



BB-Config



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Chapter 1

BB-Config Detail

Configure your beagle devices easily.

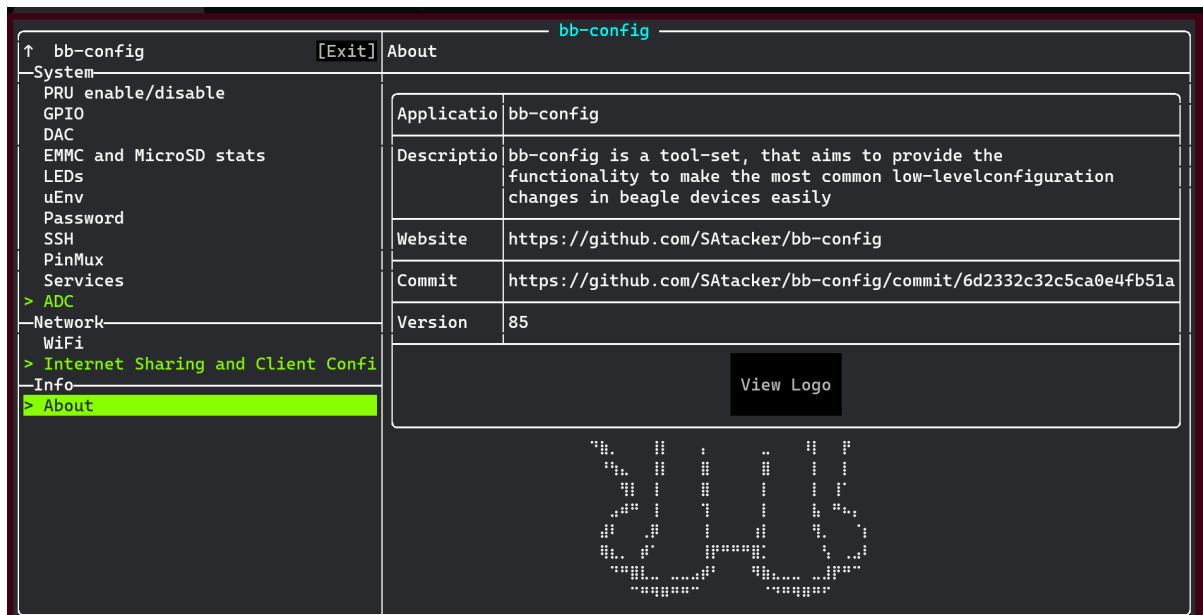
[Github](#)



