

Setting ESP32 APRS AUDIO PADA STASIUN YC1JEA

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Teknik Informatika

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Pendahuluan

APRS adalah singkatan dari Automatic Packet Reporting System. Ini adalah protokol komunikasi digital radio amatir yang digunakan untuk mengirimkan paket data kecil seperti koordinat lokasi *real-time*, stasiun cuaca, pesan teks, dan status secara nirkabel melalui gelombang radio. Sistem ini memungkinkan pengguna (biasanya penghobi radio amatir) untuk melakukan beberapa hal:

Pelacakan Posisi: Mengirim dan memetakan posisi GPS secara langsung, berguna untuk pelacakan kendaraan, pendaki, atau operasi pencarian dan penyelamatan.

Pertukaran Pesan: Mengirimkan pesan teks singkat antar stasiun radio tanpa koneksi internet seluler.

Data Telemetri: Membagikan informasi stasiun cuaca lokal atau perangkat tertentu

- Default config then go to WiFi AP SSID: ESP32APRS_LoRa PASS: aprsthnetwork and open a web browser to the website. <http://192.168.4.1> default web auth USER: admin PASS: admin
- Default config then go to share or set router WiFi SSID: APRSTH PASS: aprsthnetwork and use web browser by IP from router/share smartphone default web auth USER: admin PASS: admin

1. Cara Flash ESP32 Audio

Untuk Melakukan Flash, Pertama silahkan download aplikasi berikut:

1) Download ESP32 Flash Download Tools

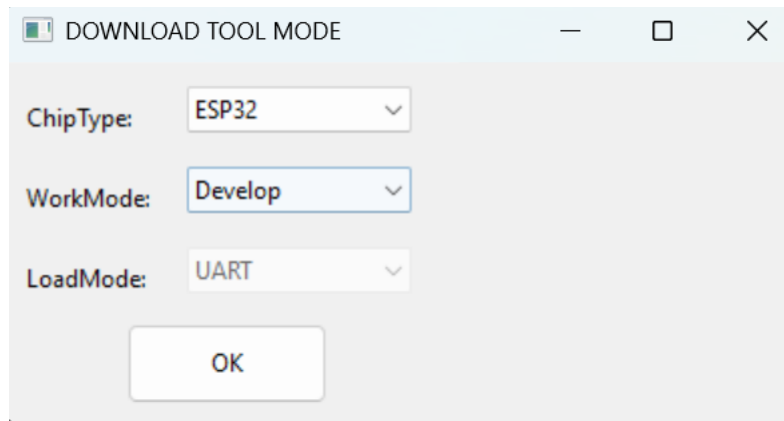
<https://www.espressif.com/en/support/download/other-tools>

2) Download firmware Releases · nakhonthai/ESP32APRS_Audio

https://github.com/nakhonthai/ESP32APRS_Audio/releases/download/V1.7/ESP32_V17b.zip

Setelah di Download silahkan Jalankan file tersebut.

