



BB-Config



Table of contents

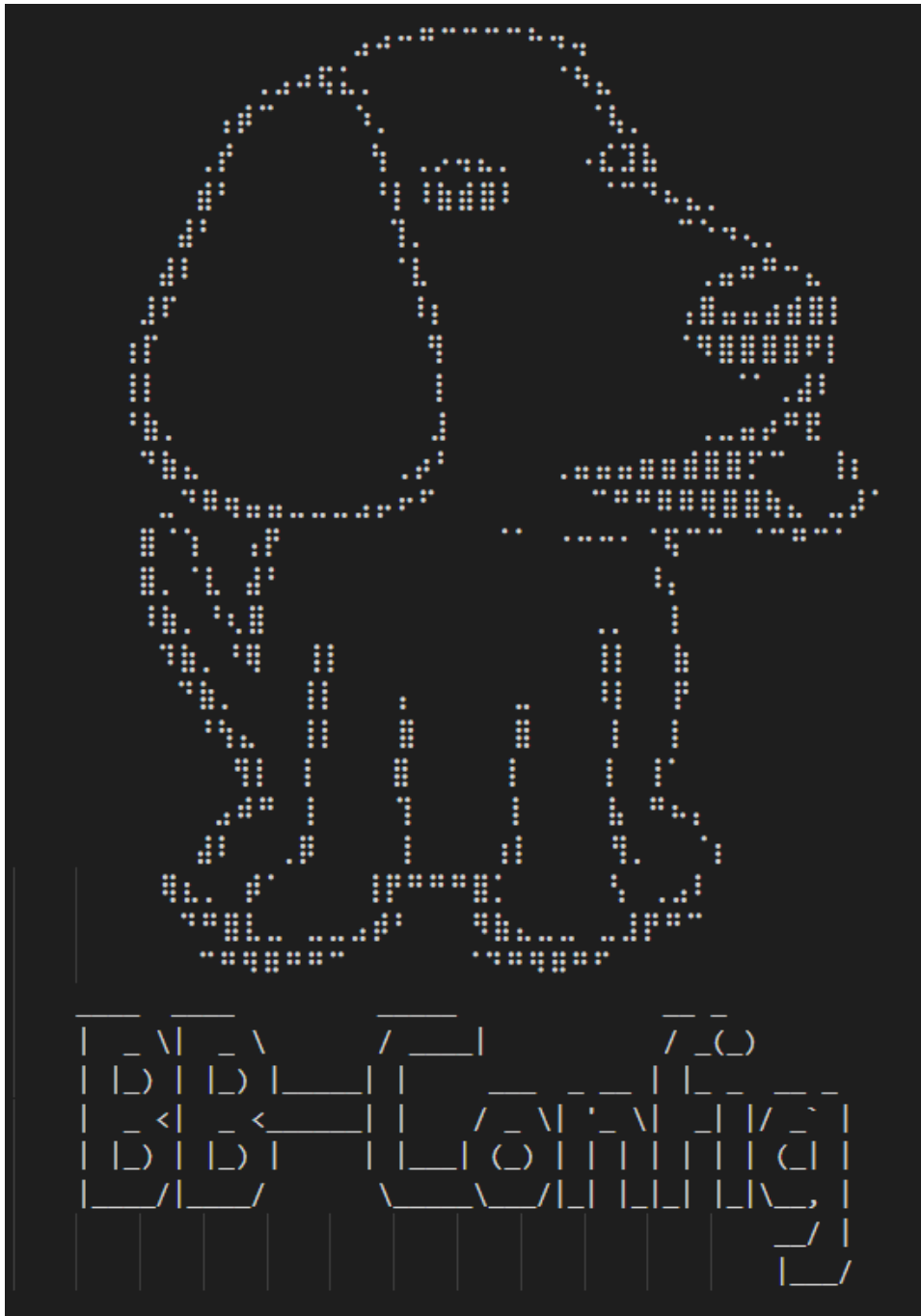
1 BB-Config Detail	1
1.1 What is BB-Config	2
2 Build from Source	5
2.1 Dependencies	5
2.2 Build	5
2.3 Install	5
3 Features	7
3.1 BB-Config v1.x	7
3.1.1 PRU Enable/Disable	7
3.1.2 GPIO	7
3.1.3 EMMC and MicroSD Stats	8
3.1.4 LEDs	9
3.1.5 Password	9
3.1.6 SSH	10
3.1.7 WiFi	10
3.1.8 Internet Sharing and Client Config	11
3.1.9 About	12
3.2 BB-Config v2.x	12
3.2.1 ADC (Graph)	12
3.2.2 DAC (PWM)	13
3.2.3 uEnv	13
3.2.4 services	14
3.2.5 PINMUX	14
3.2.6 Overlay (dts)	16
3.2.7 WiFi (D-Bus)	16
4 Version	19
4.1 GSOC@21 BB-Config v1.x	19
4.2 GSOC@22 BB-Config v2.x	19

Chapter 1

BB-Config Detail

Configure your beagle devices easily.