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

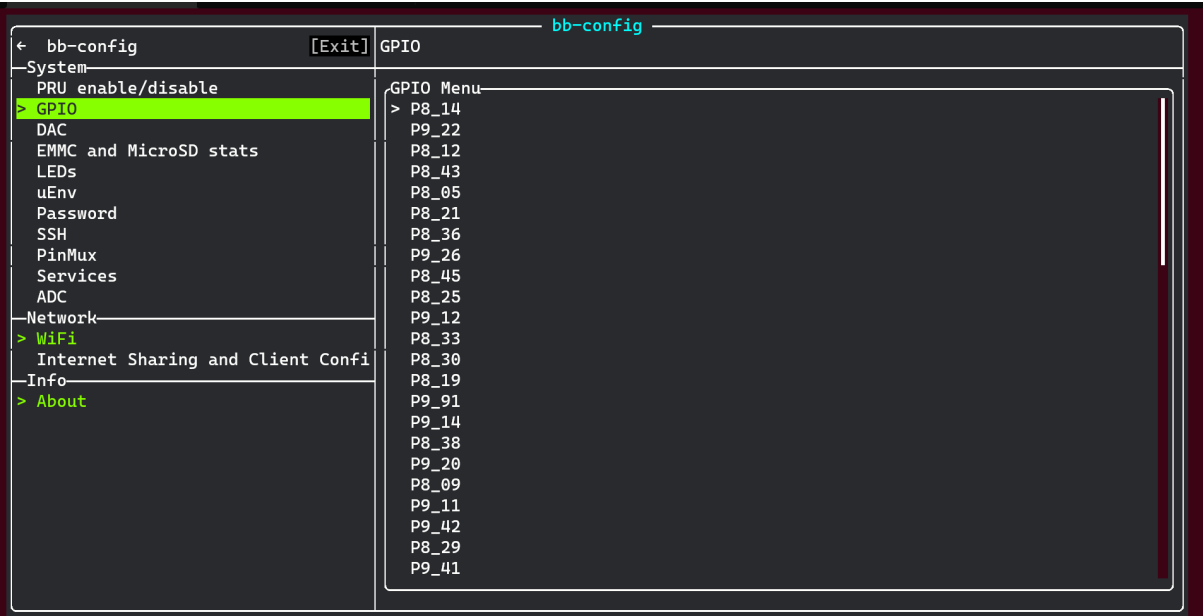
- Enable/Disable PRU

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

bb-config [Exit] EMMC and MicroSD stats

Name	Free	Capacity	Start	Filled
/dev/mmcblk1boot0	213.37 MB	213.37 MB	213.37 MB	
/dev/mmcblk1	213.37 MB	213.37 MB	213.37 MB	
/dev/mmcblk1boot1	213.37 MB	213.37 MB	213.37 MB	
/dev/mmcblk0	213.37 MB	213.37 MB	213.37 MB	
/home/debian	27004.53 MB	29277.34 MB	25764.68 MB	

Grow Partition Show (approx) size in: KB MB GB

3.1.4 LEDs

- Config board build in LEDs

bb-config [Exit] LEDs

Select a LED:

- ☒ beaglebone:green:usr0
- ☐ beaglebone:green:usr1
- ☐ beaglebone:green:usr2
- ☐ beaglebone:green:usr3
- ☐ mmc0::
- ☐ mmc1::

Name : beaglebone:green:usr0
Brightness: 0
Trigger : heartbeat

☐ none
☐ usb-gadget
☐ usb-host
☐ rfkill-any
☐ rfkill-none
☐ kbd-scrolllock
☐ kbd-numlock
☐ kbd-capslock
☐ kbd-kanalock
☐ kbd-shiftlock

