

Newbrain Digitizer Version 3.0

Newbrain Digitizer is a tool that helps you convert a Newbrain audio tape to a PC binary file that can be loaded from the Emulator.

In order to achieve that you must record the audio tape to a wav file by connecting a tape player to your PC using one of the jacks of your sound card (usually the MIC but it is better to use LineIn jack).

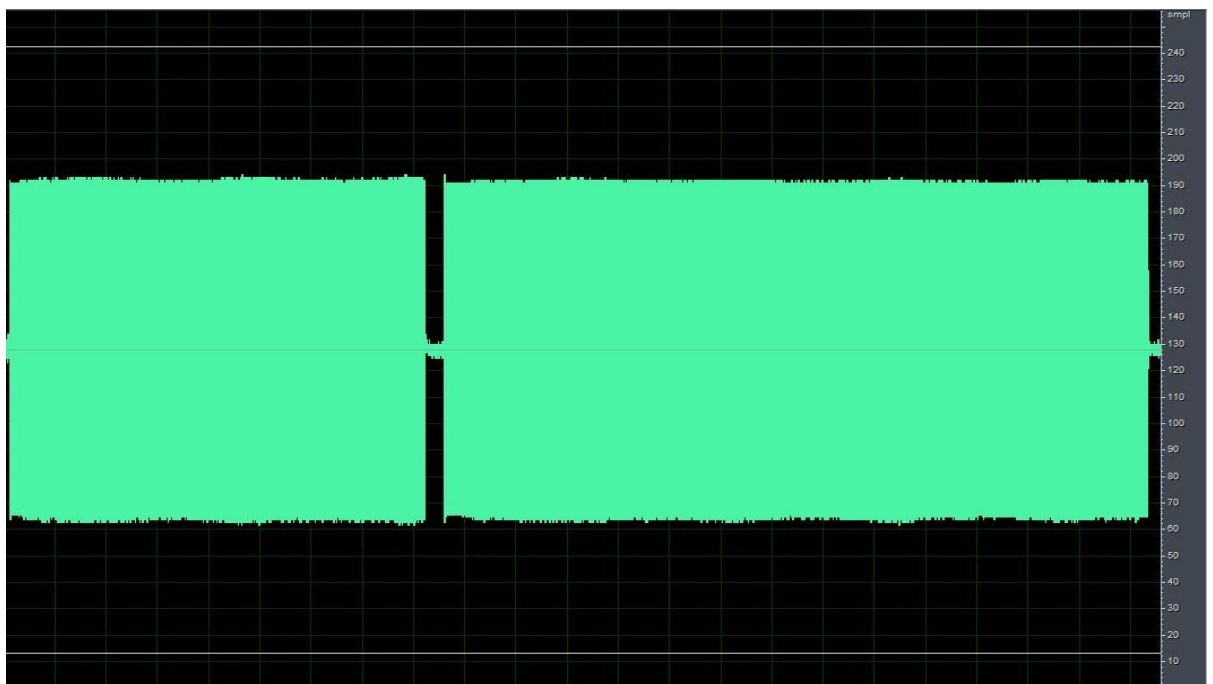
For the digitization process to be successful you must follow some “rules”.

The Wav file sampling should be 44100Hz, 8 bit, Mono or 22050Hz, 8 bit, Mono. Using 44.1 KHz should be better.

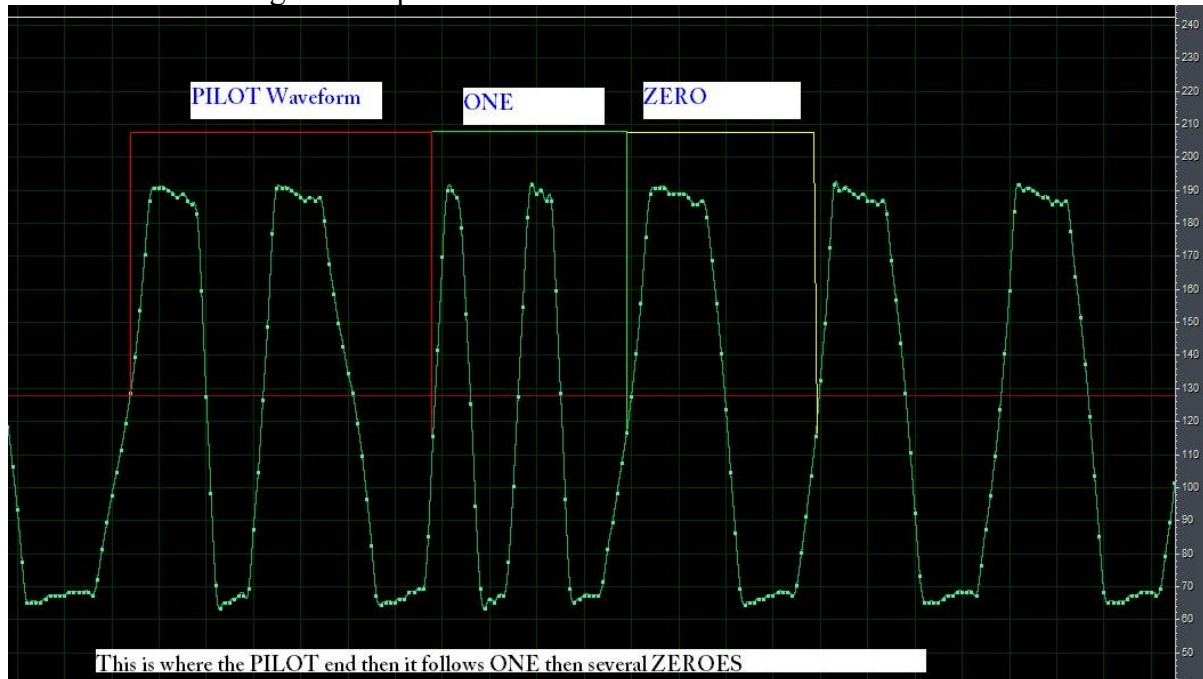
Your tape player must allow you to move the tape head using a screwdriver. When you press play on your cassette player the head comes forward in order to read the tape. At this time if you look at the head you should see a screw which normally moves the head Up or Down.