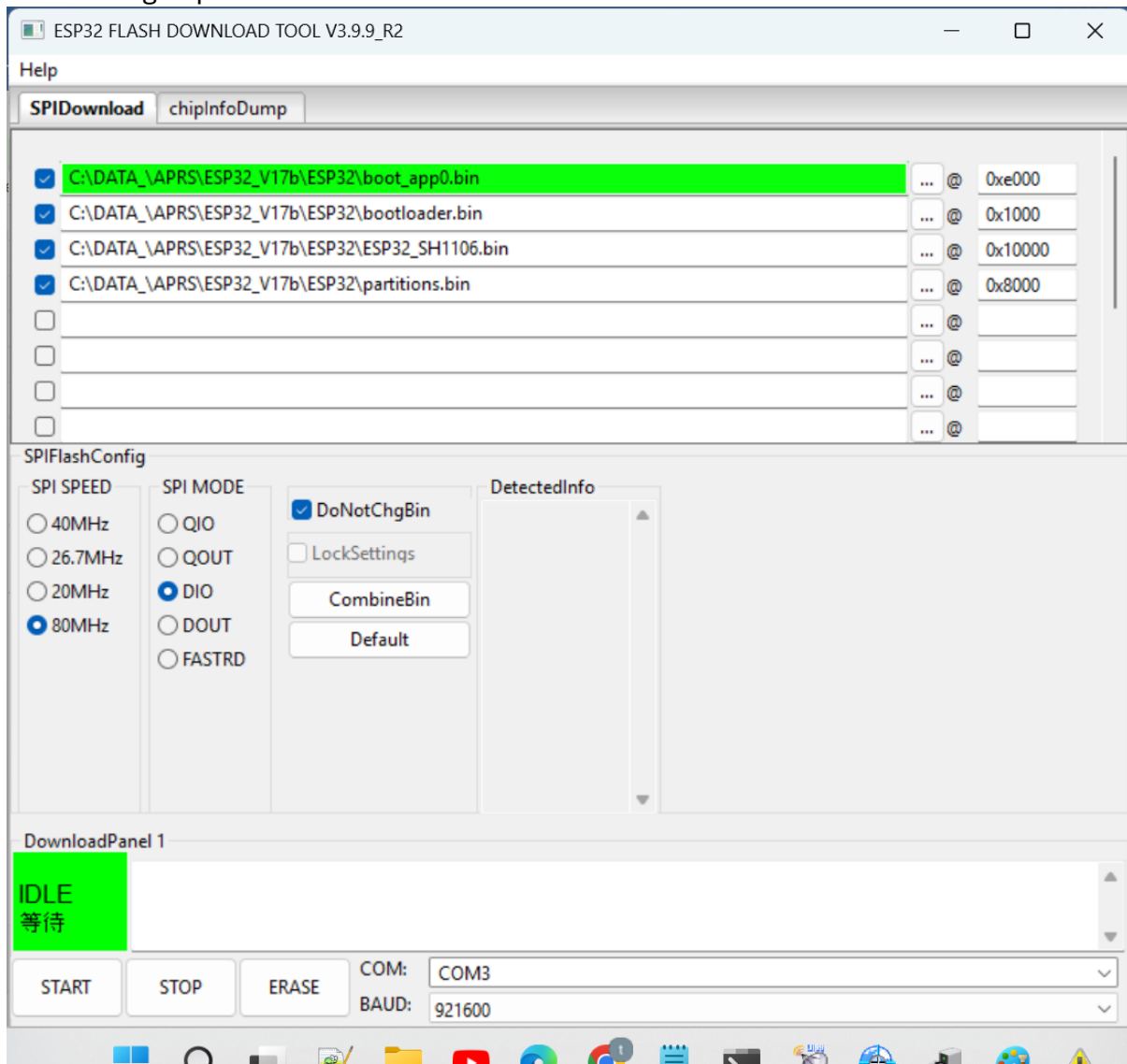
C:\DATA_\APRS\flash_download_tool\flash_download_tool.exe, kemudian akan ditampilkan jendela berikut:



Ubah ChipType sesuai dengan Mode Chip yang anda gunakan, misalnya ESP32, ESP8266 dan lain-lain, Click Ok

Selanjutnya ditampilkan jendela berikut:

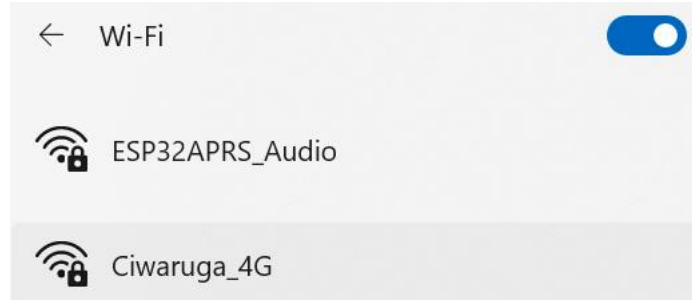
Atur Setting Seperti berikut:



Selanjutnya Click Tombol Start Untuk Memulai
Tunggu Sampai Selesai.

