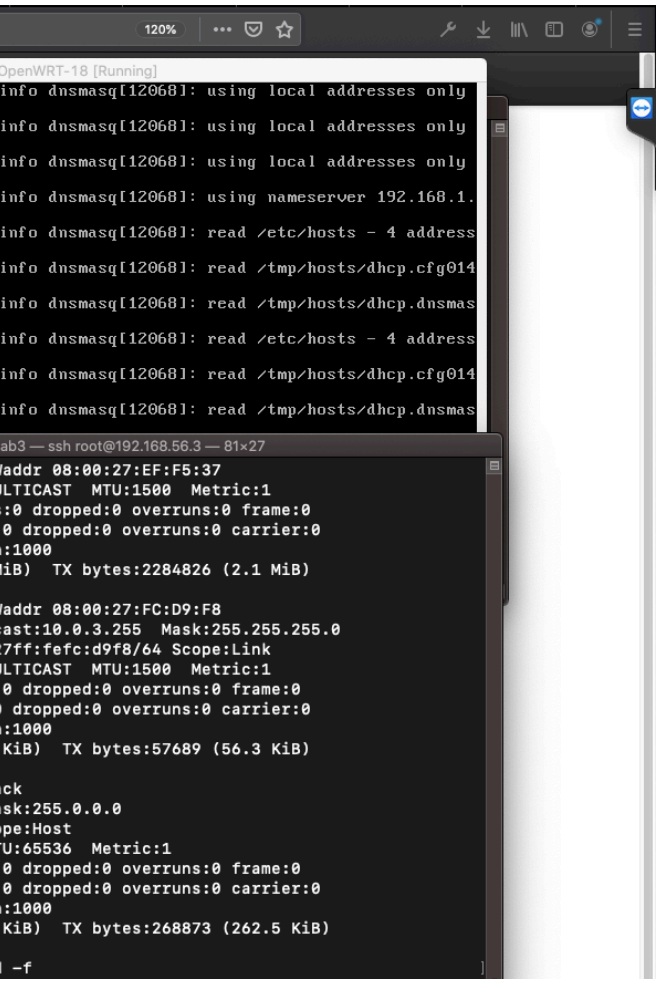
Any date

Today

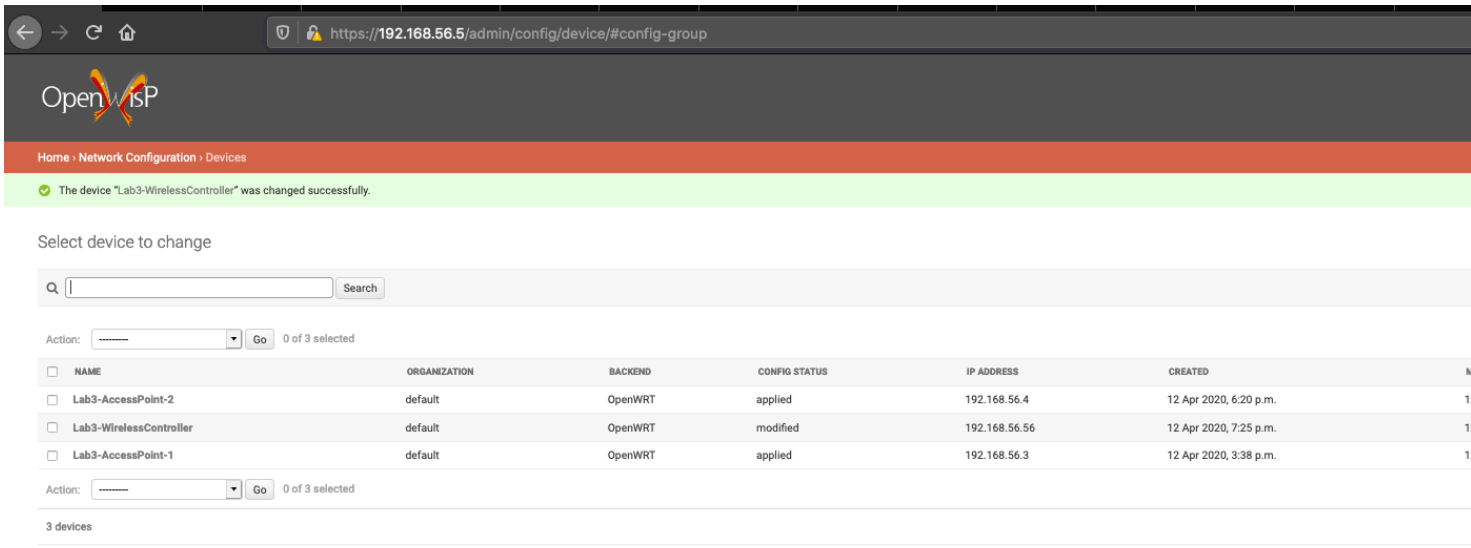
Past 7 days

This month

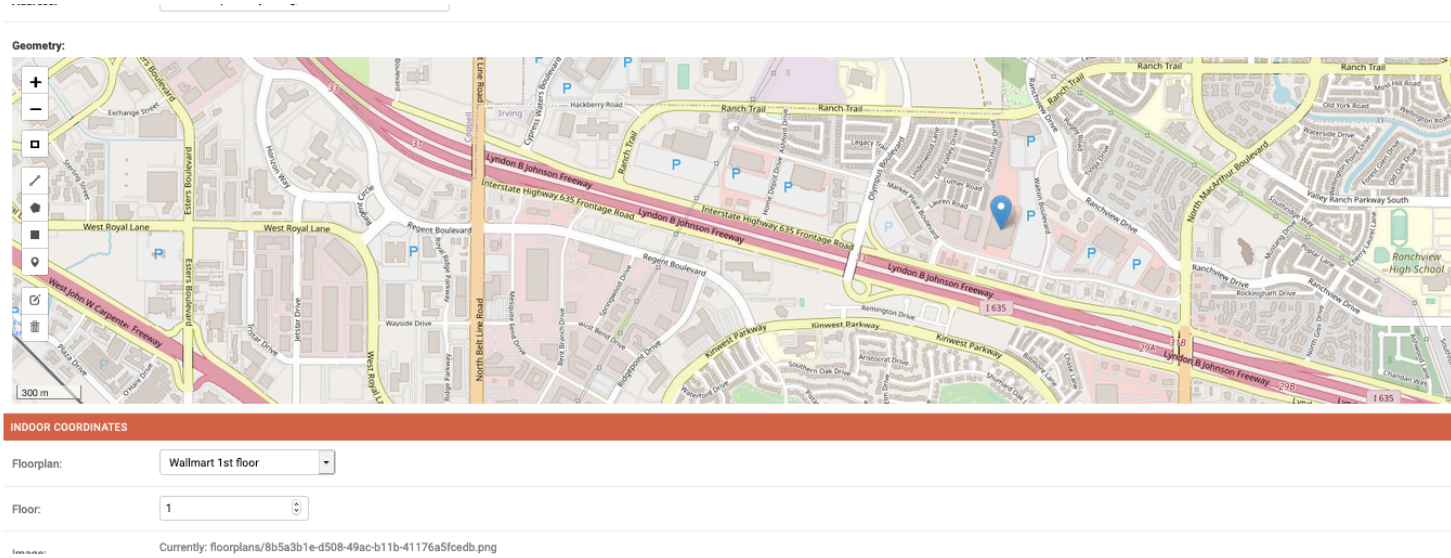
This year

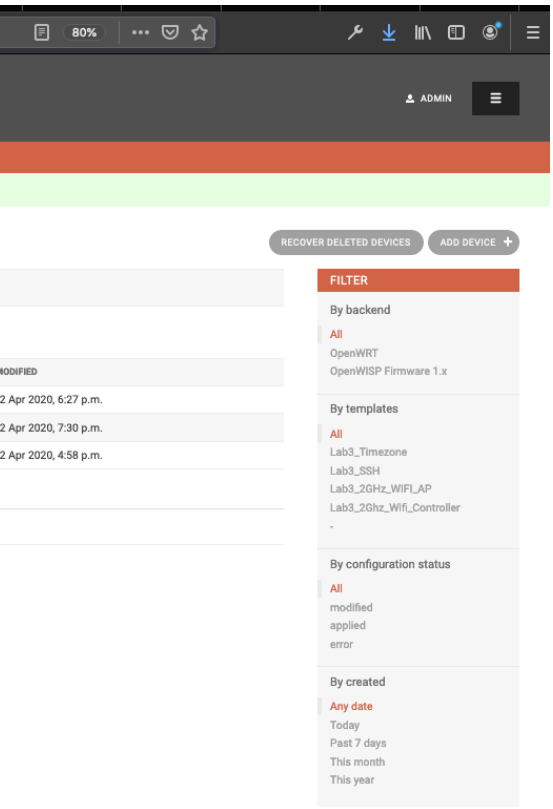


Finally the Controller will have the devices registered like these with multiple OpenWrt VM's running.



Floor Plan for the Geographic Location of the Device:




80%
ADMIN
RECOVER DELETED DEVICES
ADD DEVICE
FILTER
By backend
All
OpenWRT
OpenWISP Firmware 1.x
By templates
All
Lab3_Timezone
Lab3_SSH
Lab3_2GHz_WIFI_AP
Lab3_2Ghz_Wifi_Controller
-
By configuration status
All
modified
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By created
Any date
Today
Past 7 days
This month
This year
2 Apr 2020, 6:27 p.m.
2 Apr 2020, 7:30 p.m.
2 Apr 2020, 4:58 p.m.


Sam Houston
Trail Park
Trinity Valley Drive
Keenan Bridge Road
Valley View Lane
Luna Road
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