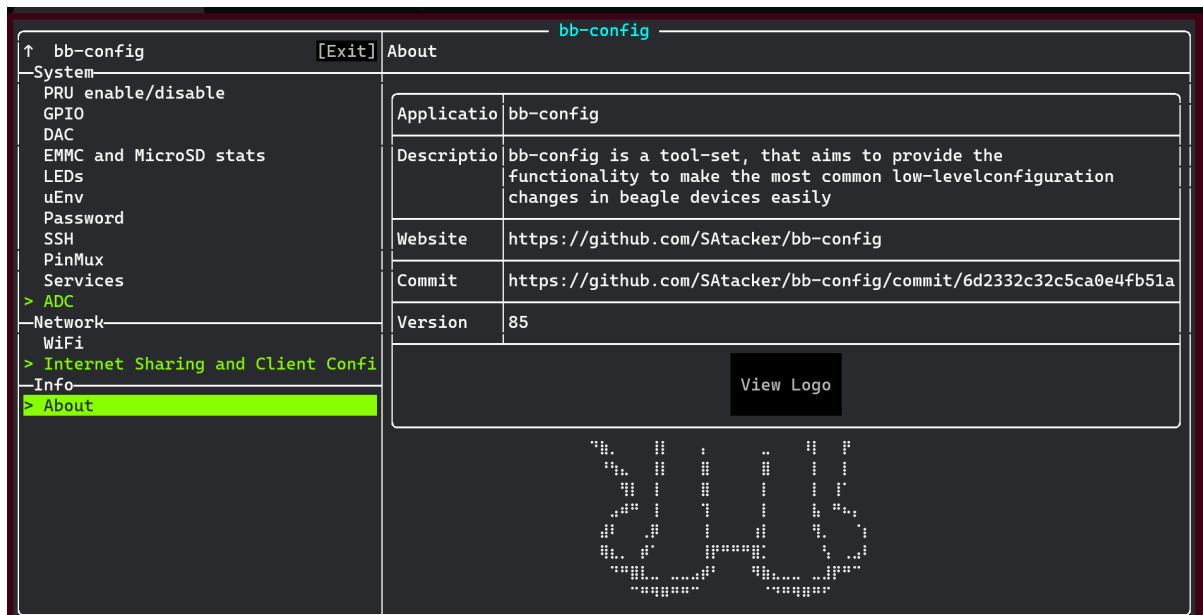
[Github](#)



1.1 What is BB-Config

BB-Config is software that makes the most common low-level configuration changes of beagle devices easily and provides a terminal UI.

BB-Config is using [FTXUI](#) (C++ Functional Terminal User Interface) which provides a simple and elegant looking UI.



Chapter 2

Build from Source

2.1 Dependencies

- g++
- cmake
- glib-2.0
- libnm

2.2 Build

```
git clone https://git.beagleboard.org/gsoc/bb-config
cd bb-config
mkdir build
cd build
cmake ..
make -j$(nproc)
```

2.3 Install

```
sudo make install
```


Chapter 3

Features

3.1 BB-Config v1.x

3.1.1 PRU Enable/Disable

- Enable/Disable PRU

bb-config

[Exit]

PRU enable/disable

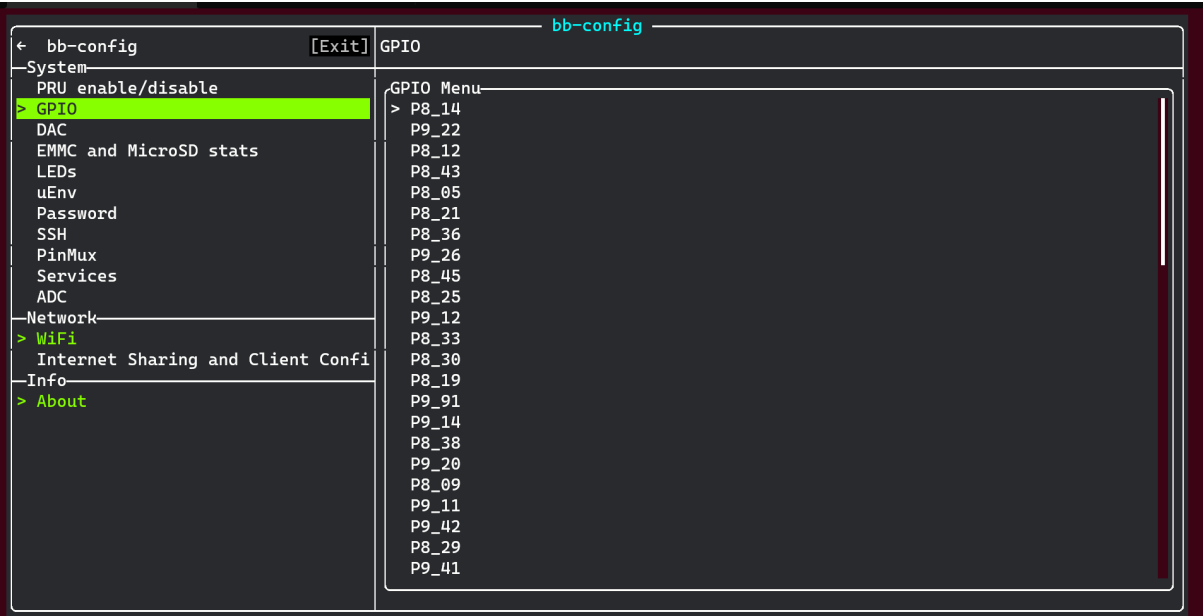
bb-config

System	PRUS(s)				
> PRU enable/disable	Firmware	State	Actions	Info	
GPIO	ru am335x-pru0-fw	offline	[Start] [Stop]	Loaded Firmware: am335x	
DAC	ru am335x-pru1-fw	offline		Loaded Firmware: am335x	
EMMC and MicroSD stats	am335x-pm-firmware.elf	running		Firmware Not found / No	
LEDs			[Start] [Stop]		
uEnv					
Password					
SSH					
PinMux					
Services					
ADC			[Start] [Stop]		
Network					
> WiFi					
Internet Sharing and Client Confi					
Info					
> About					