2. Setup ESP32 APRS

Untuk Pertama kali ketika akan men-setting , masuk ke WIFI ESP32APRS_Audio:



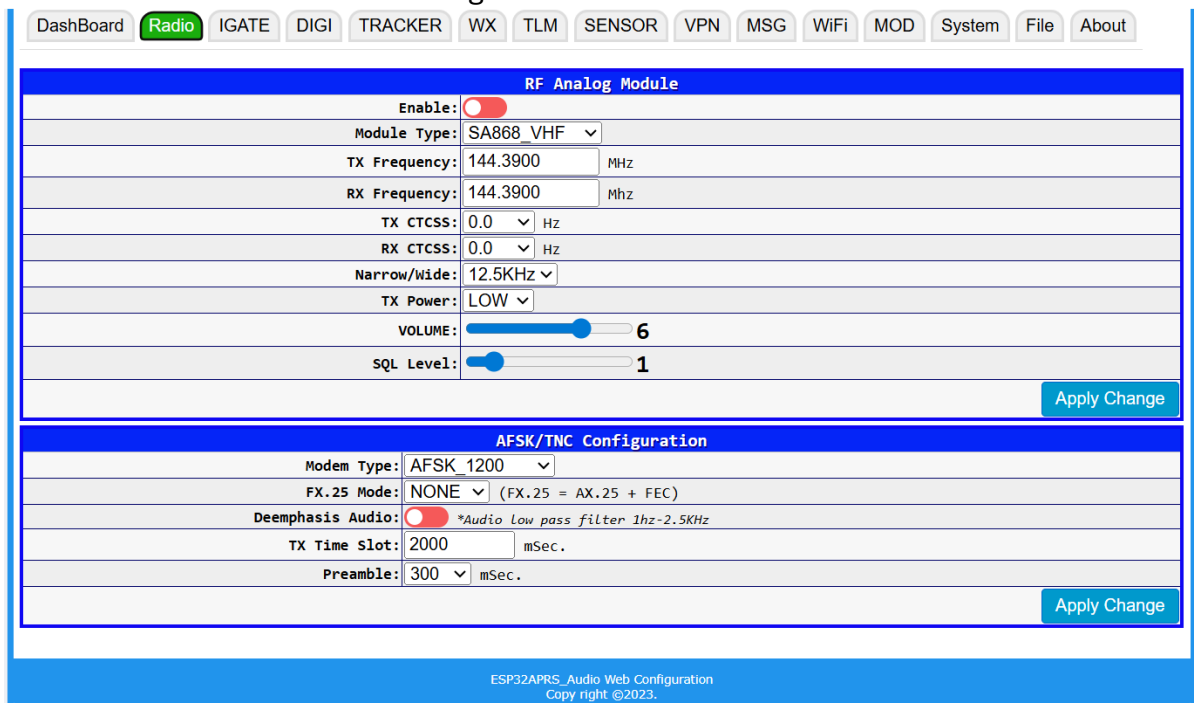
PASS: aprsthnetwork

Selanjutnya masuk ke ip address:192.168.4.1

User:admin passw:admin

2.1. Setting Radio

Masuk ke Tab Radio, kemudian lakukan perubahan seperti contoh berikut, kemudian disesuaikan dengan stasiun Anda:



RF Analog Module	
Enable:	<input checked="" type="checkbox"/>
Module Type:	SA868_VHF
TX Frequency:	144.3900 MHz
RX Frequency:	144.3900 Mhz
TX CTCSS:	0.0 Hz
RX CTCSS:	0.0 Hz
Narrow/Wide:	12.5KHz
TX Power:	LOW
VOLUME:	6
SQL Level:	1
Apply Change	

AFSK/TNC Configuration	
Modem Type:	AFSK_1200
FX.25 Mode:	NONE (FX.25 = AX.25 + FEC)
Deemphasis Audio:	<input checked="" type="checkbox"/> *Audio low pass filter 1hz-2.5KHz
TX Time Slot:	2000 mSec.
Preamble:	300 mSec.
Apply Change	

ESP32APRS_Audio Web Configuration
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Jangan Lupa Click Apply Change, untuk menyimpan hasil perubahan tadi.