Toggle

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	

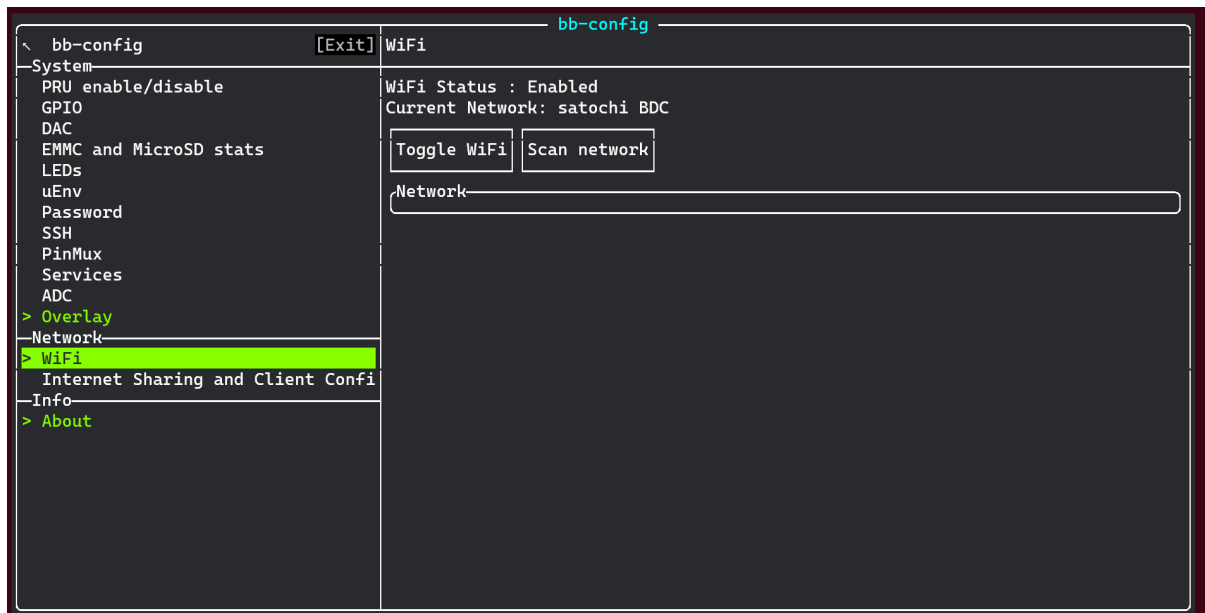
3.1.6 SSH

- Enable/Disable SSH

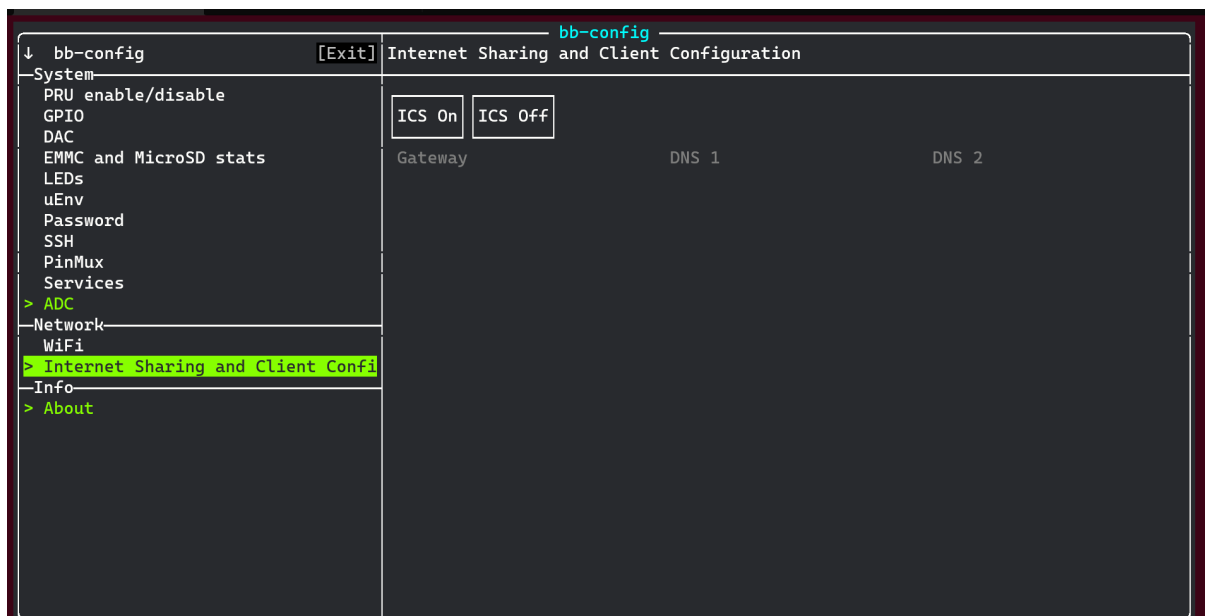
bb-config	
bb-config [Exit]	SSH
System	Status: Active: active (running) since Tue 2022-09-27 07:12:29 UTC; 4h 57m
PRU enable/disable	Enable Disable
GPIO	
DAC	
EMMC and MicroSD stats	
LEDs	
uEnv	
Password	
> SSH	
PinMux	
Services	
ADC	
Network	
> WiFi	
Internet Sharing and Client Confi	
Info	
> About	

