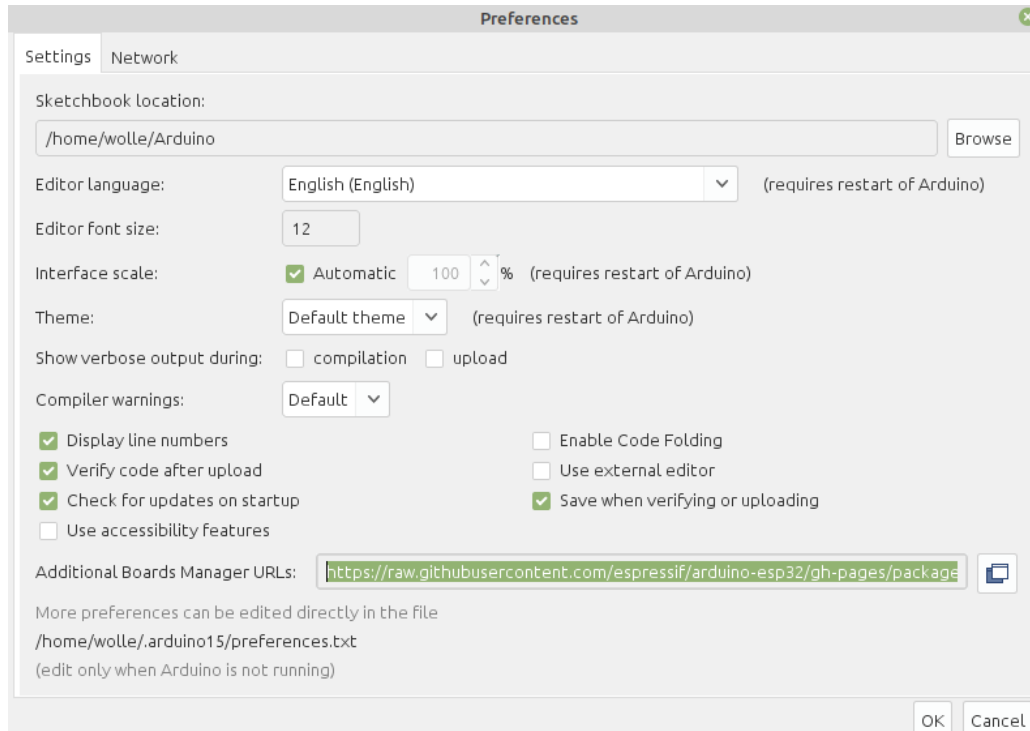


# Notes on programming with the Arduino IDE

In Preferences:

Additional Boards Manager URLs:

[https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package\\_esp32\\_dev\\_index.json](https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_dev_index.json)



Install V1.0.6 via Boards Manager



In (user) AppData\Local\Arduino15\packages\esp32\hardware\esp32\1.0.6\tools\partitions  
copy the partition table miniwebradio.csv