2.2. Pilih Tab IGATE

Atur Setting Seperti Gambar Berikut, sesuaikan dengan Stasiun Anda:

DashBoard
Radio
IGATE
DIGI
TRACKER
WX
TLM
SENSOR
VPN
MSG
WiFi
MOD
System
File
About

[IGATE] Internet Gateway Mode

Enable:	<input checked="" type="checkbox"/>
Station Callsign:	YC1JEA
Station SSID:	2
Station Symbol:	Table: / Symbol: # <input type="checkbox"/> *Click icon for select symbol
Item/Obj Name:	*If not used, leave it blank. In use 3-9 character
PATH:	UserDefine 2
Server Host:	asia.aprs2.net *APRS-IS by T2THAI at aprs.dprns.com:14580 , CBAPRS at aprs.dprns.com:24580
Server Port:	14580 *AMPR Host at aprs.hs5tqa.ampr.org:14580
Server Filter:	m/10 *Filter: http://www.aprs-is.net/javAPRSFilter.aspx
Text Comment:	ESP32 APRS
Text status:	IGATE YC1JEA APRS 144.390MHz Interval: 1800 Sec.
RF2INET:	<input checked="" type="checkbox"/> *Switch RF to Internet gateway
INET2RF:	<input type="checkbox"/> *Switch Internet to RF gateway
Time Stamp:	<input type="checkbox"/>

POSITION:	Beacon:	<input checked="" type="checkbox"/> Interval: 600 Sec.
	Location:	<input checked="" type="radio"/> Fix <input type="radio"/> GPS
	TX Channel:	<input checked="" type="checkbox"/> RF <input checked="" type="checkbox"/> Internet
	Latitude:	-6.85851 degrees (positive for North, negative for South)
	Longitude:	107.57710 degrees (positive for East, negative for West)
	Altitude:	850.00 meter. *Value 0 is not send height

PHG:	Radio TX Power:	1 Watts
	Antenna Gain:	6 dBi
	Height:	10 Feet
	Antenna/Direction:	Omni
	PHG Text:	PHG7060 <input type="button" value="Calculate PHG"/>

Telemetry: (v=0->8280)	Interval:	0 *Number of packets interval, Example: 0 not send, 1 send every packet
	CH A1:	Sensor: CH: NONE Name: Unit: Precision: 0 EQNS: a: 0.00000 b: 1.00000 c: 0.00000 (av ² +bv+c) offset: 0.00000
	CH A2:	Sensor: CH: NONE Name: Unit: Precision: 0 EQNS: a: 0.00000 b: 1.00000 c: 0.00000 (av ² +bv+c) offset: 0.00000
	CH A3:	Sensor: CH: NONE Name: Unit: Precision: 0 EQNS: a: 0.00000 b: 1.00000 c: 0.00000 (av ² +bv+c) offset: 0.00000
	CH A4:	Sensor: CH: NONE Name: Unit: Precision: 0 EQNS: a: 0.00000 b: 1.00000 c: 0.00000 (av ² +bv+c) offset: 0.00000
	CH A5:	Sensor: CH: NONE Name: Unit: Precision: 0 EQNS: a: 0.00000 b: 1.00000 c: 0.00000 (av ² +bv+c) offset: 0.00000

[IGATE] Filter

RF2INET Filter:	Filter RF to Internet				
	<input checked="" type="checkbox"/> Message	<input checked="" type="checkbox"/> Status	<input checked="" type="checkbox"/> Telemetry	<input checked="" type="checkbox"/> Weather	<input checked="" type="checkbox"/> Object
INET2RF Filter:	Filter Internet to RF				
	<input type="checkbox"/> Message	<input type="checkbox"/> Status	<input type="checkbox"/> Telemetry	<input type="checkbox"/> Weather	<input type="checkbox"/> Object

Jangan Lupa Click Apply Change, untuk menyimpan hasil perubahan tadi.

2.3. Pilih Tab DIGI

Atur Setting Seperti Gambar Berikut, sesuaikan dengan Stasiun Anda:

DashBoard
Radio
IGATE
DIGI
TRACKER
WX
TLM
SENSOR
VPN
MSG
WiFi
MOD
System
File
About