3.1.2 GPIO

- Turn On/Off gpio

GPIO Menu

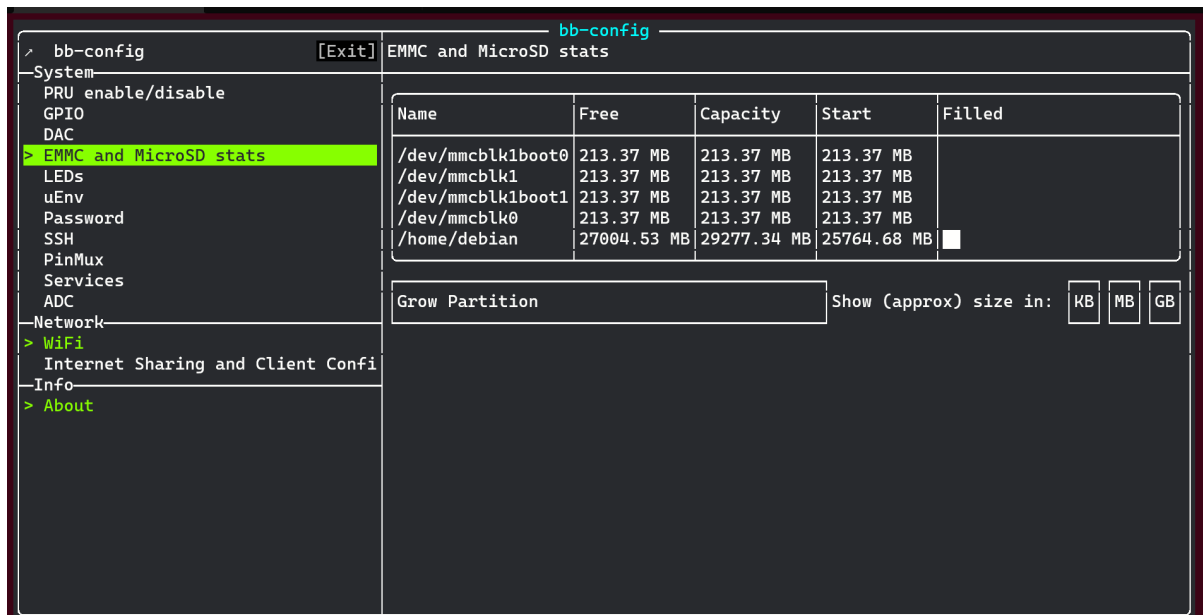


GPIO Setting



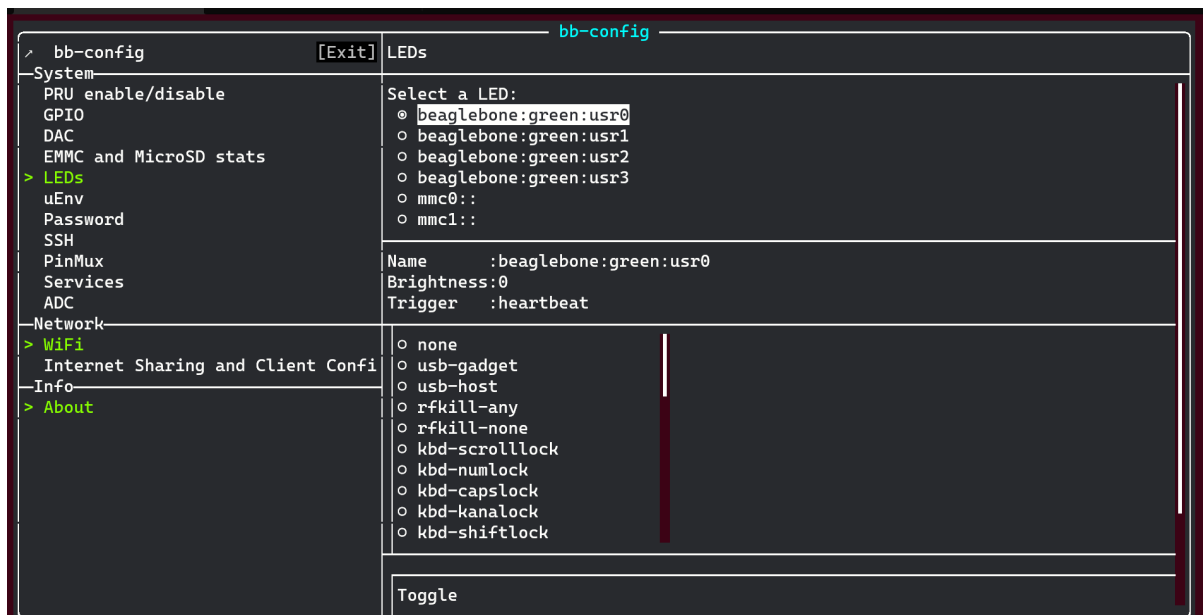
3.1.3 EMMC and MicroSD Stats

- Storage stats & grow partition



3.1.4 LEDs

- Config board build in LEDs



3.1.5 Password

- Change users password

bb-config	
bb-config [Exit]	Password
System	User:debian
PRU enable/disable	Old password:Current Password
GPIO	New password:New Password
DAC	☐ Hide password
EMMC and MicroSD stats	Apply
LEDs	
uEnv	
> Password	
SSH	
PinMux	
Services	
ADC	
Network	
> WiFi	
Internet Sharing and Client Confi	
Info	
> About	

