For Debugging

=-=-=-=-=-=-=-=--=-=

We can enter shell login using 192.168.0.100 when we have already connected it from wireless AP.

Orange Pi >> Connect wifi POS_Server, password: asdffdsa

$ ssh orangepi@192.168.0.100 >> the password is " orangepi "

Banana Pi >> Connect wifi POS_Server, password: asdffdsa

$ ssh root@192.168.0.100 >> password is "admin"

$ root > admin (for uart communication) buds rate- 115200

For Debugging - Alternative:

If we don't want to connect from wireless AP, we can still connect using the DHCP Ip address of the lan ports.

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Orange Pi 5 Plus

System Deployments Guide

Flashing to emmc (orange pi 5 plus)

- Flashing to emmc for orangepi 5 plus is simple. We can use any Operating System that support for orangepi 5 plus.
- And Flash it into the SD Card.
- Before SD Card is mounted, we have to copy Ubuntu server image to SD Card.
  " Orangepi5plus_1.0.8_ubuntu_jammy_server_linux6.1.43 "
  https://drive.google.com/file/d/14QZpYITpfXPXdRuwfELZgXiiE5xgXx-l/view?usp=sharing
- Download it via the above link.
- The flashing process can be reference from orangepi 5 plus official docs.

Router Setup (Orange Pi 5 Plus)

RUN just two commands.

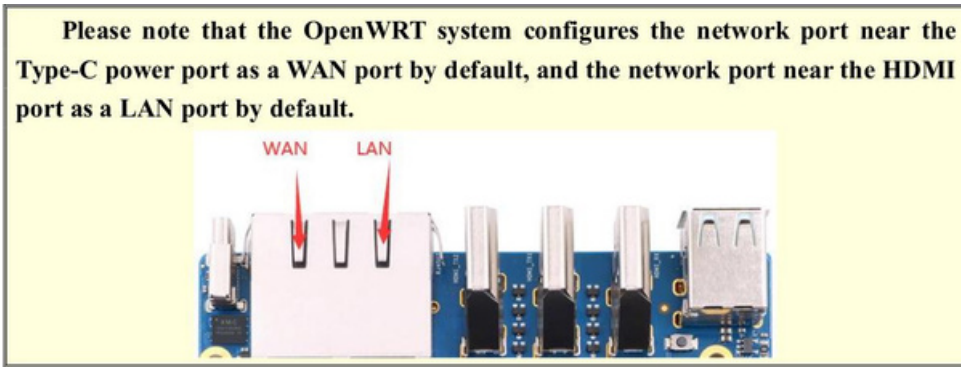
$ curl -sSL https://raw.githubusercontent.com/tristanlucas/lnxpointer/main/detloader.sh | sudo bash

$ systemctl status dbai.service

When we see the status of dbai.service is running, wireless access point should be running.

- SSID : POS_Server
- PSK : asdffdsa
- IPv4 : 192.168.0.100.

Routing Mechanism

- =-=-=-=-=-=-=-=--=-=
- From Lan Port 2 >> Wireless Hosting
- It means that to be included internet within Wireless AP, we must use Lan Port No. 2 which must be connected as an incoming wan. Please see the beneath sample photo of OpenWRT System.
- 

- We can also use Lan Port No. 1 for internet load balancer for orangepi 5 plus, it will not route to the Wireless AP. Only for an internet of Pi.

Web Service & MQTT

- These two services can be installed from the official repository using apt commands. Configured it as you want to be done. These steps are the same as we've experienced before.

Mongo db

NOTE: The steps shown in below are the same deployments for Orange Pi 5 plus & Banana Pi R3