[DIGI] Digital Repeater Mode

Enable:	<input type="checkbox"/>				
Auto Enable:	<input checked="" type="checkbox"/> *Automatic enable when APRS-IS disconnected				
Station Callsign:	YC1JEA				
Station SSID:	2				
Station Symbol:	Table: /	Symbol: #	*Click icon for select symbol		
PATH:	UserDefine 2				
Text Comment:	ESP32 APRS				
Text Status:	DIGI YC1JEA APRS 144.390MHz	Interval:	1800 Sec.		
Repeat Delay:	0 mSec. *0 is auto, other random of delay time				
Time Stamp:	<input checked="" type="checkbox"/>				
POSITION:	Beacon:	<input checked="" type="checkbox"/>	Interval: 600 Sec.		
	Location:	<input checked="" type="radio"/> Fix <input type="radio"/> GPS			
	TX Channel:	<input checked="" type="checkbox"/> RF <input checked="" type="checkbox"/> Internet			
	Latitude:	-6.85850	degrees (positive for North, negative for South)		
	Longitude:	107.57710	degrees (positive for East, negative for West)		
	Altitude:	850.00	meter. *Value 0 is not send height		
PHG:	Radio TX Power	1	Watts		
	Antenna Gain	6	dBi		
	Height	10	Feet		
	Antenna/Direction	Omni			
	PHG Text	PHG7060	<input type="button" value="Calculate PHG"/>		
Filter:	Filter repeater				
	<input checked="" type="checkbox"/> Message	<input checked="" type="checkbox"/> Status	<input checked="" type="checkbox"/> Telemetry		
	<input checked="" type="checkbox"/> Item	<input checked="" type="checkbox"/> Query	<input checked="" type="checkbox"/> Buoy		
	<input checked="" type="checkbox"/> Weather	<input checked="" type="checkbox"/> Position	<input checked="" type="checkbox"/> Object		
Telemetry: (v=0->8280)	Interval:	0 *Number of packets interval, Example: 0 not send, 1 send every packet			
	CH A1:	Sensor: CH: NONE	Name:	Unit:	
		EQNS: a: 0.00000	b: 1.00000	c: 0.00000 (av ² +bv+c)	Precision: 0
					Offset: 0.00000
	CH A2:	Sensor: CH: NONE	Name:	Unit:	
		EQNS: a: 0.00000	b: 1.00000	c: 0.00000 (av ² +bv+c)	Precision: 0
					Offset: 0.00000
CH A3:	Sensor: CH: NONE	Name:	Unit:		
	EQNS: a: 0.00000	b: 1.00000	c: 0.00000 (av ² +bv+c)	Precision: 0	
				Offset: 0.00000	
CH A4:	Sensor: CH: NONE	Name:	Unit:		
	EQNS: a: 0.00000	b: 1.00000	c: 0.00000 (av ² +bv+c)	Precision: 0	
				Offset: 0.00000	
CH A5:	Sensor: CH: NONE	Name:	Unit:		
	EQNS: a: 0.00000	b: 1.00000	c: 0.00000 (av ² +bv+c)	Precision: 0	
				Offset: 0.00000	

Jangan Lupa Click Apply Change, untuk menyimpan hasil perubahan tadi.

2.4. Pilih Tab MSG

Atur Setting Seperti Gambar Berikut, sesuaikan dengan Stasiun Anda:

DashBoard	Radio	IGATE	DIGI	TRACKER	WX	TLM	SENSOR	VPN	MSG	WiFi	MOD	System	File	About
-----------	-------	-------	------	---------	----	-----	--------	-----	------------	------	-----	--------	------	-------

Message Configuration	
Enable:	<input checked="" type="checkbox"/>
My Callsign:	YC1JEA-2 <small>*Callsign with SSID (Ex. HS5TQA-12)</small>
TX Channel:	<input checked="" type="checkbox"/> RF <input checked="" type="checkbox"/> Internet
Encryption:	<input type="checkbox"/>
AES Key:	8EC8233E91D59B0164C24E771BA66307 <small>*ASCII HEX 16Byte</small>
Send Retry:	3
Send Timeout:	30 Sec.
PATH:	UserDefine 2
Apply Change	

CHAT MESSAGE			
Time (+7)	Callsign	Message	ACK/msgID
TO:	MSG:		Send

Jangan Lupa Click Apply Change, untuk menyimpan hasil perubahan tadi.