3.1.7 WiFi

- Connect to Wi-Fi



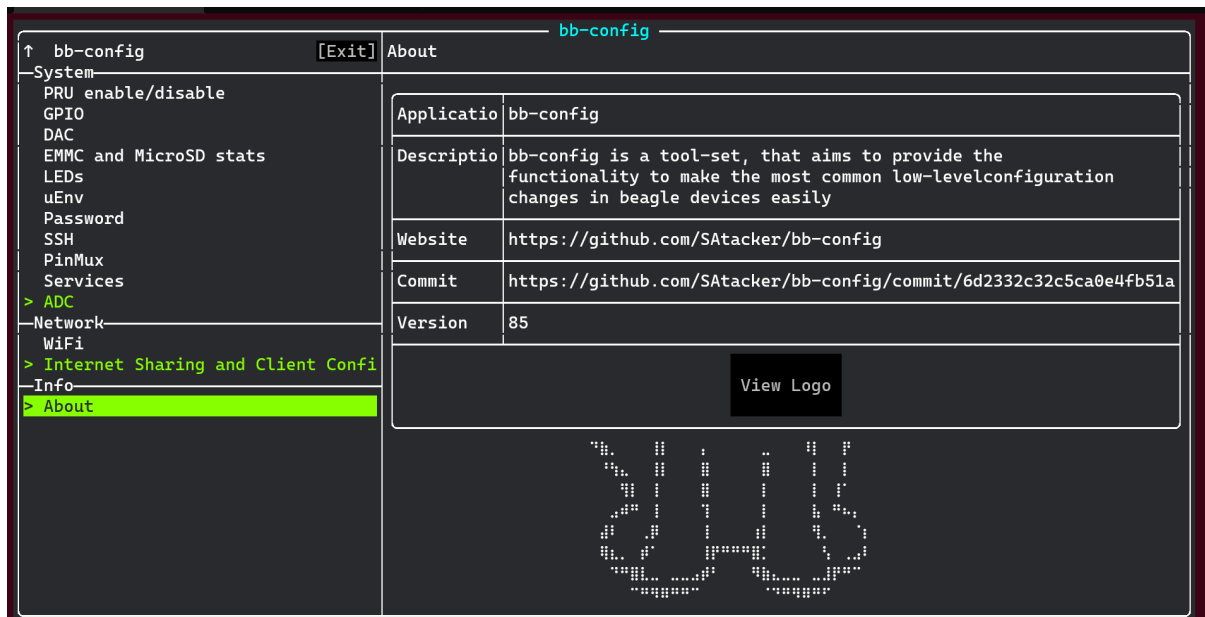
3.1.8 Internet Sharing and Client Config