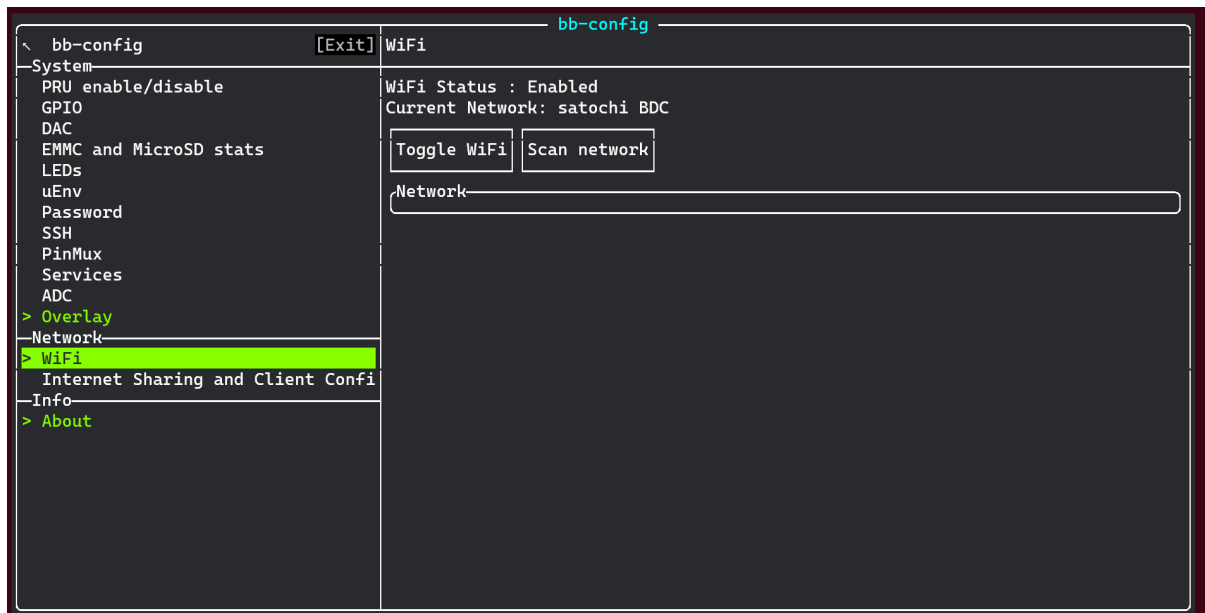
3.1.6 SSH

- Enable/Disable SSH

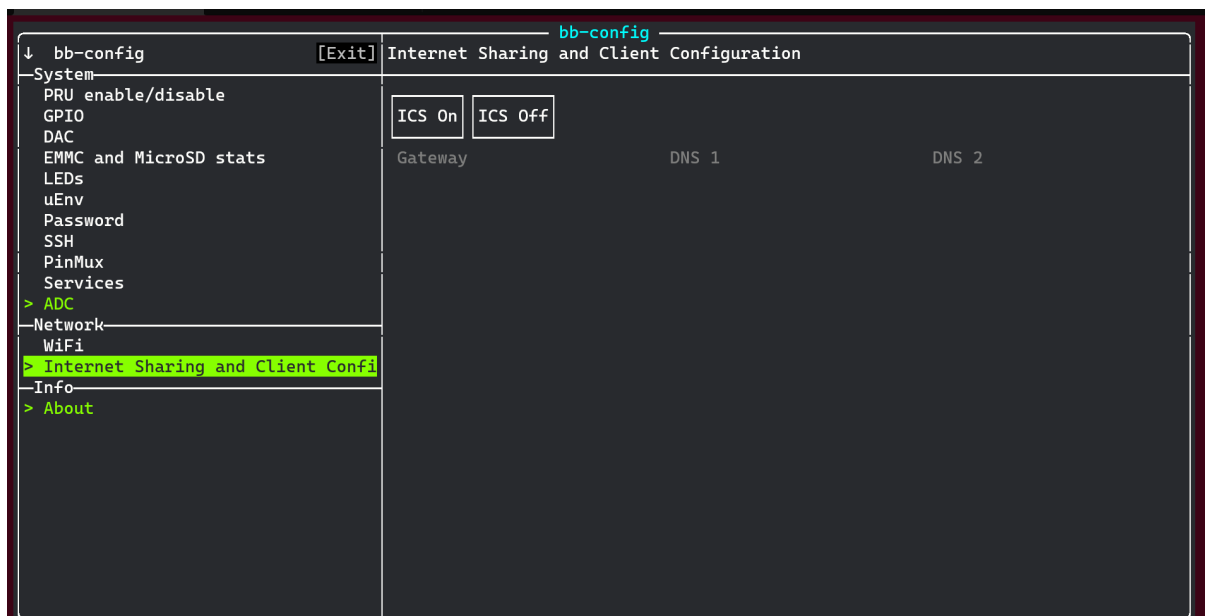
bb-config	
bb-config [Exit]	SSH
System	Status: Active: active (running) since Tue 2022-09-27 07:12:29 UTC; 4h 57m
PRU enable/disable	Enable Disable
GPIO	
DAC	
EMMC and MicroSD stats	
LEDs	
uEnv	
Password	
> SSH	
PinMux	
Services	
ADC	
Network	
> WiFi	
Internet Sharing and Client Confi	
Info	
> About	

