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# TZXing

for the Sinclair Spectrum – A Beginners Guide.

- ◆ Convert your tapes to run on an emulator in 5 easy steps
- ◆ Learn a whole new way to waste your life
- ◆ Step by Step idiot proof guide – Go on, prove me wrong
- ◆ Easy to follow instructions without one mention of FAQ
- ◆ You do NOT require a shed installed for this to work



Learn to tzx your own denied games and stop encouraging sites which disregard a copyright holders wishes



# Creating a simple tzx file from a cassette for the Sinclair Spectrum

This guide shows how easy it is to create a tzx file from an original cassette tape. Its not meant to cover all the options or the times when things go wrong – Those are covered in the advanced guide which is also available on this site – but should work with the majority of tapes and the most common protection schemes.

In this example I am going to create a tzx file of the MIA (Missing in Action) game Mah Jong by Spectre Software.

## Equipment

PC – This doesn't have to be anything special or even high powered and most people's PC will be able to run the software needed. If your machine can run Windows 98 then it will be good enough for this job. The one essential thing is a soundcard but again this doesn't have to be high powered and ultra up to date, any soundblaster compatible card should do. The only real concern for older machines might be disk space because the tape samples can be large.

## Tape Deck

Any cassette deck should work.

## Software

Cooledit 2000 – This is used to sample the original tape. Any sound sampling software can be used so long as it can output .voc or .wav files.

Maketzx – This is used to convert the tape sample into a tzx file. For people who don't like using the command line a windows GUI is available to make life easier.

A Spectrum emulator – I tend to use the Spin or Spectaculator Emulators but most of the modern emulators can handle the tzx format.

## TZXing for dummies

Step 1 – Connect everything together

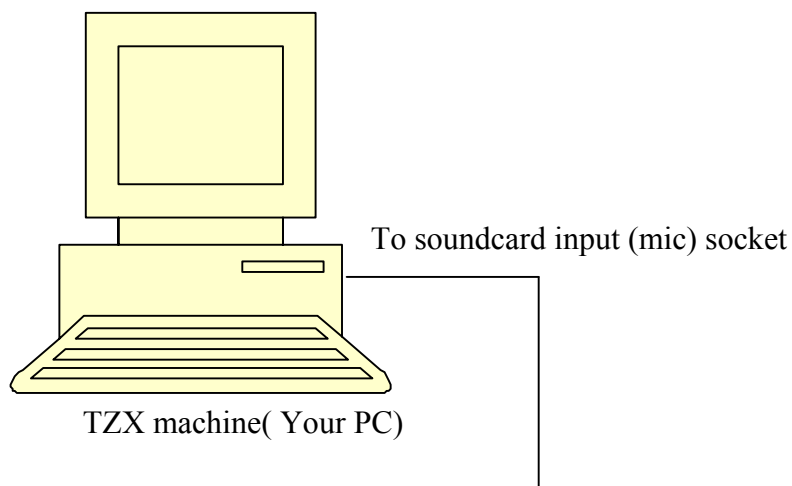
Step 2 – Sample your tape

Step 3 – Save your sample

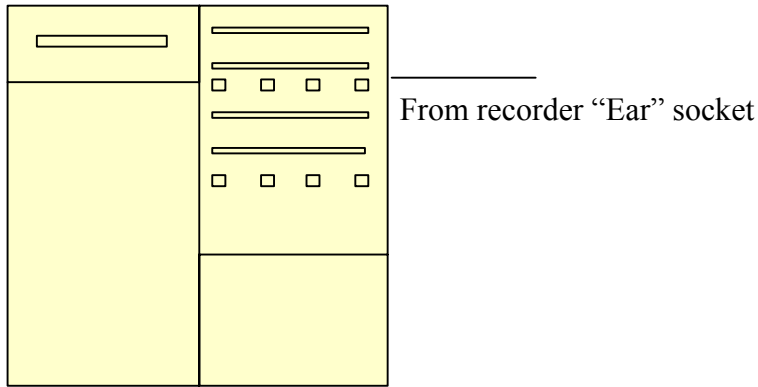
Step 4 – Convert your sample

Step 5 – Test your finished tzx

1,



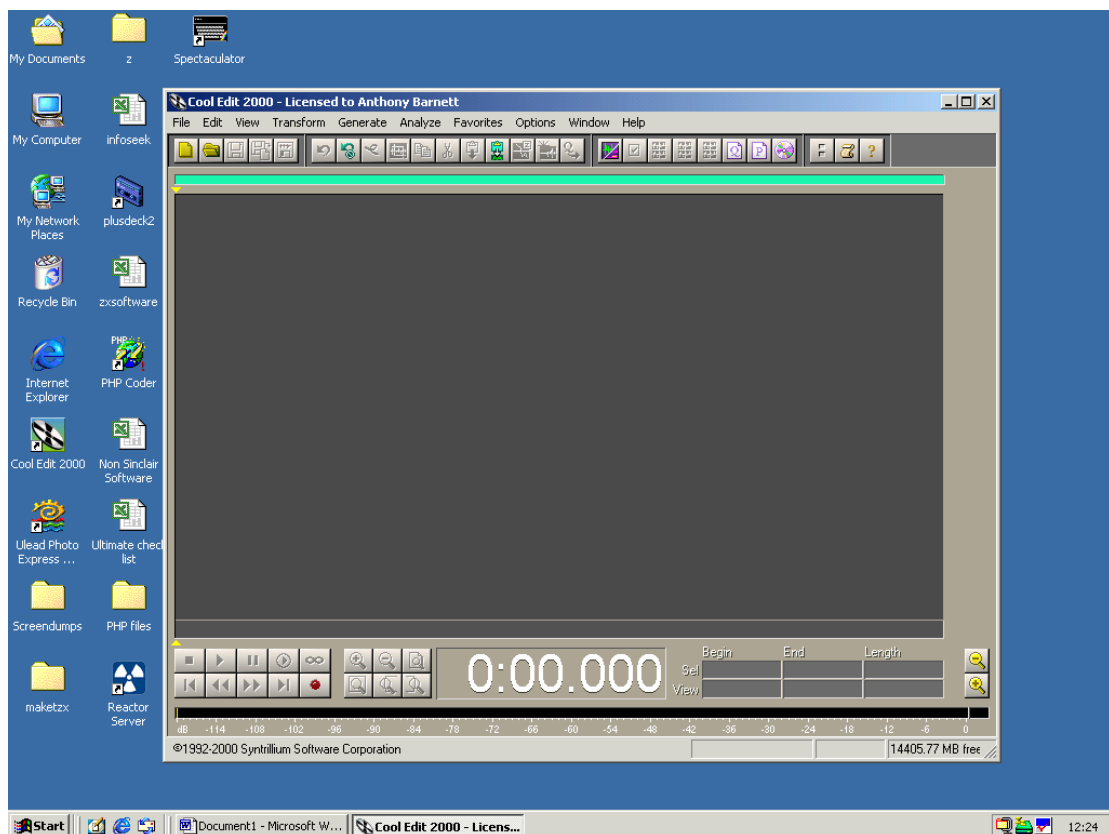
Use the cassette to computer lead that Comes with the early spectrums. If you Don't have it then a simple lead with 3.5mm jack plugs will work