By doing this you must set the head at the point that you hear the sound better as this is the correct position for your tape. Usually for tapes that has been recorded with the same tape recorder the head should be at the same position.

Use a software program like cool edit pro to record the wave file. Be careful you must not record too loud. The sample values should be between 30 and 230 equally distributed around 127 like the picture bellow :



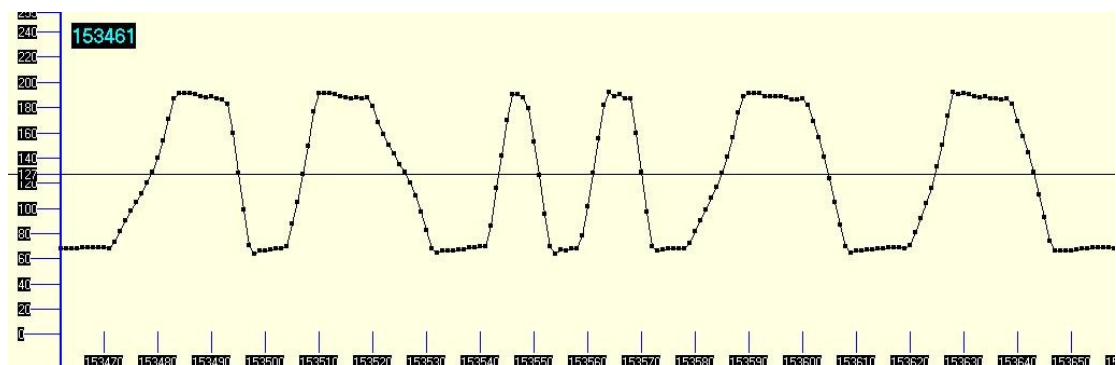
By zooming in, if the tape head is at the right position, you should see something like the picture bellow :



Note that the Pilot Waveform is almost twice as big as the One or Zero waveforms.

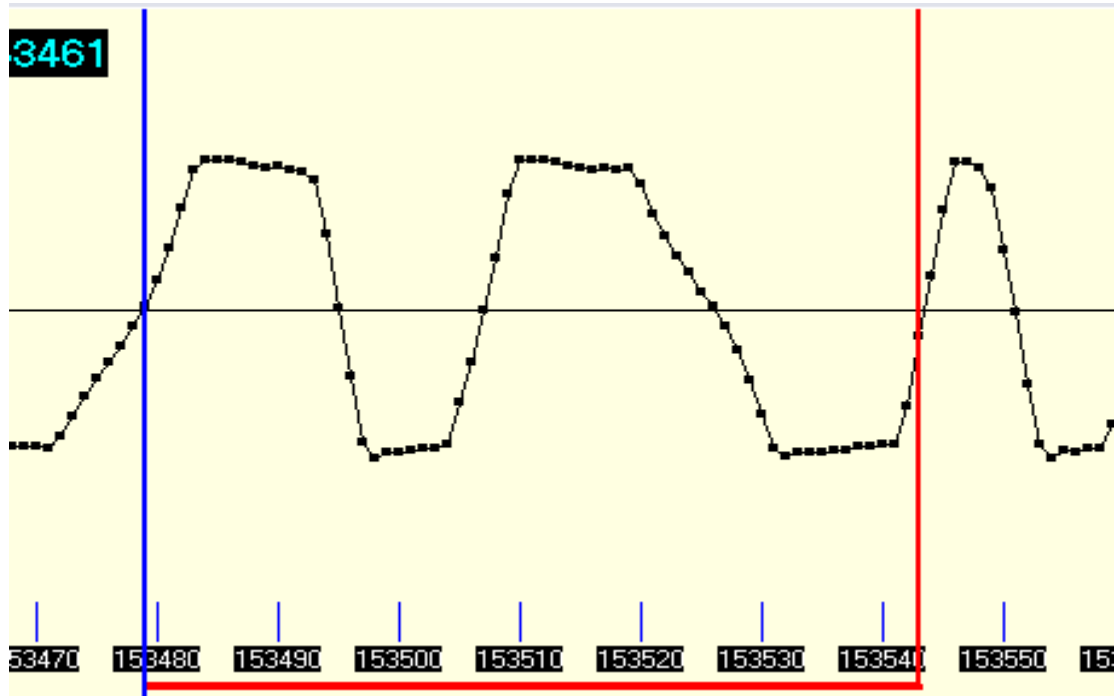
After you save the wave file you must open the NBDigitizer and load it there from the menu. The Digitizer automatically configures itself for 44 or 22 KHz recording. *** The file should be in Tools\Wavs directory.

