

# BitPath-DevKit

## Golden Image Details

RADIOSTUDIO



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2 Revision History

Version No	Date	Author	Change Log
1.0	26/04/2024	RadioStudio	

### 3 Packages Details

- Build Essentials

```
root@raspberrypi:~# sudo apt install -y build-essential
Reading package lists... Done
Building dependency tree
Reading state information... Done
build-essential is already the newest version (12.6).
0 upgraded, 0 newly installed, 0 to remove and 53 not upgraded.
root@raspberrypi:~#
```

- Nmap

```
root@raspberrypi:~# sudo apt install -y nmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
nmap is already the newest version (7.70+dfsg1-6+deb10u2).
0 upgraded, 0 newly installed, 0 to remove and 53 not upgraded.
root@raspberrypi:~#
```

- TCP Dump

```
root@raspberrypi:~# apt-get install tcpdump
Reading package lists... Done
Building dependency tree
Reading state information... Done
tcpdump is already the newest version (4.9.3-1~deb10u2).
0 upgraded, 0 newly installed, 0 to remove and 53 not upgraded.
root@raspberrypi:~#
```

- Log rotate

```
root@raspberrypi:~# apt-get install logrotate
Reading package lists... Done
Building dependency tree
Reading state information... Done
logrotate is already the newest version (3.14.0-4).
0 upgraded, 0 newly installed, 0 to remove and 53 not upgraded.
root@raspberrypi:~#
```

- IP tables

```
root@raspberrypi:~# sudo iptables -L
Chain INPUT (policy ACCEPT)
target      prot opt source                destination

Chain FORWARD (policy ACCEPT)
target      prot opt source                destination

Chain OUTPUT (policy ACCEPT)
target      prot opt source                destination
root@raspberrypi:~#
```

- UFW

```
root@raspberrypi:~# apt -y install ufw
Reading package lists... Done
Building dependency tree
Reading state information... Done
ufw is already the newest version (0.36-1).
0 upgraded, 0 newly installed, 0 to remove and 53 not upgraded.
root@raspberrypi:~#
```

- hexdump (Is this java xdump?)
- Bsdmainutils

```
root@raspberrypi:~# apt-get install bsdmainutils
Reading package lists... Done
Building dependency tree
Reading state information... Done
bsdmainutils is already the newest version (11.1.2).
0 upgraded, 0 newly installed, 0 to remove and 48 not upgraded.
root@raspberrypi:~#
```

- python3

```
root@raspberrypi:~# sudo apt install python3
Reading package lists... Done
Building dependency tree
Reading state information... Done
python3 is already the newest version (3.7.3-1).
python3 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 48 not upgraded.
root@raspberrypi:~#
```

- git

```
root@raspberrypi:~# sudo apt install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
git is already the newest version (1:2.20.1-2+deb10u3).
git set to manually installed.
The following packages were automatically installed and are no longer required:
  libpolkit-agent-1-0 libpolkit-backend-1-0 libpolkit-gobject-1-0
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 48 not upgraded.
root@raspberrypi:~#
```

- Aws sdk for IOT Core

```
Collecting awsiotsdk
  Downloading https://files.pythonhosted.org/packages/17/9f/63ccd3a558e6ea7d9b64a74642595d190d3c237ad3b04a678d266bd83fff/awsiotsdk-1.7.1-py3-none-any.whl (46kB)
    100% |#####| 51kB 2.3MB/s
Collecting awscrt==0.12.1 (from awsiotsdk)
  Downloading https://www.piwheels.org/simple/awscrt/awscrt-0.12.1-cp37-cp37m-linux_armv7l.whl (6.4MB)
    2% |#####| 143kB 674kB/s eta 0:00:10debug2: channel 0: window 999409 sent adjust 49167
    82% |#####| 5.3MB 14.5MB/s eta 0:00:01debug2: channel 0: window 998023 sent adjust 50553
    100% |#####| 6.4MB 71kB/s
Installing collected packages: awscrt, awsiotsdk
Successfully installed awscrt-0.12.1 awsiotsdk-1.7.1
root@raspberrypi:~# python3 -m pip install awsiotsdk
Looking in indexes: https://pypi.org/simple, https://www.piwheels.org/simple
Requirement already satisfied: awsiotsdk in /usr/local/lib/python3.7/dist-packages (1.7.1)
Requirement already satisfied: awscrt==0.12.1 in /usr/local/lib/python3.7/dist-packages (from awsiotsdk) (0.12.1)
root@raspberrypi:~#
```