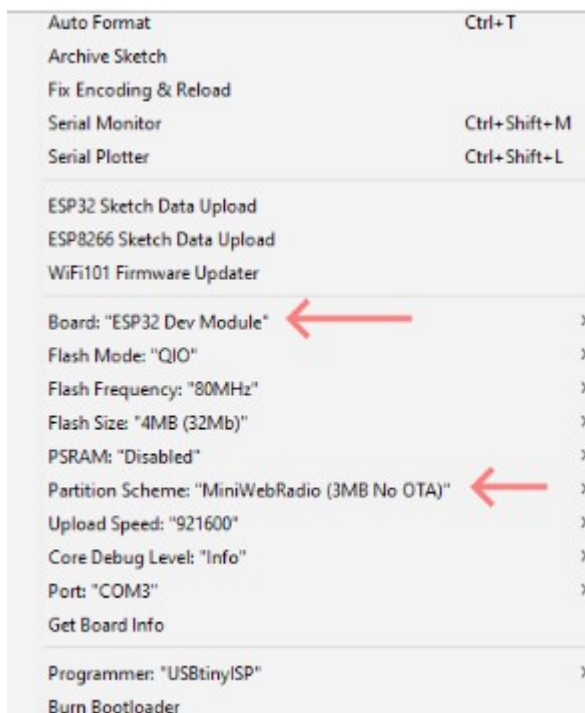
|                       |           |       |
|-----------------------|-----------|-------|
| app3M_fat9M_16MB.csv  | 335 Bytes | Text  |
| boot_app0.bin         | 8,2 kB    | Binär |
| default.bin           | 3,1 kB    | Binär |
| default.csv           | 262 Bytes | Text  |
| default_8MB.csv       | 262 Bytes | Text  |
| default_16MB.csv      | 262 Bytes | Text  |
| default_ffat.csv      | 262 Bytes | Text  |
| ffat.csv              | 335 Bytes | Text  |
| huge_app.csv          | 217 Bytes | Text  |
| large_spiffs_16MB.csv | 262 Bytes | Text  |
| minimal.csv           | 222 Bytes | Text  |
| miniwebradio.csv      | 305 Bytes | Text  |
| min_spiffs.csv        | 261 Bytes | Text  |
| no_ota.csv            | 218 Bytes | Text  |
| noota_3g.csv          | 218 Bytes | Text  |
| noota_3gffat.csv      | 291 Bytes | Text  |
| noota_ffat.csv        | 291 Bytes | Text  |

Then add in boards.txt (section ESP32 Dev Module):

```
esp32.menu.PartitionScheme.miniwebradio=MiniWebRadio (3MB No OTA)
esp32.menu.PartitionScheme.miniwebradio.build.partitions=miniwebradio
esp32.menu.PartitionScheme.miniwebradio.upload.maximum_size=3145728
```

```
esp32.menu.PartitionScheme.default=Default
esp32.menu.PartitionScheme.default.build.partitions=default
esp32.menu.PartitionScheme.minimal=Minimal (2MB FLASH)
esp32.menu.PartitionScheme.minimal.build.partitions=minimal
esp32.menu.PartitionScheme.no_ota=No OTA (Large APP)
esp32.menu.PartitionScheme.no_ota.build.partitions=no_ota
esp32.menu.PartitionScheme.no_ota.upload.maximum_size=2097152
esp32.menu.PartitionScheme.min_spiffs=Minimal SPIFFS (Large APPS with OTA)
esp32.menu.PartitionScheme.min_spiffs.build.partitions=min_spiffs
esp32.menu.PartitionScheme.min_spiffs.upload.maximum_size=1966080
esp32.menu.PartitionScheme.miniwebradio=MiniWebRadio (3MB No OTA)
esp32.menu.PartitionScheme.miniwebradio.build.partitions=miniwebradio
esp32.menu.PartitionScheme.miniwebradio.upload.maximum_size=3145728
```

## Select Board and Partition Scheme



Install libraries

Sketch/Include Library/Add .Zip Library

[https://github.com/schreibfaul1/ESP32-vs1053\\_ext](https://github.com/schreibfaul1/ESP32-vs1053_ext)

<https://github.com/schreibfaul1/ESP32-IR-Remote-Control> Optional, for a IR Remote Control)

<https://github.com/schreibfaul1/ESP32-TFT-Library-ILI9431-HX8347D>

Create the new project "MiniWebRadio"  
and copy the files into the project folder:

If everything is included, the contents of the folder will look like this:

|                  |           |
|------------------|-----------|
| index.h          | 56,2 kB   |
| miniwebradio.csv | 305 Bytes |
| MiniWebRadio.ino | 63,2 kB   |
| rtime.cpp        | 13,4 kB   |
| rtime.h          | 1,3 kB    |
| websrv.cpp       | 28,5 kB   |
| websrv.h         | 3,6 kB    |