The previous picture as it shows from the digitizer :

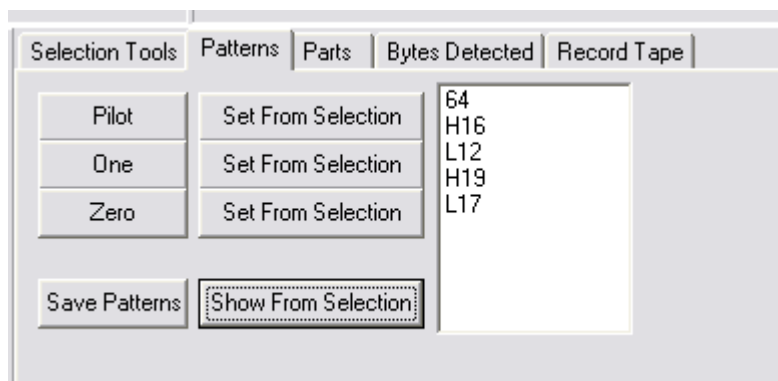


First thing to do is set the patterns for pilot, One and Zero waveforms. Find the place where the pilots end and program data begins like the one pictured above.

Then Press and hold Shift Key on the keyboard and Click on the sample that is close to 127 value (Blue Line) as shown in the picture below. Do not let the mouse click having it down just move the mouse on the right until the sample that ends the pilot (Red Vertical Line).