2.5. Pilih Tab WiFi

Atur Setting Seperti Gambar Berikut, sesuaikan dengan Stasiun Anda:

DashBoard	Radio	IGATE	DIGI	TRACKER	WX	TLM	SENSOR	VPN	MSG	WiFi	MOD	System	File	About
-----------	-------	-------	------	---------	----	-----	--------	-----	-----	-------------	-----	--------	------	-------

WiFi Access Point	
Enable:	<input checked="" type="checkbox"/>
WiFi AP SSID:	ESP32APRS_Audio
WiFi AP PASSWORD:	*****
Apply Change	

WiFi Multi Station	
WiFi STA Enable:	<input checked="" type="checkbox"/>
WiFi RF Power:	11.0 dBm
Station #1:	WiFi Station #1
	Enable: <input checked="" type="checkbox"/>
	WiFi SSID: APRSTH WiFi PASSWORD: *****
Station #2:	WiFi Station #2
	Enable: <input checked="" type="checkbox"/>
	WiFi SSID: APRS_YC1JEA WiFi PASSWORD: *****
Apply Change	

Jangan Lupa Click Apply Change, untuk menyimpan hasil perubahan tadi.

2.6. Pilih Tab MOD

Atur Setting Seperti Gambar Berikut, sesuaikan dengan Stasiun Anda:

DashBoard	Radio	IGATE	DIGI	TRACKER	WX	TLM	SENSOR	VPN	MSG	WiFi	MOD	System	File	About
-----------	-------	-------	------	---------	----	-----	--------	-----	-----	------	------------	--------	------	-------

UART0 Modify		UART1 Modify		1-Wire Bus Modify	
Enable	<input checked="" type="checkbox"/>	Enable	<input checked="" type="checkbox"/>	Enable	<input checked="" type="checkbox"/>
RX GPIO:	<input type="text" value="3"/>	RX GPIO:	<input type="text" value="18"/>	GPIO:	<input type="text" value="-1"/>
TX GPIO:	<input type="text" value="1"/>	TX GPIO:	<input type="text" value="19"/>		<input type="button" value="Apply"/>
RTS/DE GPIO:	<input type="text" value="-1"/>	RTS/DE GPIO:	<input type="text" value="-1"/>		
Baudrate:	<input type="text" value="9600"/> bps	Baudrate:	<input type="text" value="9600"/> bps		
	<input type="button" value="Apply"/>		<input type="button" value="Apply"/>		

RF GPIO Modify		I2C_0(OLED) Modify		I2C_1 Modify	
ADC Attenuation:	<input type="text" value="0dB (100-950mV)"/> DC-Offset: 634 mV	Enable	<input checked="" type="checkbox"/>	Enable	<input checked="" type="checkbox"/>
UART2 Baudrate:	<input type="text" value="9600"/> bps	SDA GPIO:	<input type="text" value="21"/>	SDA GPIO:	<input type="text" value="-1"/>
UART2 RX GPIO:	<input type="text" value="14"/>	SCK GPIO:	<input type="text" value="22"/>	SCK GPIO:	<input type="text" value="-1"/>
UART2 TX GPIO:	<input type="text" value="13"/>	Frequency:	<input type="text" value="400000"/>	Frequency:	<input type="text" value="100000"/>
PD GPIO:	<input type="text" value="27"/> Active: <input type="radio"/> LOW <input checked="" type="radio"/> HIGH		<input type="button" value="Apply"/>		<input type="button" value="Apply"/>
H/L GPIO:	<input type="text" value="-1"/> Active: <input type="radio"/> LOW <input checked="" type="radio"/> HIGH				
SQL GPIO:	<input type="text" value="-1"/> Active: <input checked="" type="radio"/> LOW <input type="radio"/> HIGH				
PTT GPIO:	<input type="text" value="32"/> Active: <input type="radio"/> LOW <input checked="" type="radio"/> HIGH				
	<input type="button" value="Apply"/>				

Counter_0 Modify		Counter_1 Modify	
Enable	<input checked="" type="checkbox"/>	Enable	<input checked="" type="checkbox"/>
INPUT GPIO:	<input type="text" value="-1"/>	INPUT GPIO:	<input type="text" value="-1"/>
Active	<input checked="" type="radio"/> LOW <input type="radio"/> HIGH	Active	<input checked="" type="radio"/> LOW <input type="radio"/> HIGH
	<input type="button" value="Apply"/>		<input type="button" value="Apply"/>

Jangan Lupa Click Apply Change, untuk menyimpan hasil perubahan tadi.