Tape recorder

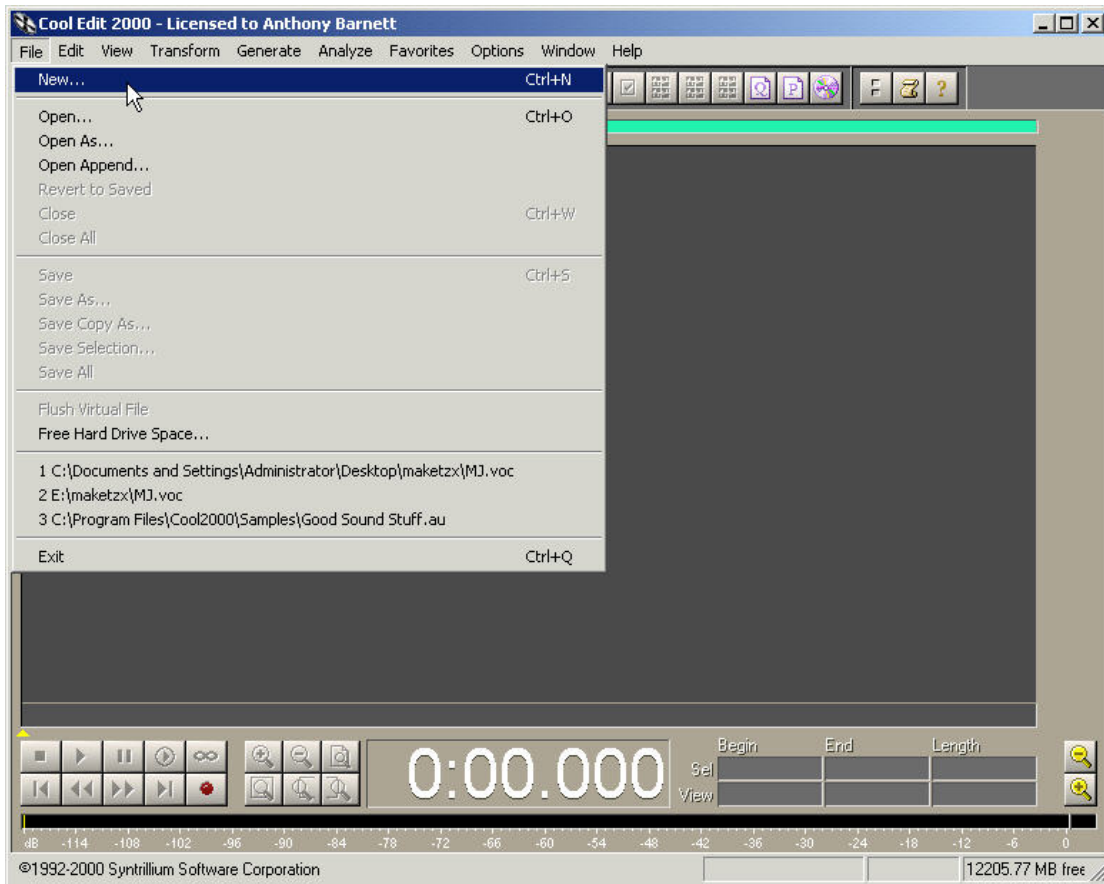
2, Sample your tape

Open Cool Edit and you should see a screen like this

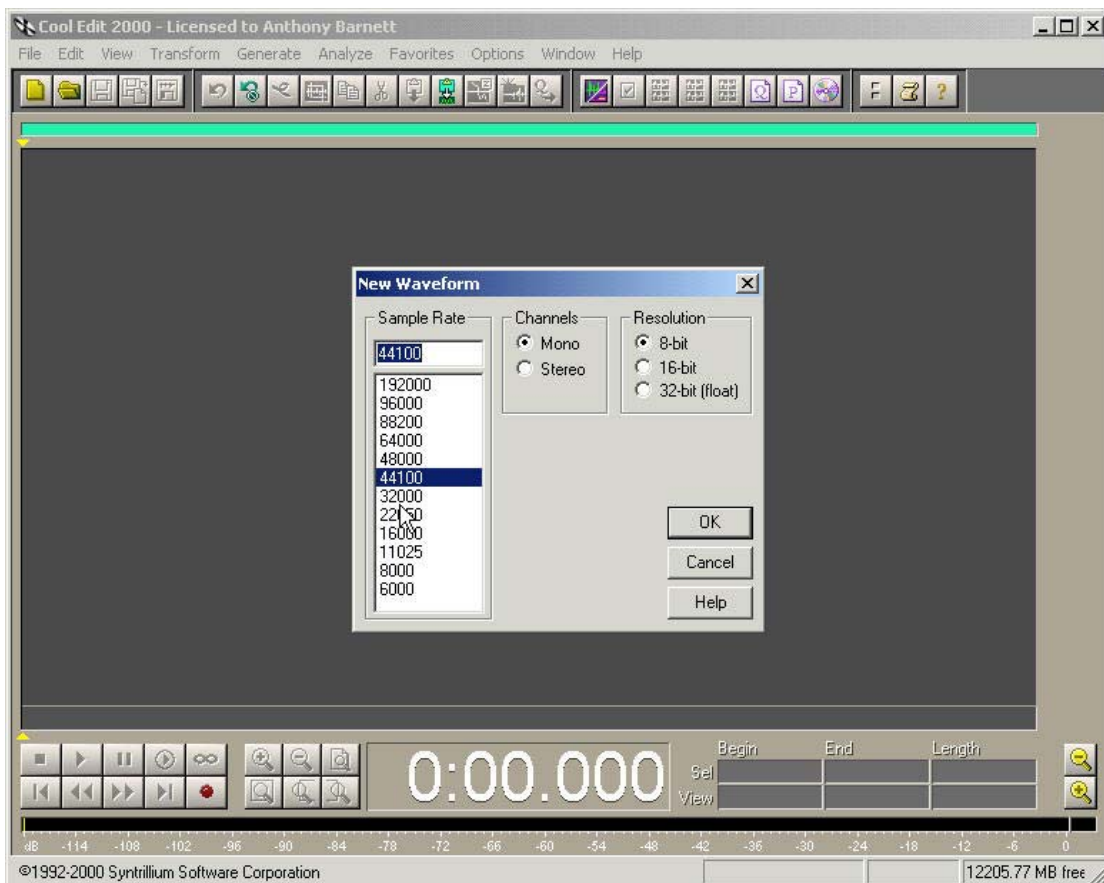


Now we need to set the parameters for recording the sample.