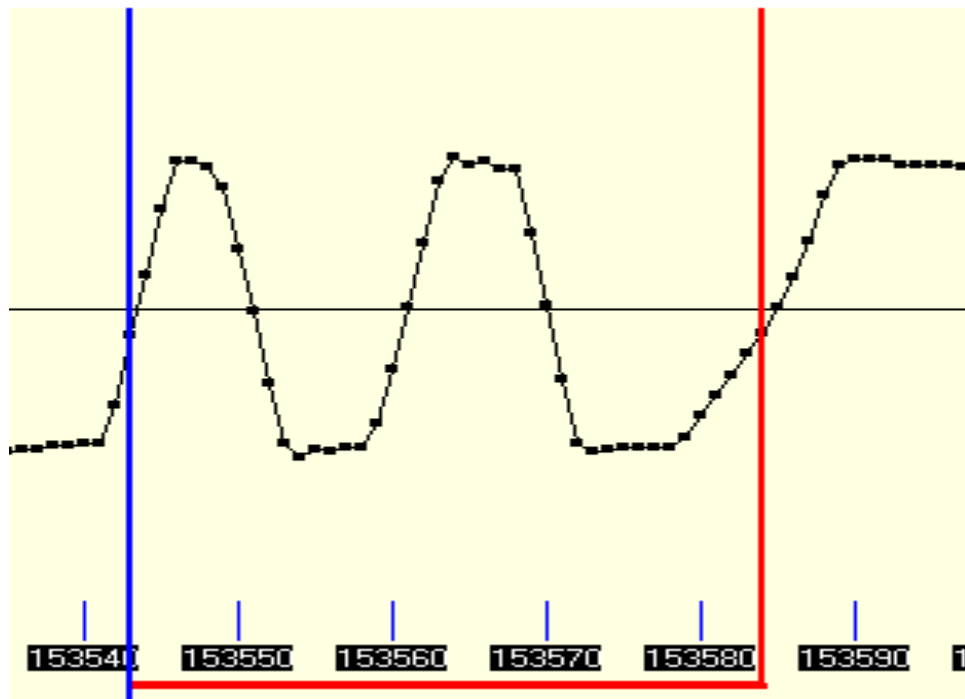


Goto “Patterns” page and press “Set from selection” button next to Pilot Button



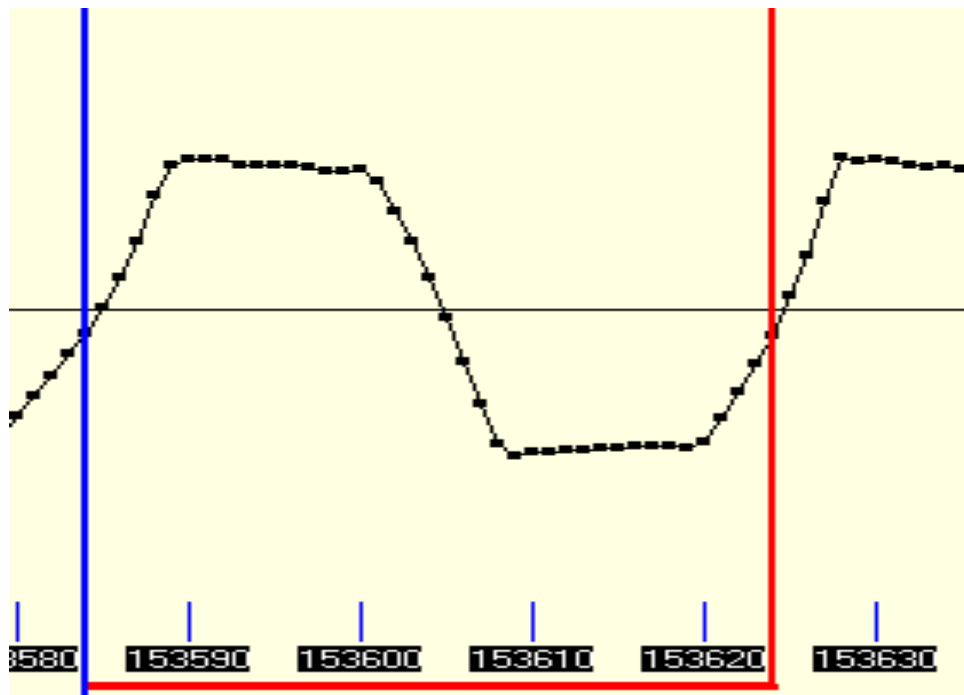
The L17 is not correct because this is the last Pilot before data you should mark the previous pilot and the L17 will be L27.

Repeat this for the One And Zero Patterns by pressing the “Set from selection” button next to One or Zero Pattern. See pic bellow :



ONE PATTERN

Note that you mark from the last sample before the 127 black line until the last sample also before the 127 line.

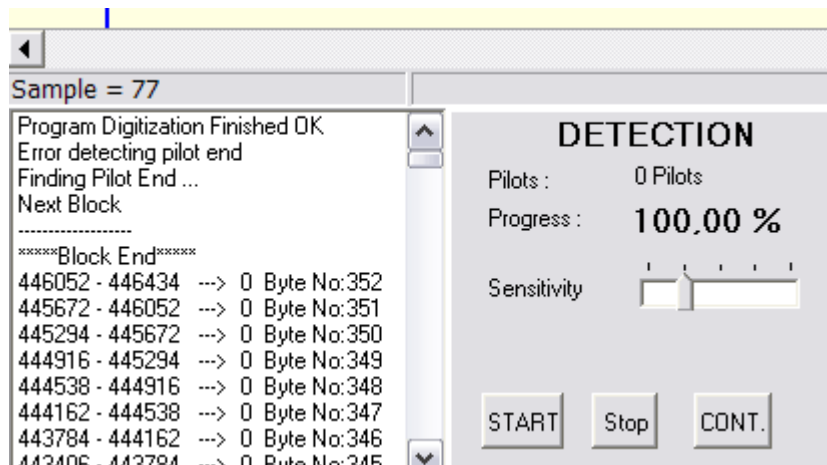


ZERO PATTERN

Press “Save Patterns” to save the patterns so you don’t have to re select them every time you load this **specific** wave file.

Use the Scrollbar again to go to the start of the file and press the 1st button in the detection panel that has the label “start” (I will put an image too).

If everything goes fine you should see something like that after a while (some seconds)



Select File → Save From the menu and <Wavfilename>.bas will be created in the same directory Tools/Wavs

The NB Digitizer have also some other features such as manual Bit Correction for damaged tapes and digitization by part for wave files that have more than one program.

All bytes are written to tape as this , first a One Pattern the patterns for the 8 bits that is the byte to be written then a Zero Pattern that makes 10 Waveforms for each byte Always should start with 1 and end with a 0.

1 x x x x x x x 0 where x is 1 or 0 depending on the byte to be written.