- 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
```

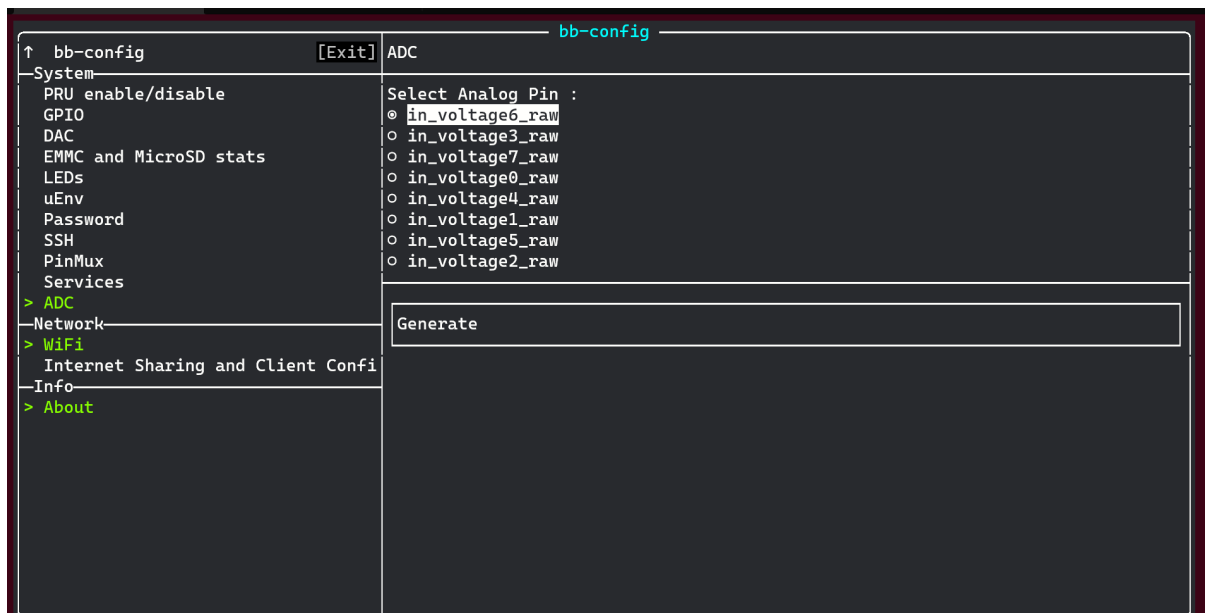
3.1.9 About

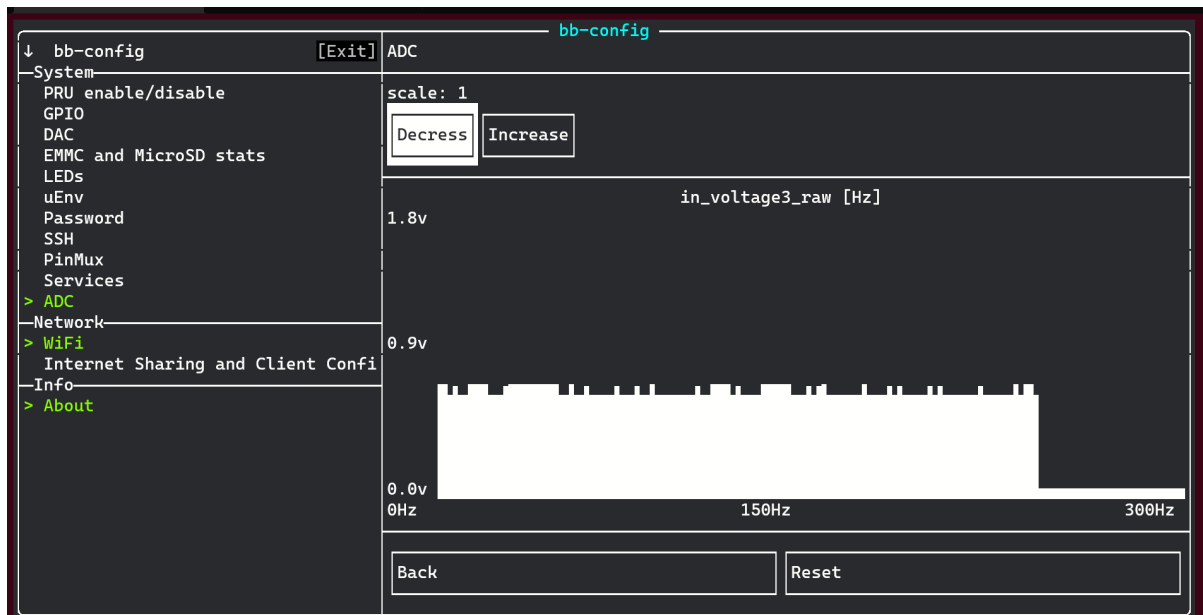


3.2 BB-Config v2.x

3.2.1 ADC (Graph)

- Plot graph for Analogue pin





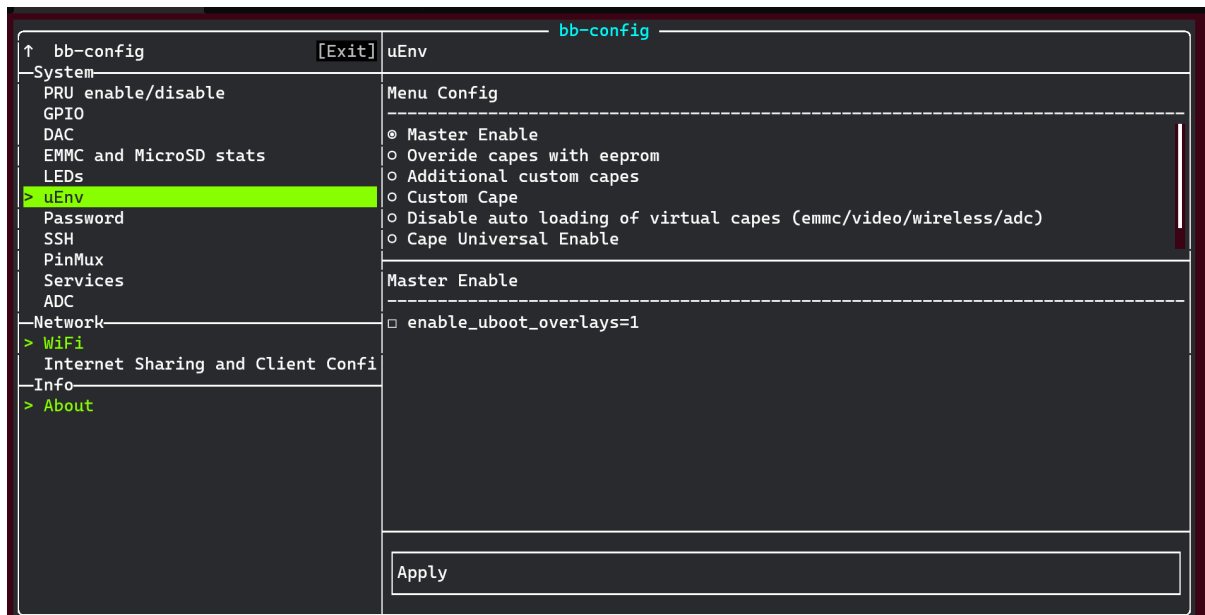
3.2.2 DAC (PWM)

- Generate PWM waveform

The screenshot shows the BB-Config application interface with the 'DAC' option selected. The main display area prompts the user to 'Select a LED:'. Below this are input fields for 