3.1.7 WiFi

- Connect to Wi-Fi



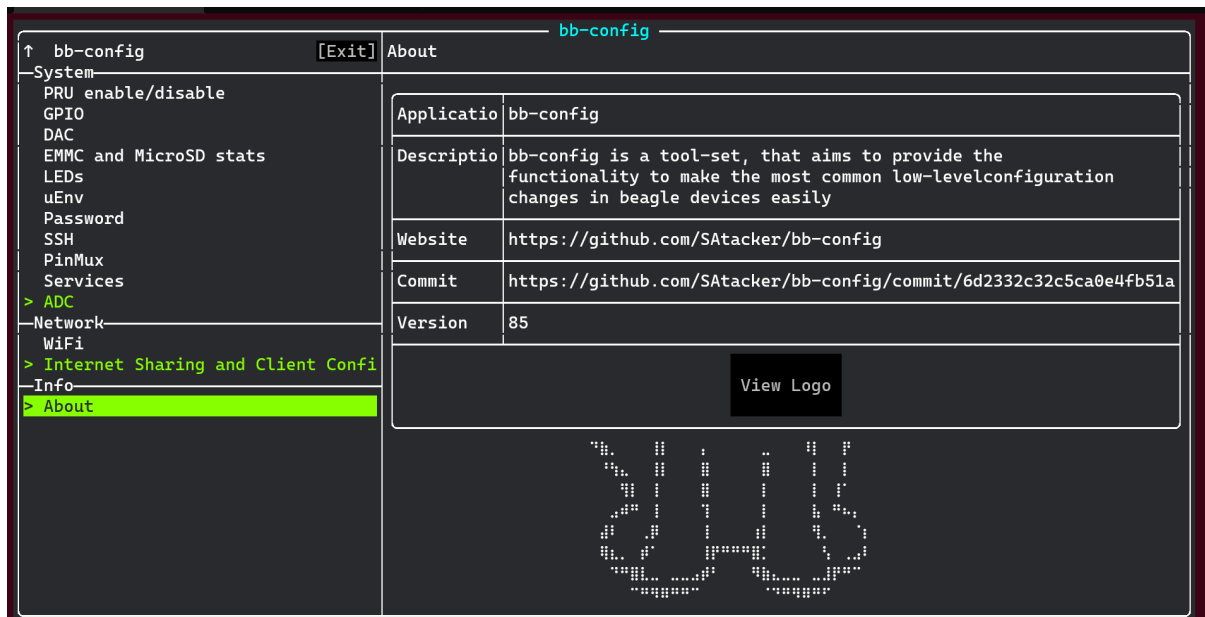
3.1.8 Internet Sharing and Client Config



- Note: You'll have to configure your host Following is an example script:

```
echo 1 > /proc/sys/net/ipv4/ip_forward
iptables --table nat --append POSTROUTING --out-interface wlp4s0 -j MASQUERADE
iptables --append FORWARD --in-interface wlp4s0 -j ACCEPT
```