Go to the "File" menu and choose "New"



This will present you with an option screen to set the parameters for our recording. Don't worry about all the options because we will always be using the same choices to start with.



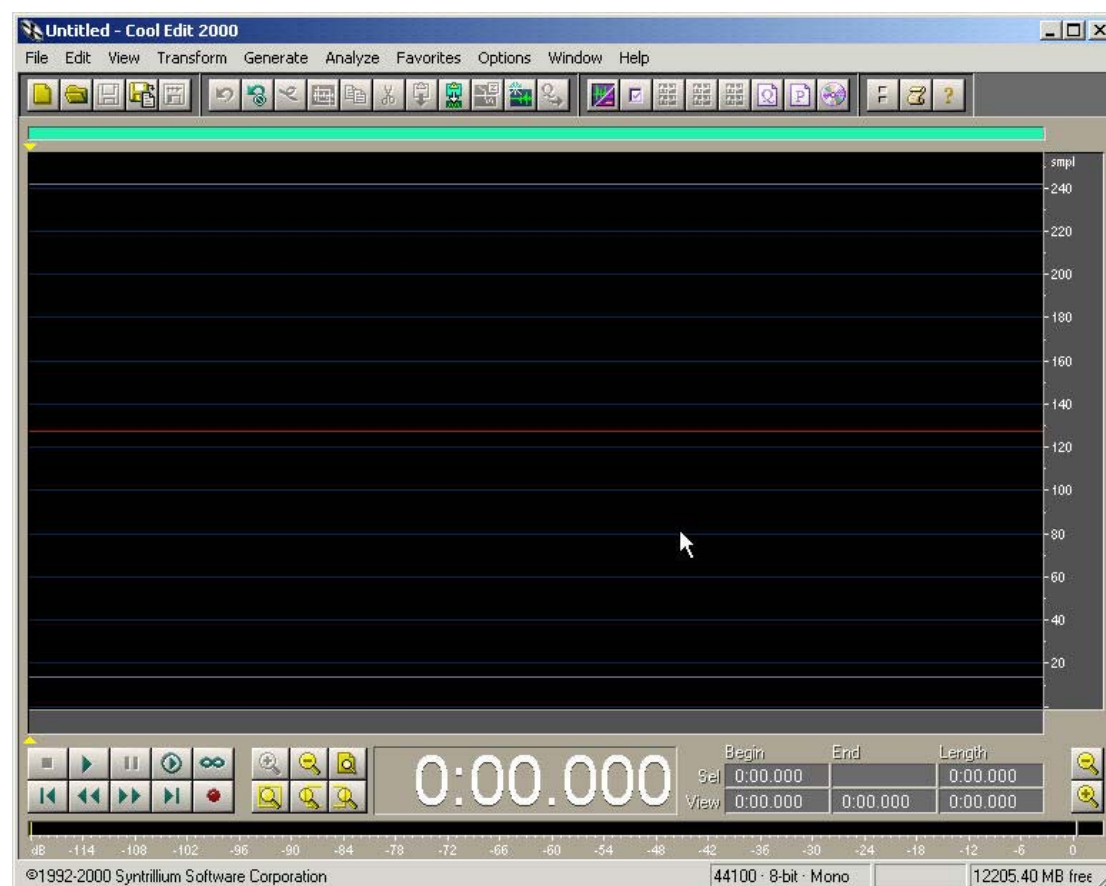
To work with maketzx you should always highlight the following options on this screen