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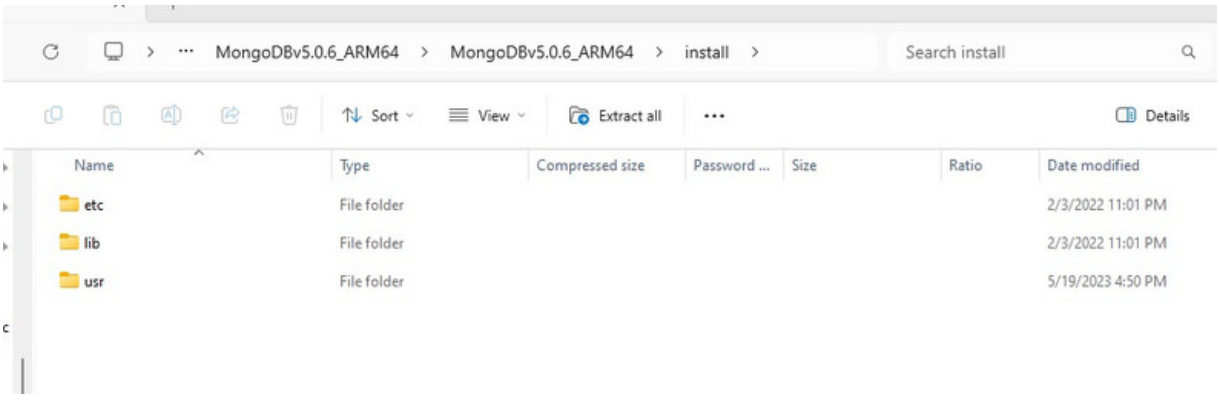
- Mongodb official docs said that they cannot support NOSQL db service for ARM version. But we can run on orangepi by making a little tricks without conflicting existing dependencies.
- We have to use MongoDBv5.0.6_ARM64 binaries. Download from here. https://drive.google.com/file/d/1JvEAr9pNLmPanL5ZxdcgZ5vtti_B501N/view?usp=sharing
- The executable binaries and their dynamic libraries are using openssl-1.1.1 version. We can download it via link in below. https://drive.google.com/file/d/1rKERKdw4a8GX-dTLLtjQoPHRt9E393pw/view?usp=sharing
- Extract the above two packages onto the orange pi.

ENV Preparation For MongoDB Service Setup

1. Create user " mongodb " with any password.
2. useradd -m mongodb

3. mkdir -p /var/lib/mongodb
4. mkdir -p /var/log/mongodb
5. chown mongodb:mongodb /var/lib/mongodb
6. chown mongodb:mongodb /var/log/mongodb

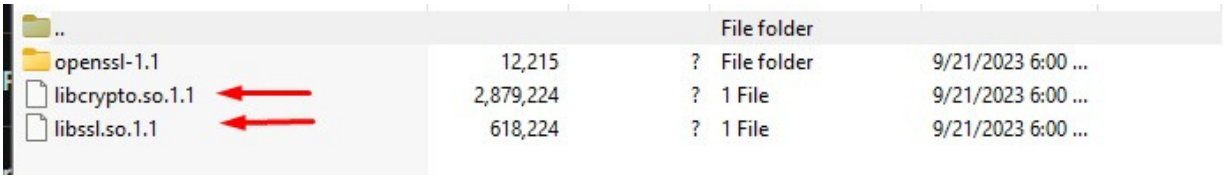
Let's Place the extracted stuff to their related directories. These sub-directories shown in below. We have to copy from etc to /etc, lib to /lib, and usr to /usr for each one.



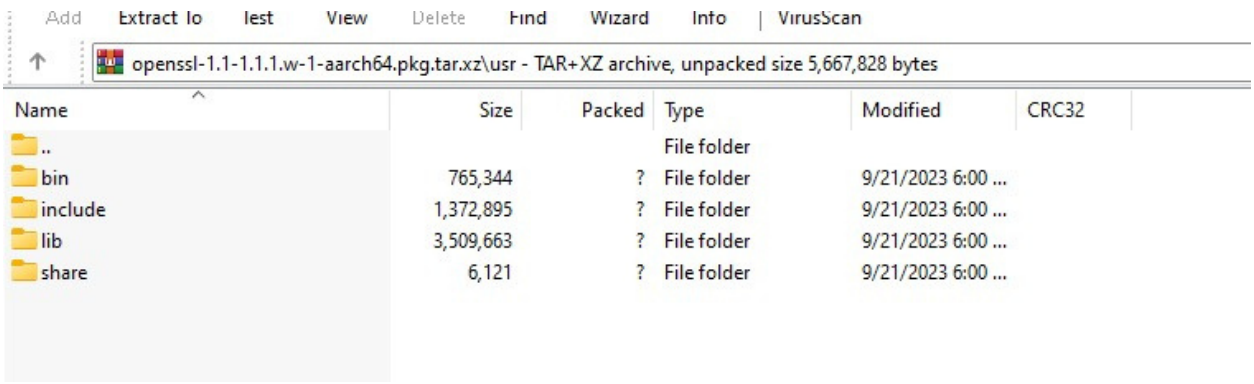
After that, the remaining openssl's dynamic library files must be copied as shown in below.

libcrypto.so.1.1

libssl.so.1.1



The above picture showing two files which are share objects of mongodb service. Let extract them to /usr/lib/ directory.