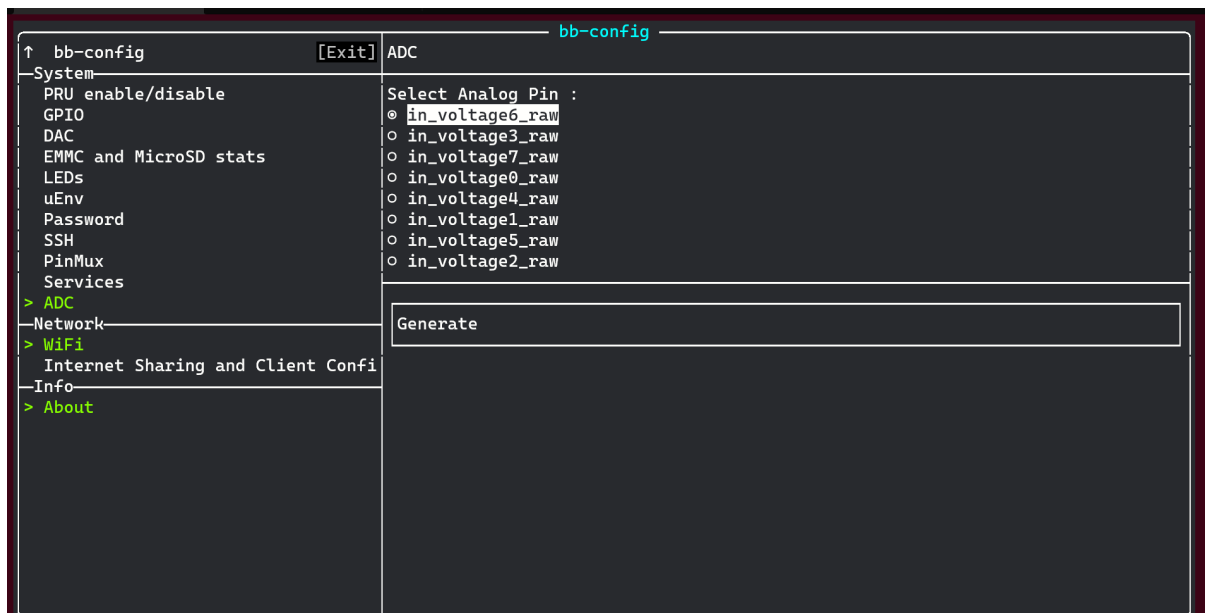
3.1.9 About

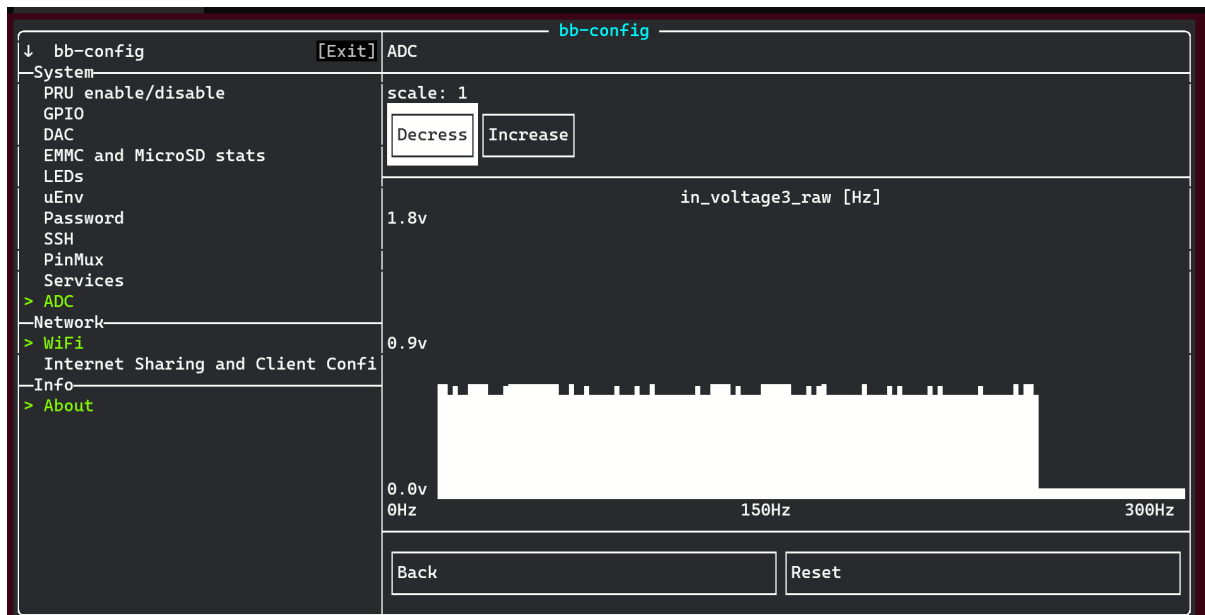


3.2 BB-Config v2.x

3.2.1 ADC (Graph)

- Plot graph for Analogue pin





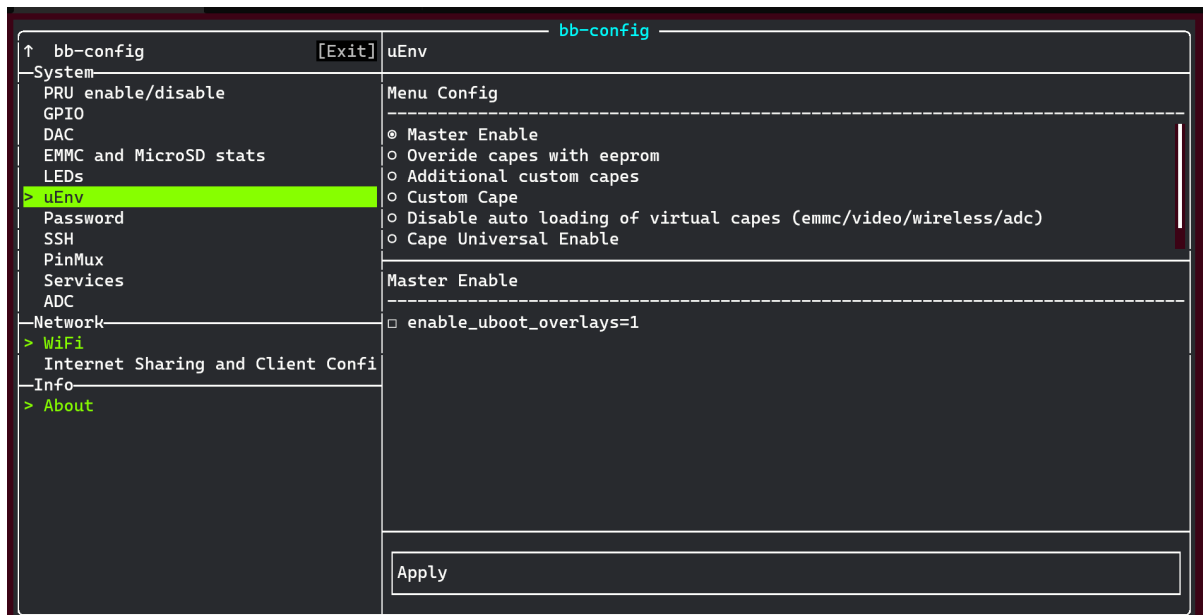
3.2.2 DAC (PWM)

- Generate PWM waveform

The screenshot shows the BB-Config application interface with the 'DAC' option selected. The main display area shows the DAC configuration. At the top, it says 'Select a LED:'. Below this are input fields for 'Period[]' with a unit selector 's', and 'Duty Cycle(%)'. Below these are radio buttons for 'normal' and 'inversed' polarity. At the bottom is a 'Trigger' button.