The contents of the archive „Content\_on\_SD\_Card. zip "  
[https://github.com/schreibfaul1/ESP32-MiniWebRadio/blob/master/Content\\_on\\_SD\\_Card.zip](https://github.com/schreibfaul1/ESP32-MiniWebRadio/blob/master/Content_on_SD_Card.zip)  
will be unzipped to the SD card.

| Name                | Size    |
|---------------------|---------|
| ..                  |         |
| voice_time          |         |
| ring                |         |
| png                 |         |
| mp3files            |         |
| logo                |         |
| digits              |         |
| day                 |         |
| btn                 |         |
| unknown.jpg         | 3.187   |
| stations.txt        | 1.635   |
| Night_Gown.bmp      | 43.062  |
| networks.txt        | 1.135   |
| MiniWebRadio_gr.jpg | 33.793  |
| MiniWebRadio.jpg    | 22.706  |
| favicon.ico         | 1.536   |
| Brightness.bmp      | 112.374 |

|                  |   |
|------------------|---|
| voice_time       | Language files for the time (can be played at any hour)                   |
| ring             | MP3 file for the alarm tone   |
| pictures         | Bitmaps to test the display (not strictly required)                       |
| mp3files         | Music files etc. for the MP3 player                                       |
| logo             | Sender logos as bitmap (96x96 pixels in size)                             |
| digits           | Alarm clock and time bitmaps  |
| day              | Bitmaps for the day (alarm on/off)  |
| btn              | Bitmaps for the buttons   |
| stations.txt     | The channel list  |
| networks.txt     | If more than one WiFi network exists, the access data can be entered here |
| favicon.ico      | is displayed by the browser on the Web portal.                            |
| miniwebradio.jpg | The Home screen   |
| Brightness.bmp   | Display Brightness menu graphic   |

Choose the tft controller

```
//objects
TFT tft(1); // parameter: (0)ILI9341, (1)HX8347D
VS1053 mp3(VS1053_CS, VS1053_DCS, VS1053_DREQ);
hw_timer_t* timer=NULL; // instance of the timer
```

And the timezone

```
// Timezone
#define TZName "CET-1CEST,M3.5.0,M10.5.0/3"
```