Sample rate = 44100

Channels = Mono

Resolution = 8 bit

Then select OK and you will be presented with the recording screen

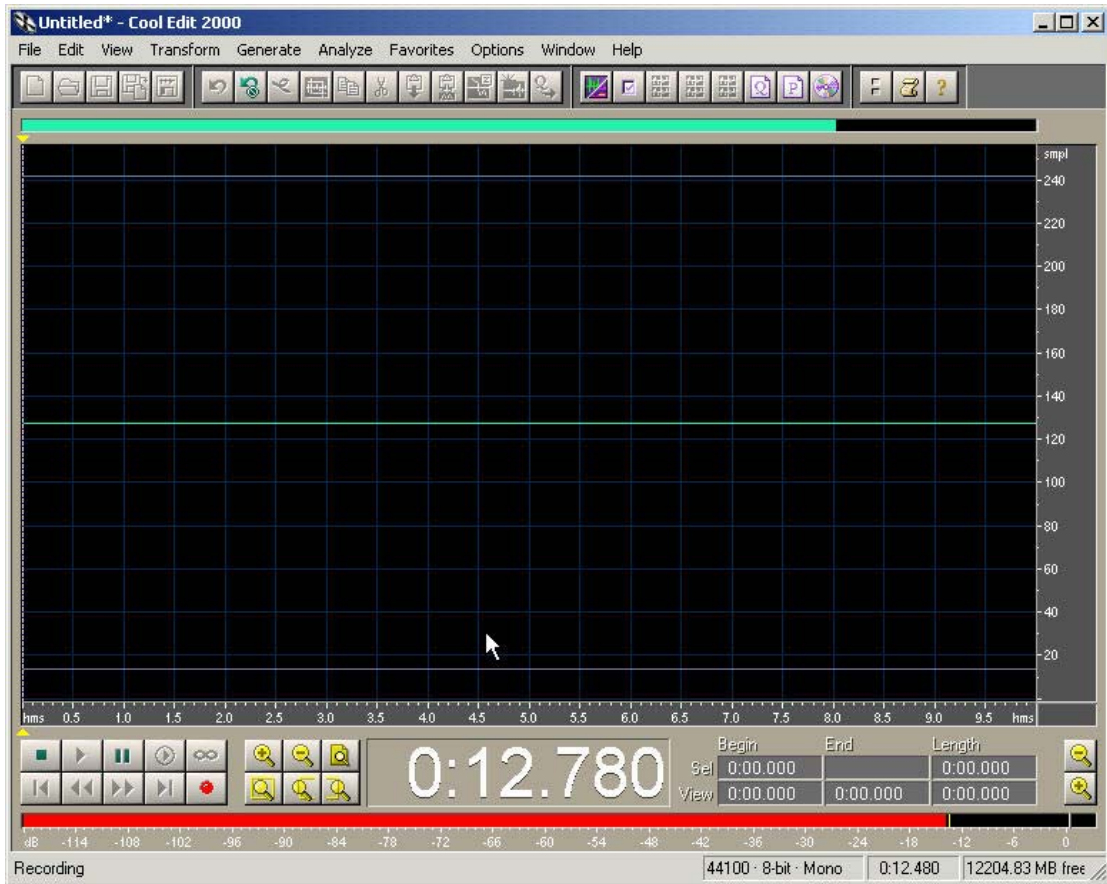


We are only interested in two buttons now. The start recording button which is the red button towards the lower left corner of the screen and the stop recording button which at the moment is greyed out. (after all we have to start recording before we can stop 😊)

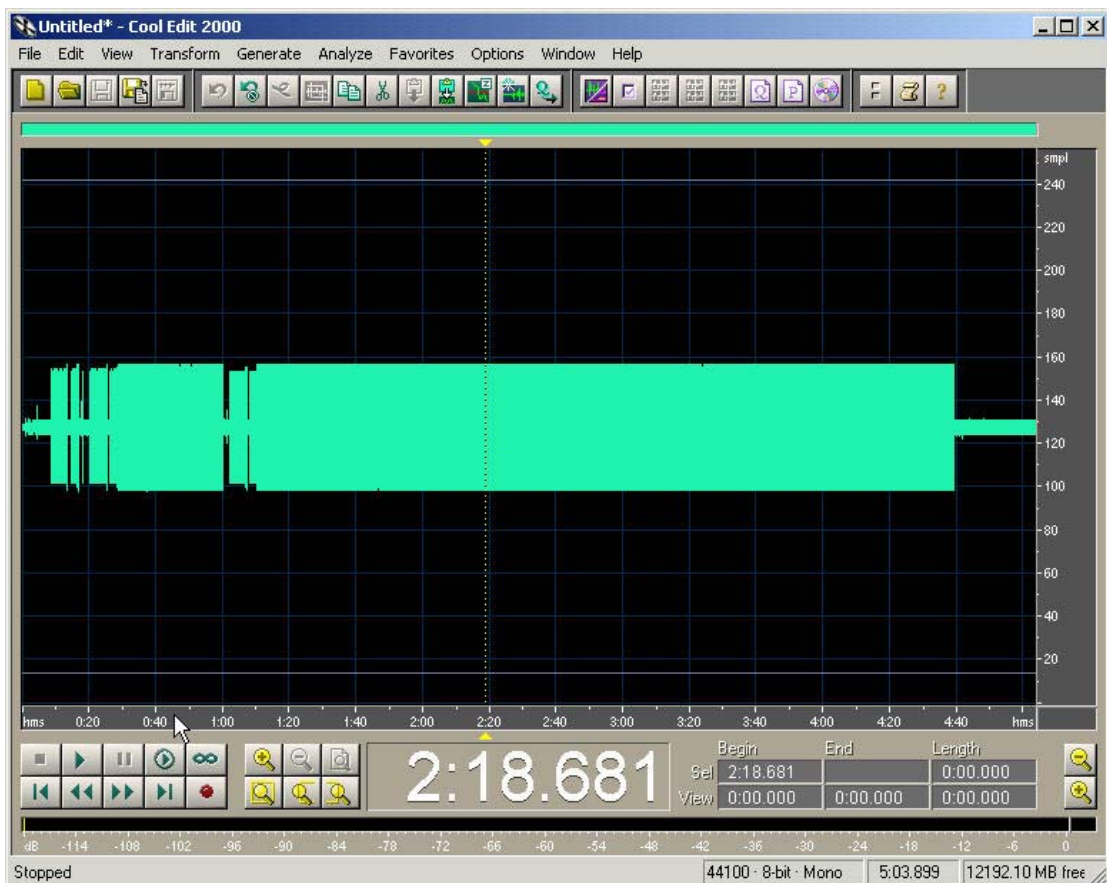
Now we have to play the original tape so Cool Edit can grab a sample. There are only a couple of things here to take care with. Firstly make sure the tape is fully rewound or we might start recording part way into the program which will guarantee the process failing. Its important to make sure all the tape is captured and therefore its far better to have 'dead' areas in the sample where the tape has nothing recorded on it than to miss a single byte which will almost certainly mean the finished txx file won't load or run correctly. The second thing to look out for here is the volume setting on your cassette deck. In general its better to be too loud rather than too quiet and a setting of about  $\frac{3}{4}$  of maximum is a good guide.

Click the red "Record" button in Cool Edit and then press play on your Cassette deck.

As the tape plays you should see the bottom bar (in red) in Cool Edit come to life and the sample should be recorded. Let the tape run through to the end to make sure nothing has been missed like extra level data or maybe part two of that adventure game.



When your sure the whole tape has been captured press the stop recording button in Cool Edit and you should see a screen like this.