'Period[]' with a unit selector 's', and 'Duty Cycle(%)'. The current values are 'Period: 0s' and 'Duty Cycle: 0%'. There is a section for 'Select a Polarity:' with radio buttons for 'normal' (selected) and 'inversed'. At the bottom is a 'Trigger' button.

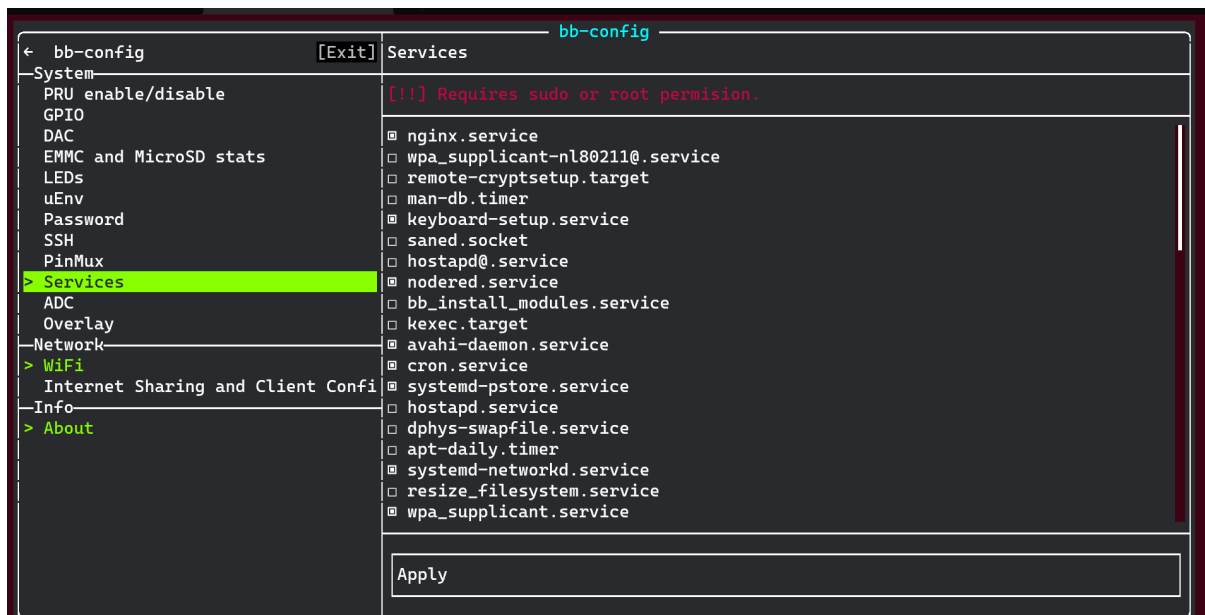
3.2.3 uEnv

- Enable/Disable boot configuration



3.2.4 services

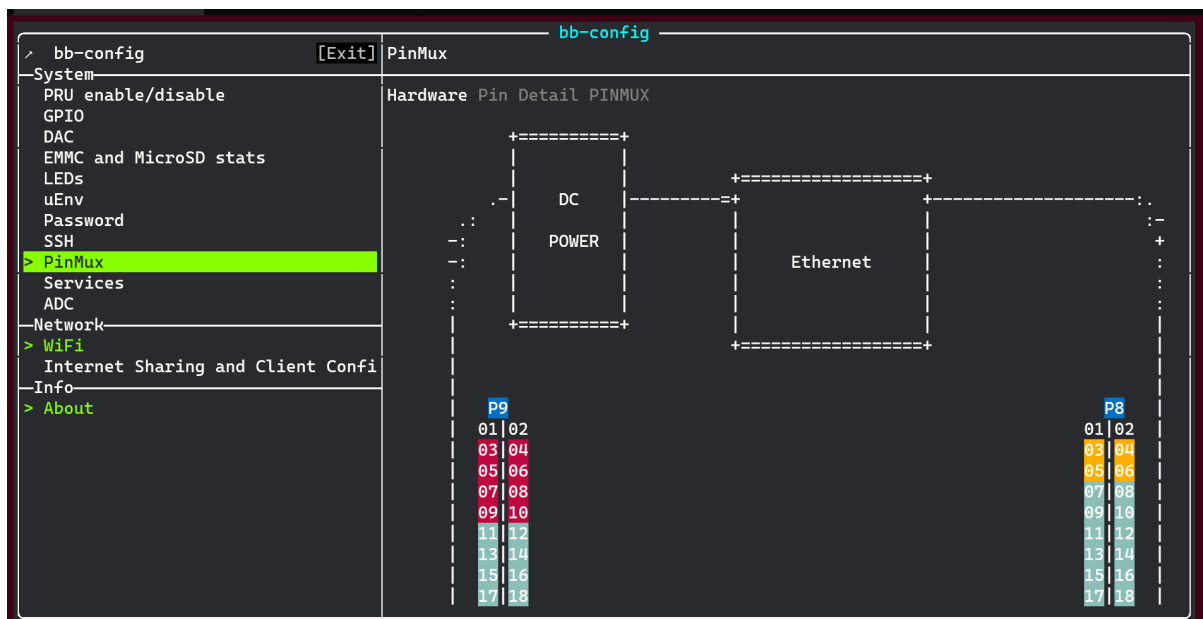
- Enable/Disable services startup at boot



3.2.5 PINMUX

- Display PIN I/O detail
- Config PINMUX