- Disable auto-upgrades  
sudo apt remove unattended-upgrades
- OpenSSL  
sudo apt-get install libssl-dev

- Raspberrypi-kernel-headers

```
root@bitpath-dev-xx:~# apt-get install raspberrypi-kernel-headers
Reading package lists... Done
Building dependency tree
Reading state information... Done
raspberrypi-kernel-headers is already the newest version (1:1.20210831-1).
```

Packages installed

- AWS Systems manager
- Telegraf
- Promtail

## 4 Installing Systems Manager Components

```
sudo mkdir /tmp/ssm && cd /tmp/ssm/
```

```
sudo curl https://s3.amazonaws.com/ec2-downloads-windows/SSMAgent/latest/debian_arm/amazon-ssm-agent.deb -o /tmp/ssm/amazon-ssm-agent.deb
```

```
sudo dpkg -i /tmp/ssm/amazon-ssm-agent.deb
```

```
sudo service amazon-ssm-agent stop
```

Please be careful when using the correct quotes in the command below. Incorrect quotes can lead to unexpected outcomes.

```
sudo amazon-ssm-agent -register -code "ooFmfHzQV7YDQwIIKigy" -id "f0228110-fd1c-4b9c-9ef0-e7bf327b63e3" -region "us-east-1"
```

```
sudo service amazon-ssm-agent start
```

## 5 Other Initial Configurations

- Create a new user
- Disable pi user (comes with default user pi and password raspberry)
- `sudo usermod --expiredate 1 pi`
- Disable wireless interface <<Added dtoverlay=disable-wifi /boot/config.txt>>
- Disable bluetooth <<Added dtoverlay=disable-bt>>
- Disable root user SSH access
- Disable Password authentication and enable key-based authentication
- Change SSH to a nonstandard port (1729)
- Enable Local firewall
- Install and configure fail2ban
- Systemctl settings configured! `init=/bin/systemd` to your `/boot/cmdline.txt`



## 6 Promtail

### 6.1 Installation

```
sudo cd /usr/local/bin

sudo wget https://github.com/grafana/loki/releases/download/v2.3.0/promtail-linux-arm.zip
sudo unzip promtail-linux-arm.zip && mv promtail-linux-arm promtail
sudo nano config-promtail.yml
#now paste the config-promtail.yml content to this file, don't include -----
-----
server:
  http_listen_port: 9080
  grpc_listen_port: 0
positions:
  filename: /tmp/positions.yaml
clients:
  - url: http://3.87.141.223:3100/loki/api/v1/push
scrape_configs:
  - job_name: system
    static_configs:
      - targets:
          - localhost
        labels:
          job: varlogs
          __path__: /var/log/*log
    -----

#test the working of the setup
sudo ./promtail -config.file ./config-promtail.yml

Close this, and let's run promatail as a service.
```

## 6.2 How to run promtail as a service

```
sudo nano /etc/systemd/system/promtail.service

#don't add ----- to the file
-----
[Unit]
Description=Promtail service
After=network.target

[Service]
Type=simple
User=root
ExecStart=/usr/local/bin/promtail -config.file=/usr/local/bin/config-promtail.yml

[Install]
WantedBy=multi-user.target
-----

sudo service promtail start
sudo service promtail status
systemctl enable promtail.service
```

### Startup Script PI Device

```
nano script.sh
<<you can use any other editor of your choice>>
```

<<paste the below content into the file>>  
<<make sure you have updated the number value>>  
<<this will restart the device, so wait for it to reboot>>

```
#!/bin/sh
#update the numerical values for "bitpath-dev-01"
#dyndns
sed -i 's/bitpath-dev-xx.dyndns.org/bitpath-dev-01.dyndns.org/g' /etc/ddclient.conf

#hosts
sed -i 's/bitpath-dev-xx/bitpath-dev-01/g' /etc/hostname
sed -i 's/bitpath-dev-xx/bitpath-dev-01/g' /etc/hosts

#Telegraph
sed -i 's/bitpath-dev-xx/bitpath-dev-01/g' /etc/telegraf/telegraf.conf

#reboot
Reboot
```

Save this file and run it.

```
chmod 500 script.sh
./script.sh
<<it will reboot the instance, so wait for it to come online>>
```

## 7 References