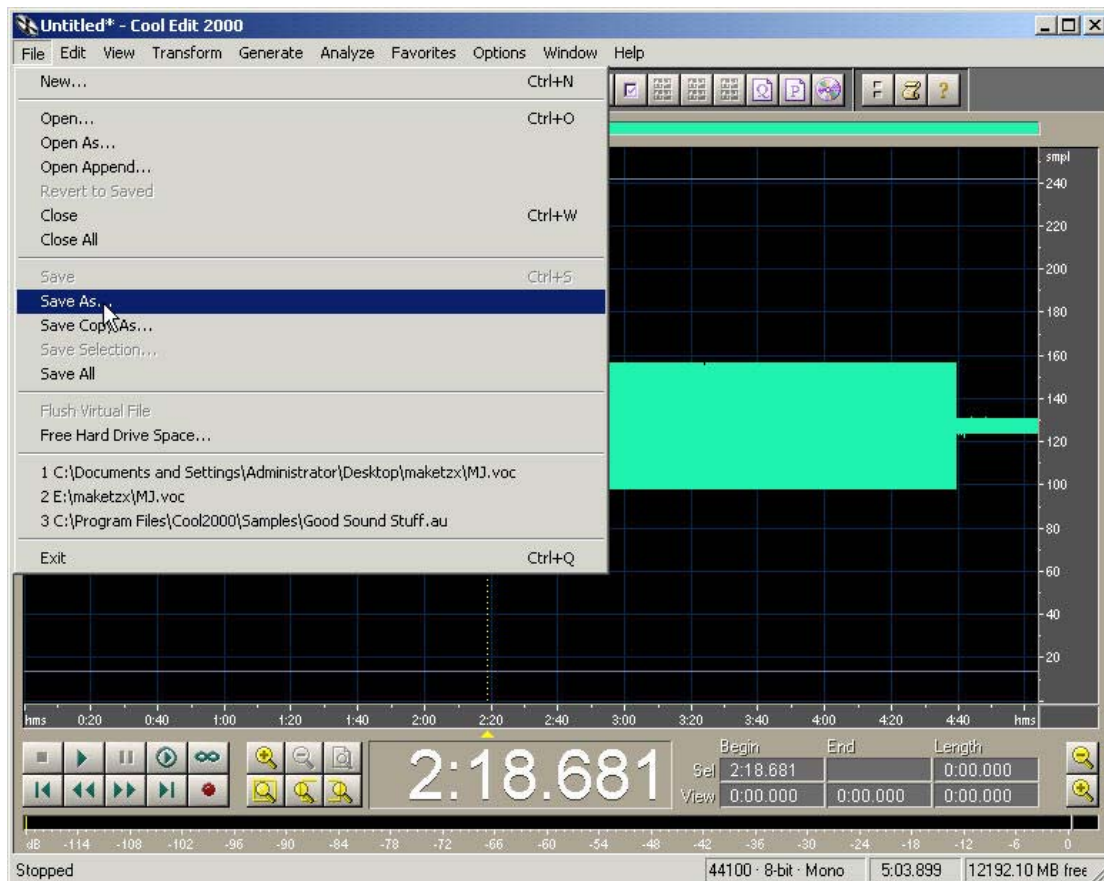


As you can see from the main Cool Edit screen – Yes its all those green line things – we now have the tape sampled. At both ends of the recording you can see where the line goes flat. Don't worry about this because this is the lead in and out from the tape and shows we have all the tape sampled. If your short of disk space you can crop these sections out but as we won't be keeping this sample for long its not important.

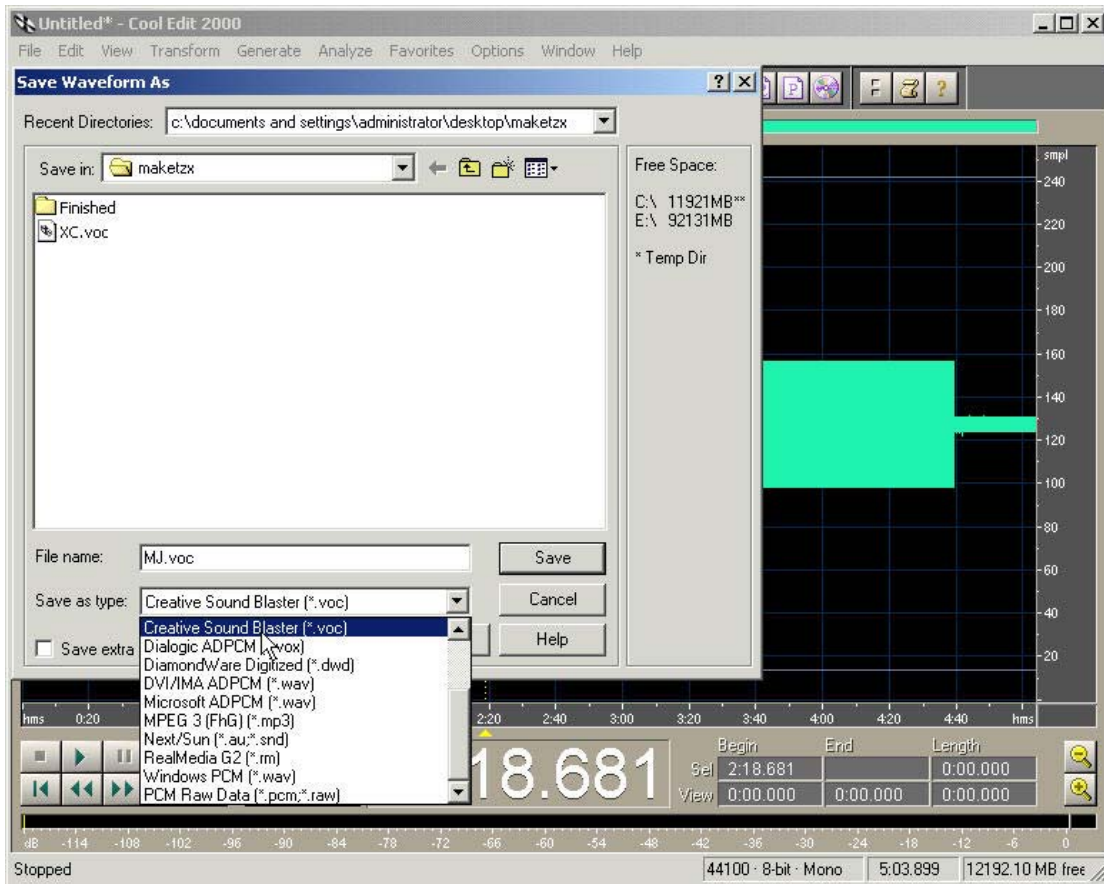
### 3, Save your sample

Now we have the sample we need it in a form which maketzx can understand so we need to save the file as either a .voc or .wav file.