Hardware Display

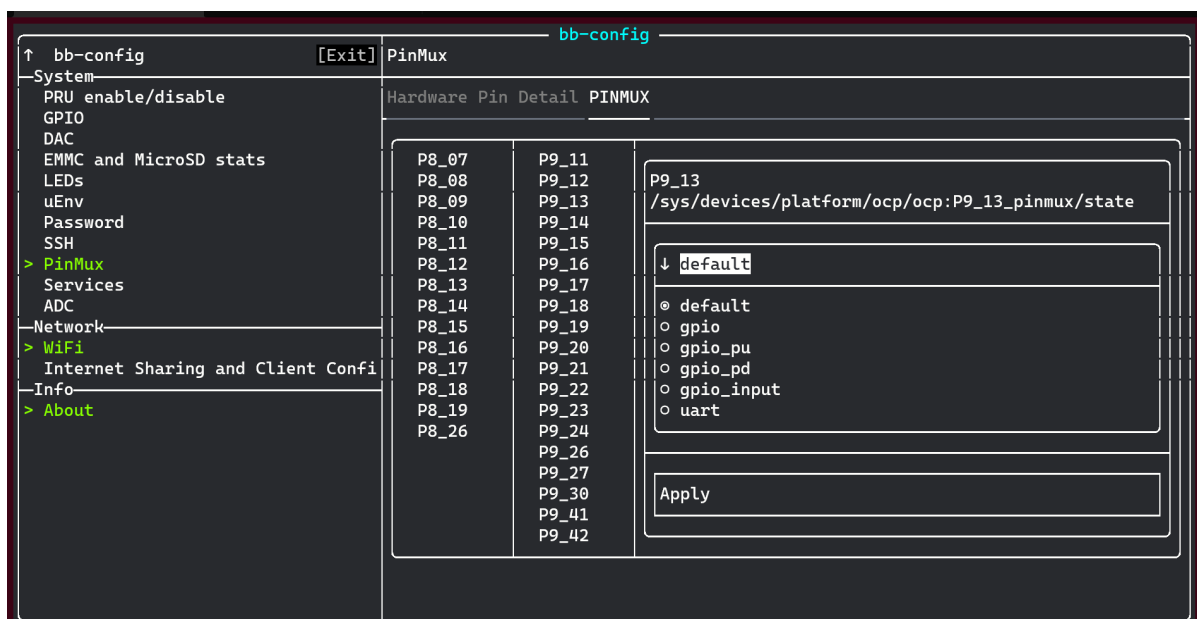


Pin Table References

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			

gnd	1	2	gnd	Content : P8_01	gnd	1	2	gnd
emmc	3	4	emmc	Name : gnd	power	3	4	power
emmc	5	6	emmc		power	5	6	power
gpio	7	8	gpio		power	7	8	power
gpio	9	10	gpio		system	9	10	system
gpio	11	12	gpio		gpio	11	12	gpio
gpio	13	14	gpio		gpio	13	14	gpio
gpio	15	16	gpio		gpio	15	16	gpio
gpio	17	18	gpio		gpio	17	18	gpio
gpio	19	20	emmc		i2c	19	20	i2c
emmc	21	22	emmc		gpio	21	22	gpio