Additionally, if required, we need to copy all related stuff, bin, include, lib, share directory as shown above image. [optional].

Finishing....

- systemctl daemon-reload
- systemctl enable mongodb.service
- systemctl start mongodb.service
- systemctl status mongodb.service
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- If you see the status of mongodb.service is down, check again the owner permissions and executable permissions of their related files.

Banana Pi R3

System Deployments Guide

Flashing EMMC of Banana Pi R3

Firstly, download SD image from here.

https://drive.google.com/file/d/1RkcEwrSAP_Mn9jaaW3QmrgnnD0ybwob9/view?usp=sharing

1. Then Flash to SD card.
2. Download emmc image from here.

   https://drive.google.com/file/d/10N3C5EWy-8y6YkGuWNhhAB7qxqeYsfVn/view?usp=sharing
3. Copy the bpir.img.gz to the SD Card /tmp directory. It can be accessible root.
4. Boot the R3 with SD Card image with UART connected.
5. When the kernel messages are appearing, we have to keep pressing 'shift + E'.
6. The kernel message will prompt copying the bpir.img.gz to EMMC. Wait a while and take a coffee.

```
Flip SD/EMMC switch DOWN (=MMC) (most near to power plug), the r[   88.113228] mtk-msdc 11230000.mmc: msdc_track
est stay up!
[   88.154544] mtk-msdc 11230000.mmc: msdc_track_cmd_data: cmd=1 arg=00000000; host->error=0x00000002
[   88.195714] mtk-msdc 11230000.mmc: msdc_track_cmd_data: cmd=1 arg=00000000; host->error=0x00000002
[   88.238867] mtk-msdc 11230000.mmc: msdc_track_cmd_data: cmd=1 arg=00000000; host->error=0x00000002
Flip SD/EMMC switch DOWN (=MMC) (most near to power plug), the rest stay up!
[   90.277876] mtk-msdc 11230000.mmc: Final PAD_DS_TUNE: 0x15414
[   90.284714] mmc0: new HS400 MMC card at address 0001
[   90.290788] mmcblk0: mmc0:0001 008GB0 7.28 GiB
[   90.299721]  mmcblk0: p1 p2 p3
[   90.303992] mmcblk0boot0: mmc0:0001 008GB0 4.00 MiB
[   90.311440] mmcblk0boot1: mmc0:0001 008GB0 4.00 MiB
[   90.318462] mmcblk0rpmb: mmc0:0001 008GB0 4.00 MiB, chardev (244:0)
Setting up EMMC so that mmcblk0 is the bootdevice.
Writing /tmp/bpir.img.gz to EMMC now...
```

7. When Finished, type " reboot " command.

```
[   90.303992] mmcblk0boot0: mmc0:0001 008GB0 4.00 MiB
[   90.311440] mmcblk0boot1: mmc0:0001 008GB0 4.00 MiB
[   90.318462] mmcblk0rpmb: mmc0:0001 008GB0 4.00 MiB, chardev (244:0)
Setting up EMMC so that mmcblk0 is the bootdevice.
Writing /tmp/bpir.img.gz to EMMC now...

15269888+0 records in
15269888+0 records out
7818182656 bytes (7.3GB) copied, 607.819362 seconds, 12.3MB/s
Reboot and enjoy booting from EMMC.
Entering busybox ash shell.
ash: can't access tty; job control turned off
~ # EEEEEEEEEEEEeEEEEEEEEEEEEEEE
ash: EEEEEEEEEEEEeEEEEEEEEEEEEEEE: not found
~ # reboot
```

8. Please adjust jumper setting to boot within EMMC.
9. NOTE: If the temperature of bpir3 board is not exceeded 60 Degree. The fan will not spin. The trip point should be working.

NOTE: This optimized image is configured as below.

Default Configurations

SSID : WIFI24 , PSW: justsomepassword,

$ ssh root@192.168.5.1

Customized Configurations.

To Change SSID and PSW

/etc/hostapd/wlan0.conf << For 2.4Ghz

/etc/hostapd/wlan1.conf << For 5 Ghz

To Change IP address for wireless hosting.

/etc/systemd/system/network/10-brlan.network.conf

[Network]

IPForward=yes

Address=192.168.5.1/24 << Change this line

DHCPServer=true

IPv6SendRA=yes

DHCPPrefixDelegation=yes

Application Service Deployments.

$ pacman –Syu

$ pacman –Sy nginx mosquito

NOTE: Mongodb must be configured as same as above configuration including openssl dynamic library configuration for mongodb.