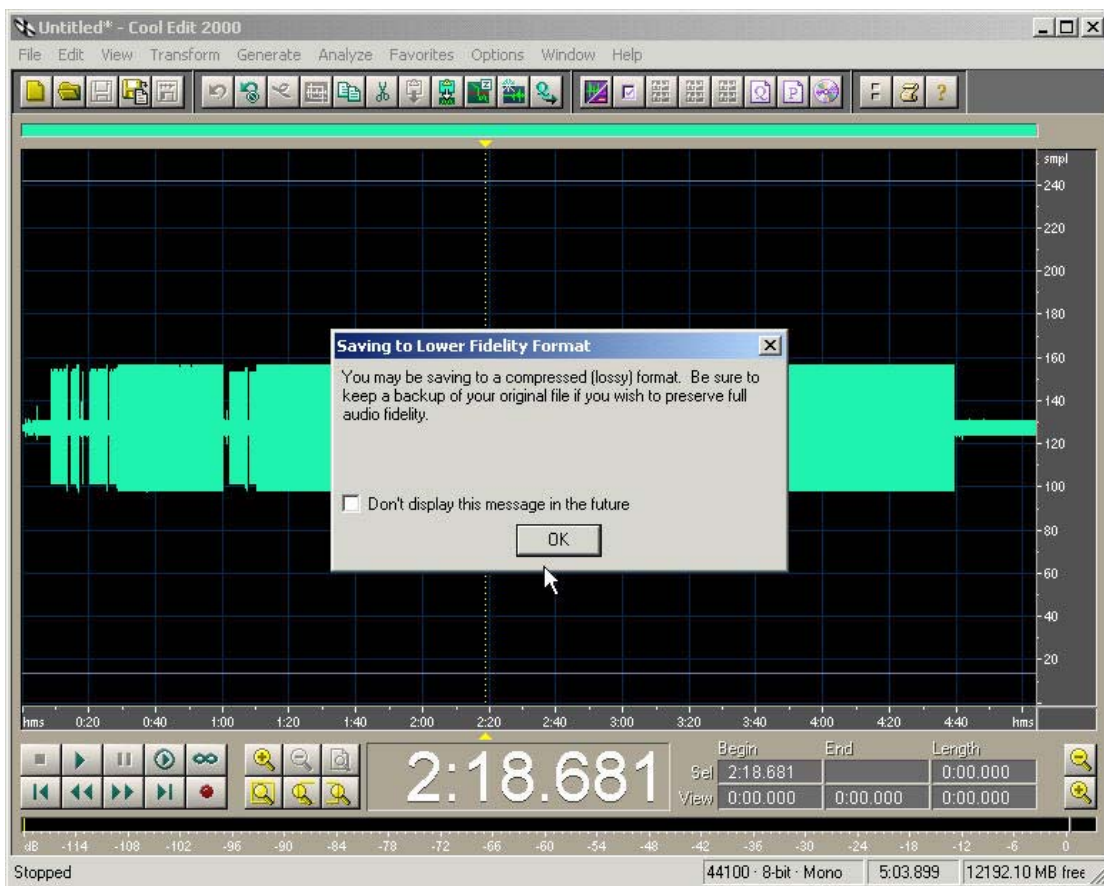
In Cool Edit go to the file menu and select “Save As”.



Give your sample a file name – I have used MJ here and select the “Save as type” to “Creative Sound Blaster (\*.voc)”. I tend to save the file to the same directory as maketzx but this isn't important.

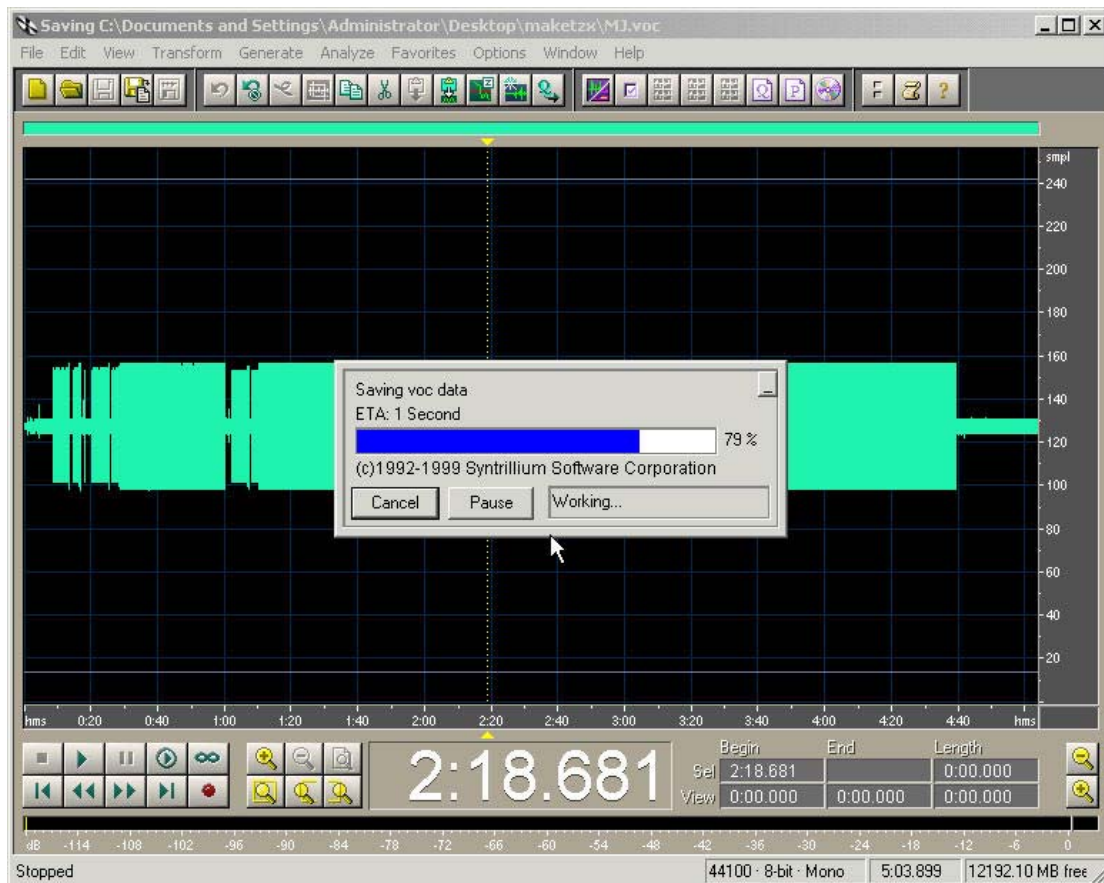


When you press “Save” you will probably get a warning message about saving the sample to a “lossy” format. You can ignore this.



The sample should now be saved and you should see a screen similar to below as this happens.