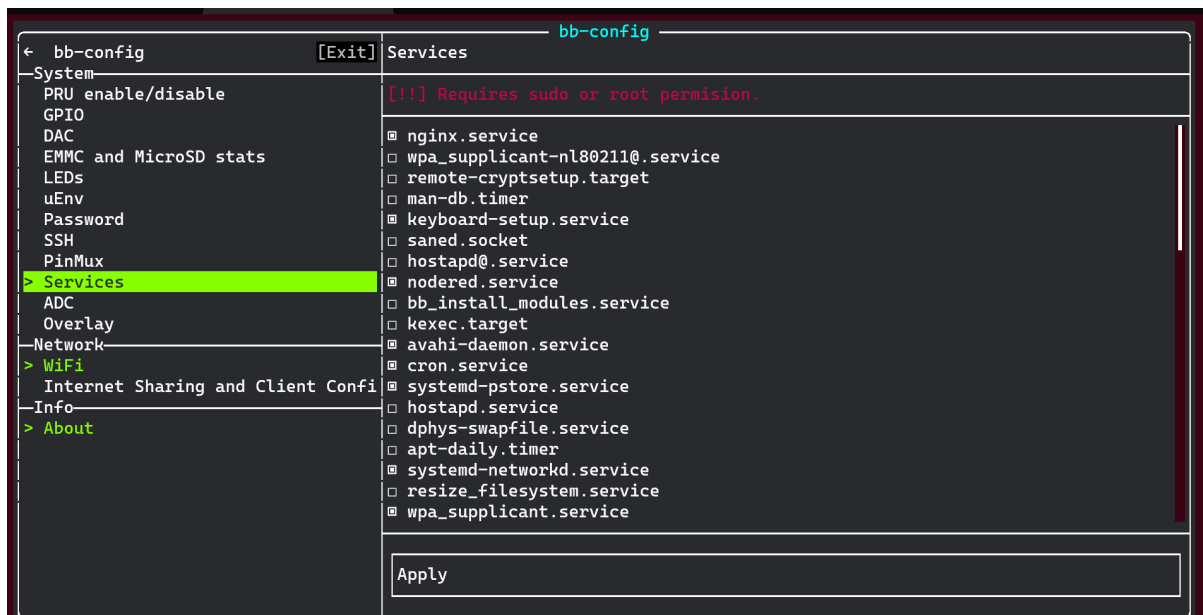
3.2.3 uEnv

- Enable/Disable boot configuration



3.2.4 services

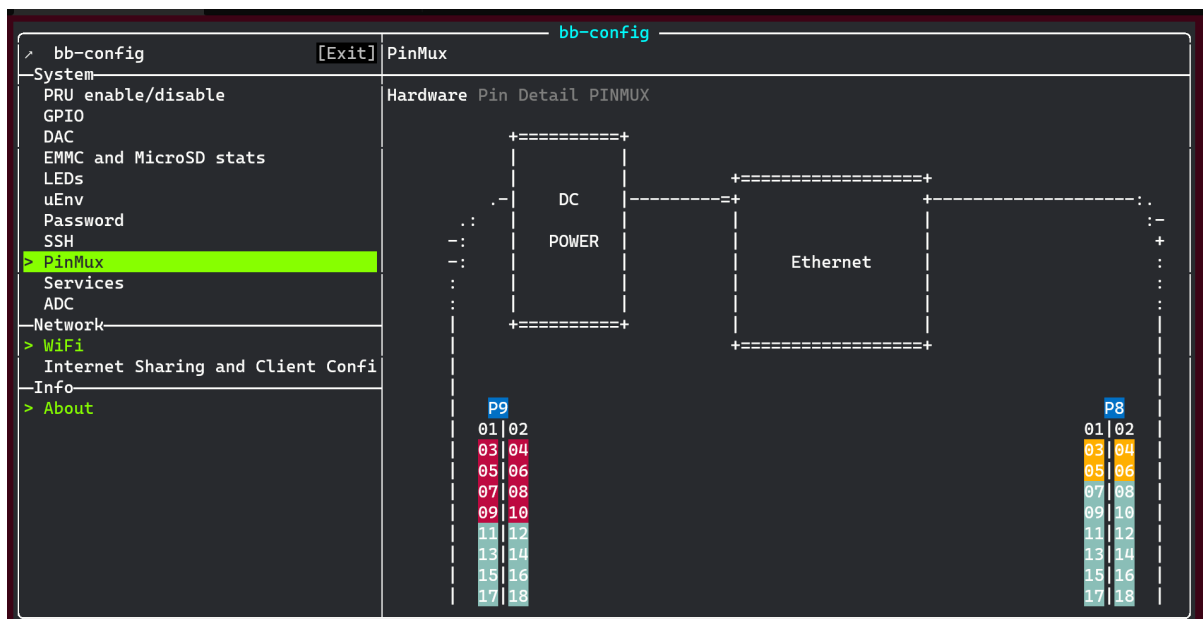
- Enable/Disable services startup at boot