2.7.Pilih Tab MOD

Atur Setting Seperti Gambar Berikut, sesuaikan dengan Stasiun Anda:

DashBoard	Radio	IGATE	DIGI	TRACKER	WX	TLM	SENSOR	VPN	MSG	WiFi	MOD	System	File	About
-----------	-------	-------	------	---------	----	-----	--------	-----	-----	------	-----	---------------	------	-------

System Setting		
Host Name:	ESP32APRS_Audio	Apply
LOCAL DATE/TIME	2026-05-23 14:52:12	Time Update
NTP Host	ntp.dprns.com	NTP Update
Auto REBOOT:	10 Minutes	Update *0=No reset
Time Zone	(GMT +7:00) Bangkok, Hanoi, Jakarta Sec	TZ Update
SYSTEM CONTROL	REBOOT	Factory Reset Load Default

Web Authentication	
Web USER:	admin
Web PASSWORD:	*****
Apply Change	

PATH USER Define	
PATH_1:	TRACE2-2
PATH_2:	WIDE2-1
PATH_3:	WIDE1-1,WIDE2-1
PATH_4:	RFONLY
Apply Change	

Display Setting	
OLED/TFT Enable	<input checked="" type="checkbox"/>
Flip Rotate	<input type="checkbox"/>
TX Display	<input checked="" type="checkbox"/> *ALL TX Packet for display affter filter.
RX Display	<input checked="" type="checkbox"/> *ALL RX Packet for display affter filter.
Head Up	<input checked="" type="checkbox"/> *The compass will rotate in the direction of movement.
TFT Brightness	250
Popup Delay	3 Sec
OLED/TFT Sleep	60 Sec
RX channel	<input checked="" type="checkbox"/> RF <input type="checkbox"/> Internet
Filter DX:	0 Km. *Value 0 is all distant allow.
Filter:	<input checked="" type="checkbox"/> Message <input checked="" type="checkbox"/> Status <input type="checkbox"/> Telemetry <input checked="" type="checkbox"/> Weather <input checked="" type="checkbox"/> Object <input checked="" type="checkbox"/> Item <input checked="" type="checkbox"/> Query <input checked="" type="checkbox"/> Buoy <input checked="" type="checkbox"/> Position
Apply Change	

Jangan Lupa Click Apply Change, untuk menyimpan hasil perubahan tadi.

2.8.Pilih Tab About

Atur Setting Seperti Gambar Berikut, sesuaikan dengan Stasiun Anda:

System Information	
Hardware Version:	ESP32-WROOM,ESP32 DoIt DevKit
Firmware Version:	V1.7d
RF Module:	SA868_VHF
ESP32 Model:	ESP32-D0WD-V3
Revision:	301
Chip ID:	4C2459F924F0
Flash:	4096 KByte
PSRAM:	0.0/0.0 KByte
FILE SYSTEM:	16.0/128.0 KByte

Developer/Support Information	
Author:	Mr.Somkiat Nakhonthai
Callsign:	HS5TQA,Atten,Nakhonthai
Country:	Bangkok,Thailand
Github:	https://github.com/nakhonthai
Youtube:	https://www.youtube.com/@HS5TQA
Facebook:	https://www.facebook.com/atten
Chat:	Telegram:@HS5TQA , WeChat:HS5TQA
Sponsors:	https://github.com/sponsors/nakhonthai
Donate:	https://www.paypal.me/0hs5tqa0

WiFi Status	
Mode:	AP+STA (802.11bgn)
MAC:	F0:24:F9:59:24:4C
Channel:	4
TX Power:	19.5 dBm
SSID:	APRS_YC1JEA
Local IP:	192.168.0.102
Gateway IP:	192.168.0.1
DNS:	192.168.0.1

Firmware Update	
File:	<input type="button" value="Choose File"/> No file chosen
Progress:	
Support Firmware:	https://github.com/nakhonthai/ESP32APRS_Audio/releases

Jika Sudah Aktif anda bisa secara berkala untuk Memperbaharui Firmware, dari menu firmware update.



Stasiun APRS YC1JEA

PUSTAKA: Dari Berbasis Sumber di Internet

- <https://orari.or.id/aprs-pada-amatir-radio-bagian-pertama/>
- <https://hamradioprep.com/aprs-for-ham-radio/>