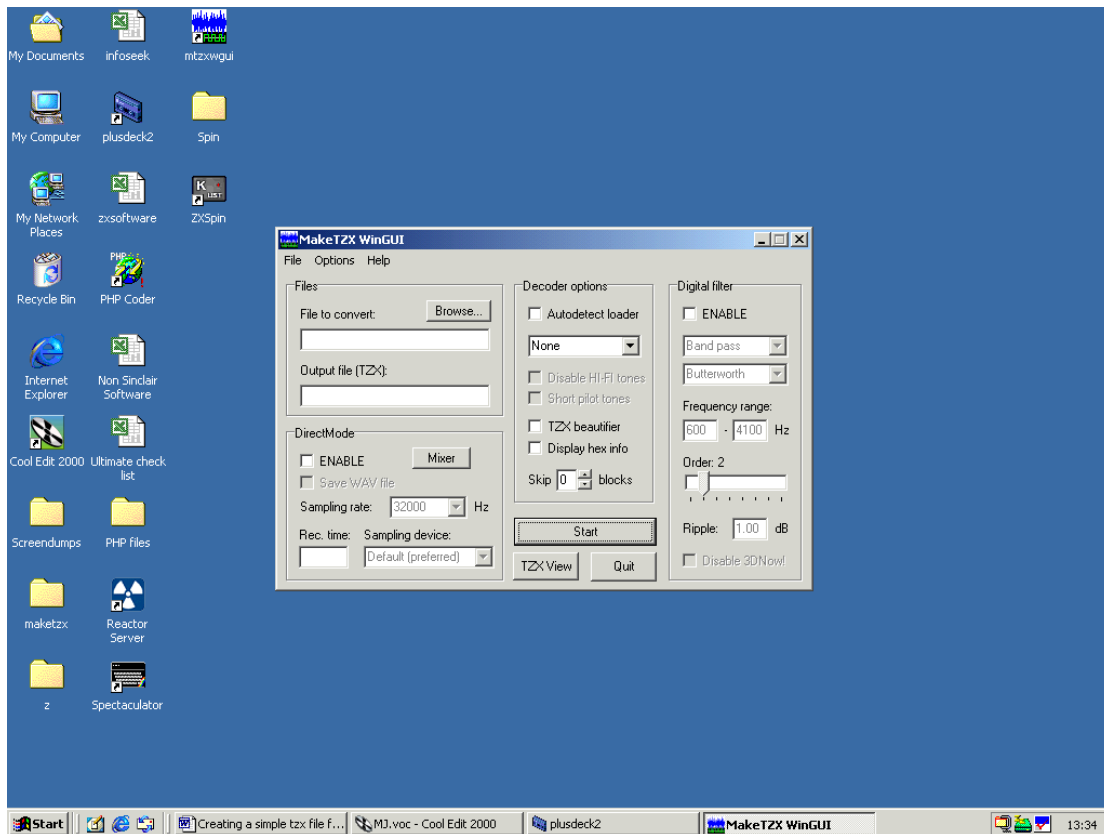
Now we have our sample so we can move onto making the tzx file so you can close Cool Edit now and open Maketzx.

#### 4, Convert your sample

To keep this as simple as possible we are going to use the Windows GUI version of maketzx as supplied on this site. Full details of all the options available in maketzx are in the instructions file but for now just double click the "mtzxwgui"



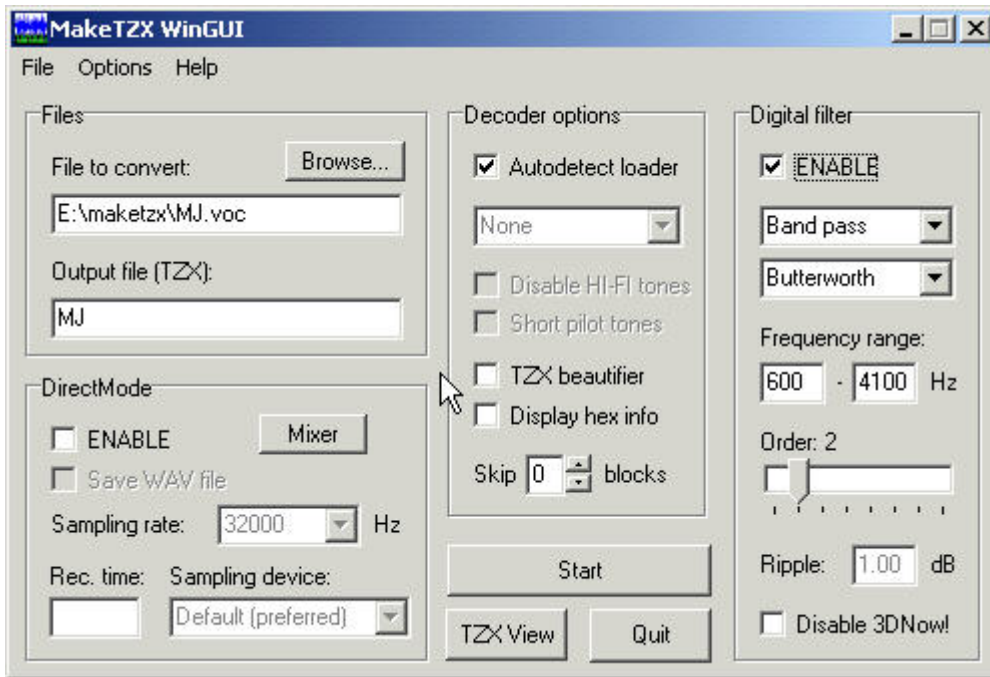
Mtzwgui.exe in the folder you have copied the maketzx files to. This should open up what looks at first sight like a confusing options screen but don't worry its not as bad as it looks at first glance.



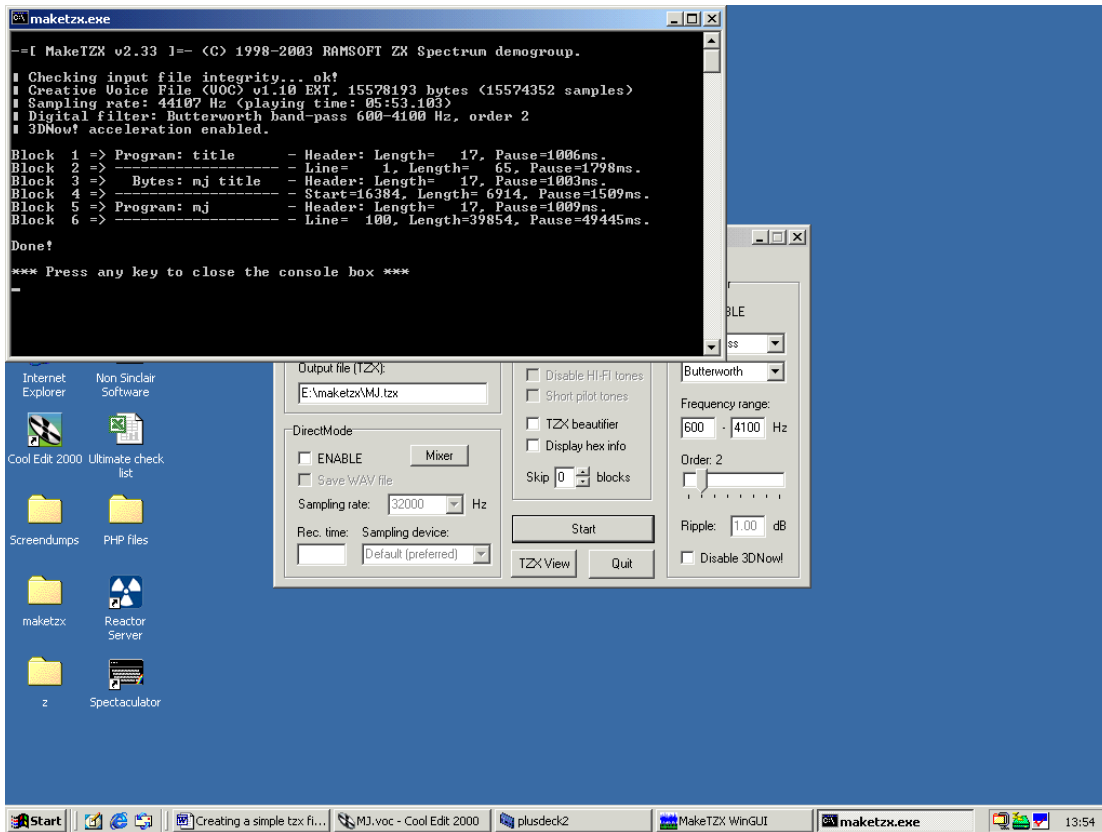
The first thing we need to do is to tell maketzx which file we want converting so use the browse button to find the sample file we just created – MJ.voc in this case. We also need to tell maketzx the name of the file to output so type in whatever name you want. Again here I have used MJ as my filename.