3.2.5 PINMUX

- Display PIN I/O detail
- Config PINMUX

Hardware Display



Pin Table References

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

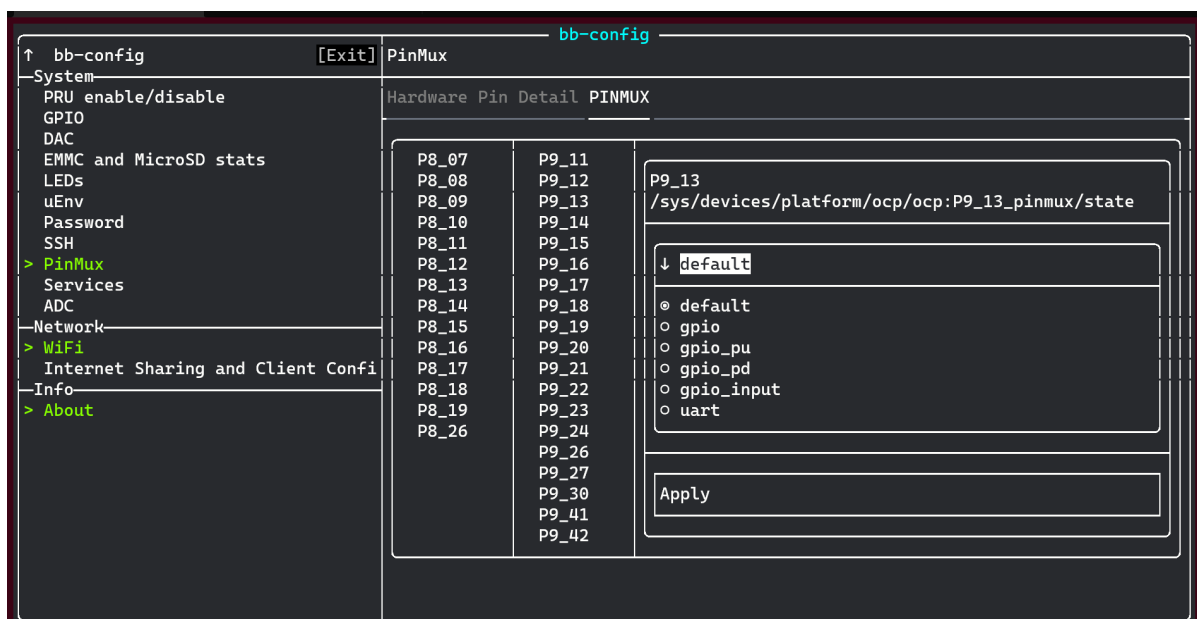
bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config		PinMux	
System		Hardware Pin Detail PINMUX	
PRU enable/disable			
GPIO			
DAC			
EMMC and MicroSD stats			
LEDs			
uEnv			
Password			
SSH			
> PinMux			
Services			
ADC			
Network			
> WiFi			
Internet Sharing and Client Config			
Info			
> About			

bb-config	
-----------	--

Pin Config



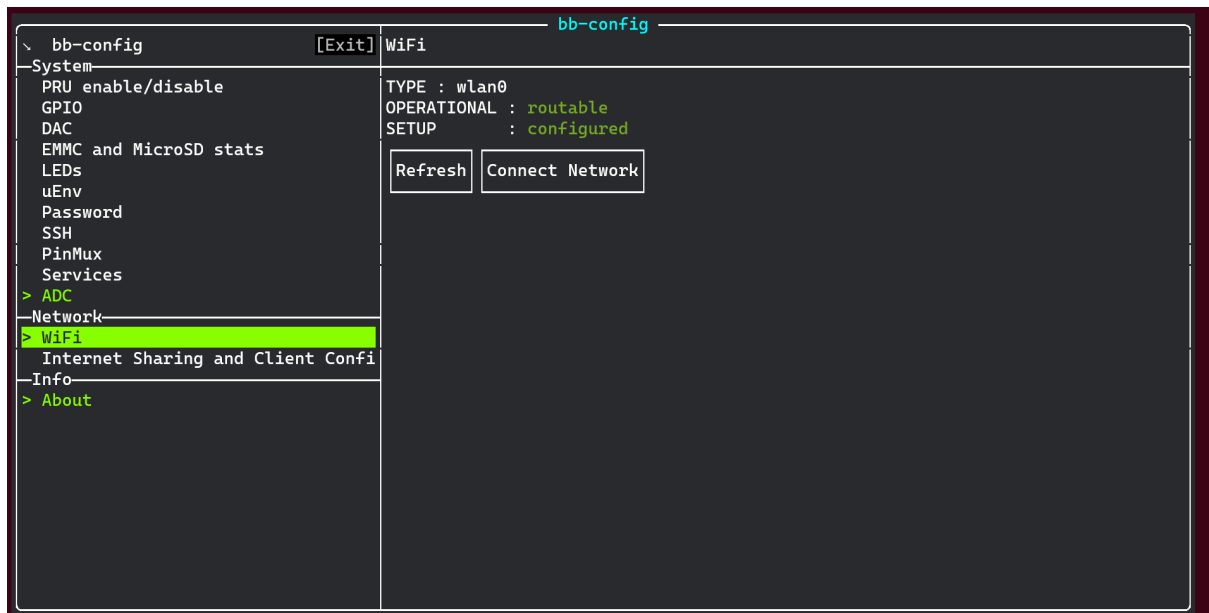
3.2.6 Overlay (dts)

- Enable/Disable Device Tree Overlay in Boot option
- Select dtbo file and automate update in uEnv.txt



3.2.7 WiFi (D-Bus)

- Connect to WiFi with wpa_supplicant
- Support for Debian 11



Chapter 4

Version

4.1 GSOC@21 BB-Config v1.x

- Name: Shreyas Atre
- Mentors: Arthur Sonzogni, Abhishek Kumar, Deepak Khatri.
- Organization: BeagleBoard.org
- Code: <https://github.com/SAtacker/beagle-config>
- Project Page: <https://summerofcode.withgoogle.com/projects/#6718016412188672>
- Progress Log: <https://satacker.github.io/gsoc-log/>
- Kanban: <https://github.com/SAtacker/beagle-config/projects/1>
- Initial Video: <https://youtu.be/vFUWCzqE6xl>

4.2 GSOC@22 BB-Config v2.x

- Name: Seak Jian De
- Mentors: Shreyas Atre, Vedant Paranjape, Vaishnav Achath.
- Organization: BeagleBoard.org
- Code: <https://git.beagleboard.org/gsoc/bb-config>
- Project Page: <https://summerofcode.withgoogle.com/programs/2022/projects/2DbiYPIY>
- Progress Log: <https://forum.beagleboard.org/t/weekly-progress-report-bb-config-improvements-gpio-benchmark/32357/2>
- Initial Video: https://youtu.be/V_Euk5uWY1o