

Setting up a software environment for compiling the Winlink **IONOS HF/VHF Channel Simulator**

There are a few steps to build the correct Arduino environment to allow you to compile, load and run the IONOS software.

First you need to install a current Arduino system.

Install the IDE for your computer from:

<https://www.arduino.cc/en/main/software>

Current version is 1.8.13, we also support 1.8.12

NOTE: If you're on a MAC under OSX Ver 10.10 → 10.15, there is a complete package from the Teensy site that will load the Arduino and the Teensyduino files as one operation: https://www.pjrc.com/teensy/td_download.html

Setup a folder on your desktop (or wherever you want to keep the files...) Let's call it IONOS-Development.

Start Arduino, go to Preferences menu, and set the Sketchbook location to this IONOS folder.

Test this by compiling an example from the Files→Examples menu.

Under the Tools Menu, select your Board and I/O Port

Open any example, and try to compile it...

Save the program in your IONOS folder. Make sure it's there, then you can delete it as needed.

If all this is fine, then we can load the Teensy 4.0 files...

Download the Teensy 1.53 files from:

https://www.pjrc.com/teensy/td_download.html

Follow the detail instruction on installing the files...

As above, try a Teensy example, make sure it compiles and that it can be saved. Save the program in the IONOS folder. Again, delete if needed...

You now have a working copy of the Arduino IDE and Teensy tools, it's now called Teensyduino, but we must add the libraries and IONOS code to this environment.

Library items that we need:

Teensy Audio Library. (installed when you loaded the Teensy tools above)

ILI9341_t3 LCD Drivers from:

https://github.com/PaulStoffregen/ILI9341_t3

Encoder2, this is from the Winlink Github site

Bounce2, from :

<https://github.com/thomasfredericks/Bounce-Arduino-Wiring/archive/master.zip>

When you get done, your folders should look like this:

IONOS-Development folder

```
|  
| IONOS-xxx  
|   | IONOS-xxx.ino      ← the main program  
| Library  
|   | Encoder2  
|   | ILI9341+t3  
|   | Bounce2
```

To compile and run the code, connect the IONOS via a USB cable to your computer.

Start Teensyduino program.

Under Tools → Boards, select the Teensy 4.0

Under Tools → Port:, select the Serial/USB port

Under Files → Open, select the IONOS-xxx.ino program

Under Tools → Optimize, select: Debug

Under Tools → Select: Serial Monitor

Try a compile, if all is working well, you should see a line something like this at the end:

“Sketch uses 147696 bytes (7%) of program storage space. Maximum is 2031616 bytes.

Global variables use 193204 bytes (36%) of dynamic memory, leaving 331084 bytes for local variables. Maximum is 524288 bytes.”

If all is working, try to compile and download to the hardware...