emmc	23	24	emmc		gpio	23	24	gpio
emmc	25	26	gpio		audio	25	26	gpio
hdmi	27	28	hdmi		gpio	27	28	audio
hdmi	29	30	hdmi		audio	29	30	gpio
hdmi	31	32	hdmi		audio	31	32	power
hdmi	33	34	hdmi		adc	33	34	gnd
hdmi	35	36	hdmi		adc	35	36	adc
hdmi	37	38	hdmi		adc	37	38	adc
hdmi	39	40	hdmi		adc	39	40	adc
hdmi	41	42	hdmi		gpio	41	42	gpio
hdmi	43	44	hdmi		gnd	43	44	gnd

Pin Config



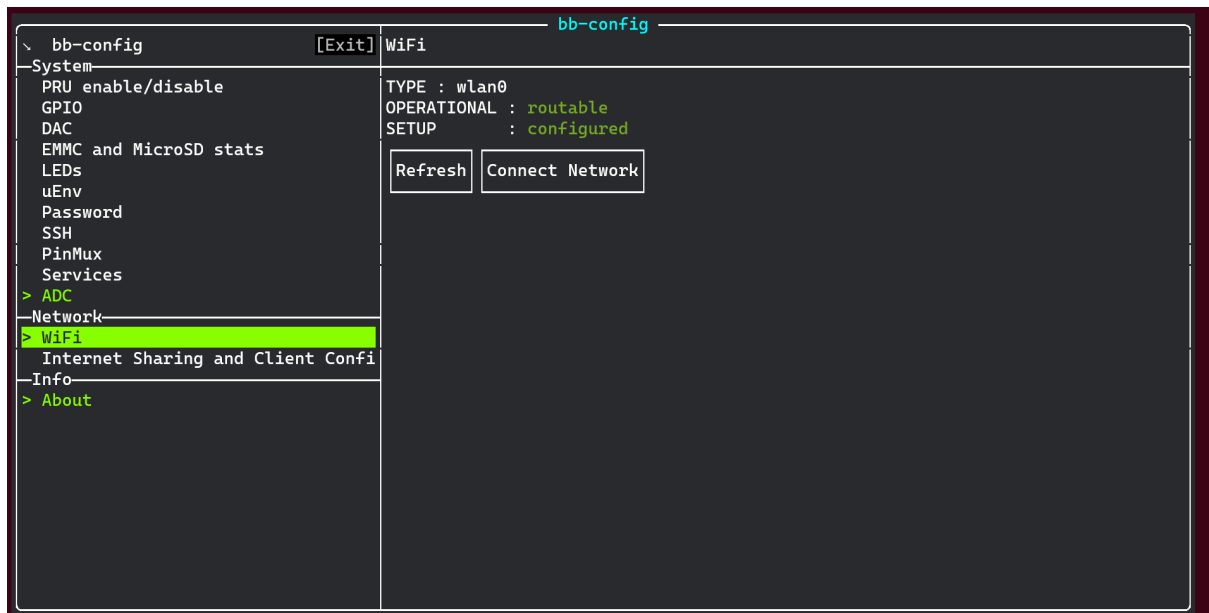
3.2.6 Overlay (dts)

- 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