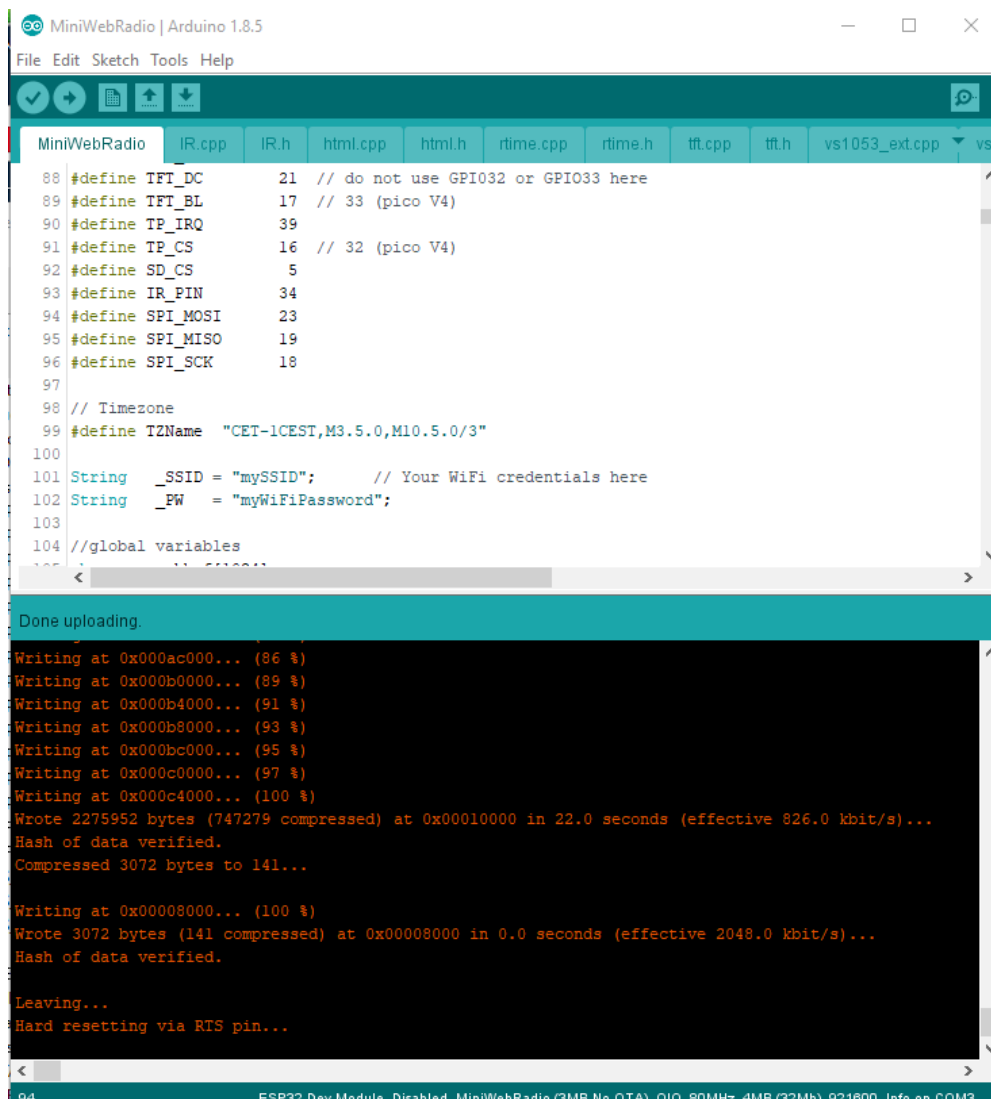
Goto tft.h and include (uncomment) the font Times\_New\_Roman

```
// this font needs a bigger partition change from "default" to "NO OTA (large app)"
#include "fonts/Times_New_Roman.h" // latin, greek, cyrillic with all extensions
```

Set Your credentials in the code or in networks.txt

```
String _SSID = "mySSID"; // Your WiFi credentials here
String _PW = "myWiFiPassword";
```

After that, the sketch can be compiled and uploaded.

The screenshot shows the Arduino IDE interface. The top menu bar includes 'File', 'Edit', 'Sketch', 'Tools', and 'Help'. The toolbar contains icons for opening, saving, and uploading files. The file explorer on the left shows the project structure: 'MiniWebRadio' (selected), 'IR.cpp', 'IR.h', 'html.cpp', 'html.h', 'rtime.cpp', 'rtime.h', 'tft.cpp', 'tft.h', 'vs1053\_ext.cpp', and 'vs1053.h'. The main editor window displays the 'tft.h' file, which contains various pin definitions and the timezone definition. The status bar at the bottom indicates '94 ESP32 Dev Module, Disabled, MiniWebRadio (3MB No OTA), QIO, 80MHz, 4MB (32Mb), 921600, Info on COM3'. A console window at the bottom shows the upload progress and completion message: 'Done uploading. Writing at 0x000ac000... (86 %) Writing at 0x000b0000... (89 %) Writing at 0x000b4000... (91 %) Writing at 0x000b8000... (93 %) Writing at 0x000bc000... (95 %) Writing at 0x000c0000... (97 %) Writing at 0x000c4000... (100 %) Wrote 2275952 bytes (747279 compressed) at 0x00010000 in 22.0 seconds (effective 826.0 kbit/s)... Hash of data verified. Compressed 3072 bytes to 141... Writing at 0x00008000... (100 %) Wrote 3072 bytes (141 compressed) at 0x00008000 in 0.0 seconds (effective 2048.0 kbit/s)... Hash of data verified. Leaving... Hard resetting via RTS pin...'.

Sincerely,

**Wolle**