The middle section of the maketzx screen is headed “Decoder Options”. The best thing to do here is to click the checkbox by “Autodetect Loader”. This means maketzx will try and work out if any special protection or recording schemes have been used and adjust itself to suit. DO NOT click the “TZX beautifier” button. The advanced guide explains why.

The third section of the maketzx screen, headed “Digital Filter”, is where you might have to make some changes. Normally I start off using the settings shown below but you might have to experiment with the filters a bit to get a good tzx file. The advanced tutorial explains all this but most tapes should be OK with the settings indicated in the screen below.



When your happy with the setting then simply press “start”



As you can see a Windows DOS command prompt opens and maketzx goes about its business.

```

maketzx.exe
--[ MakeTZX v2.33 ]-- (C) 1998-2003 RAMSOFT ZX Spectrum demogroup.
| Checking input file integrity... ok!
| Creative Voice File (UOC) v1.10 EXT, 15578193 bytes (15574352 samples)
| Sampling rate: 44107 Hz (playing time: 05:53.103)
| Digital filter: Butterworth band-pass 600-4100 Hz, order 2
| 3DNow! acceleration enabled.

Block 1 => Program: title      - Header: Length= 17, Pause=1006ms.
Block 2 =>                    - Line= 1, Length= 65, Pause=1798ms.
Block 3 => Bytes: mj title    - Header: Length= 17, Pause=1003ms.
Block 4 =>                    - Start=16384, Length= 6914, Pause=1509ms.
Block 5 => Program: mj        - Header: Length= 17, Pause=1009ms.
Block 6 =>                    - Line= 100, Length=39854, Pause=49445ms.

Done!

*** Press any key to close the console box ***

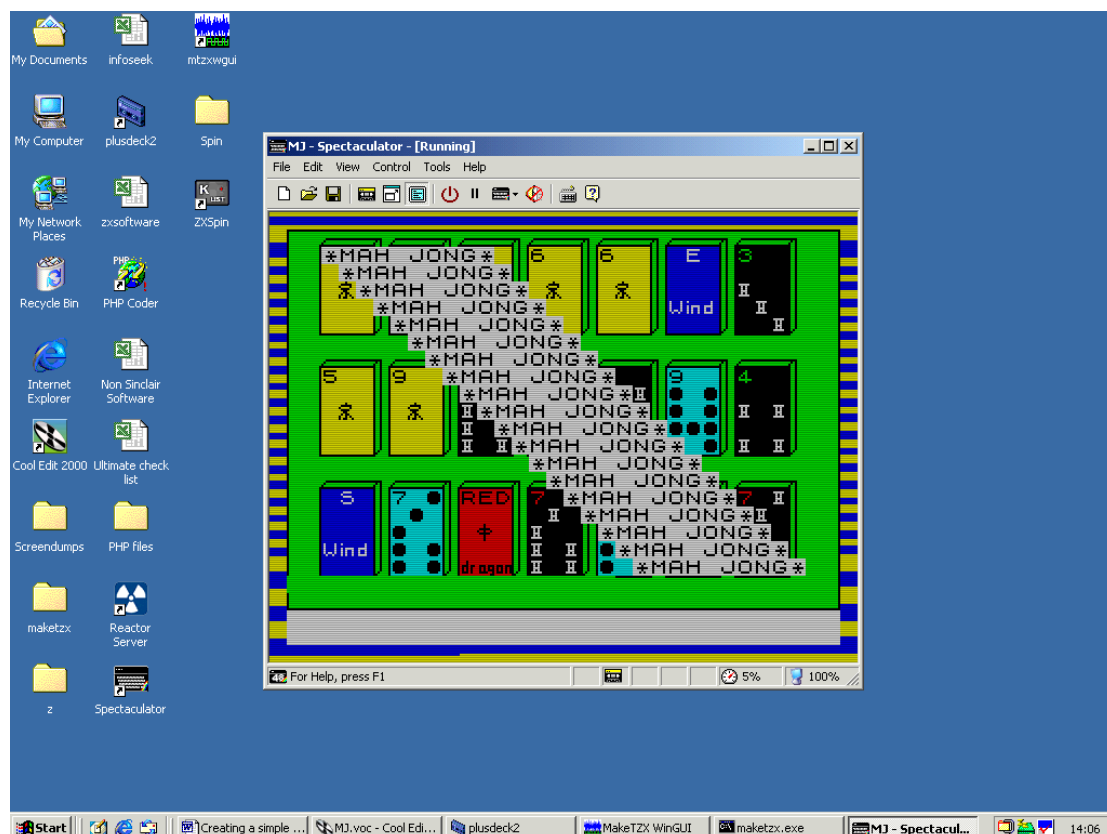
```

From the readout we can see that maketzx has found 6 blocks of information in this example. This will vary depending on the tape your trying to convert so don't worry if you seem to have dozens of blocks or even just a couple. I won't try and explain what all these things like "header", "Line" and "Pause" mean here, that's for the advanced guide, all that matters here is we don't have anything that says "error" or anything nasty like that.

When your happy with the readout we can test the finished file in our emulator. Just press any key to get rid of the command box.

### 5, Test your finished tzx file

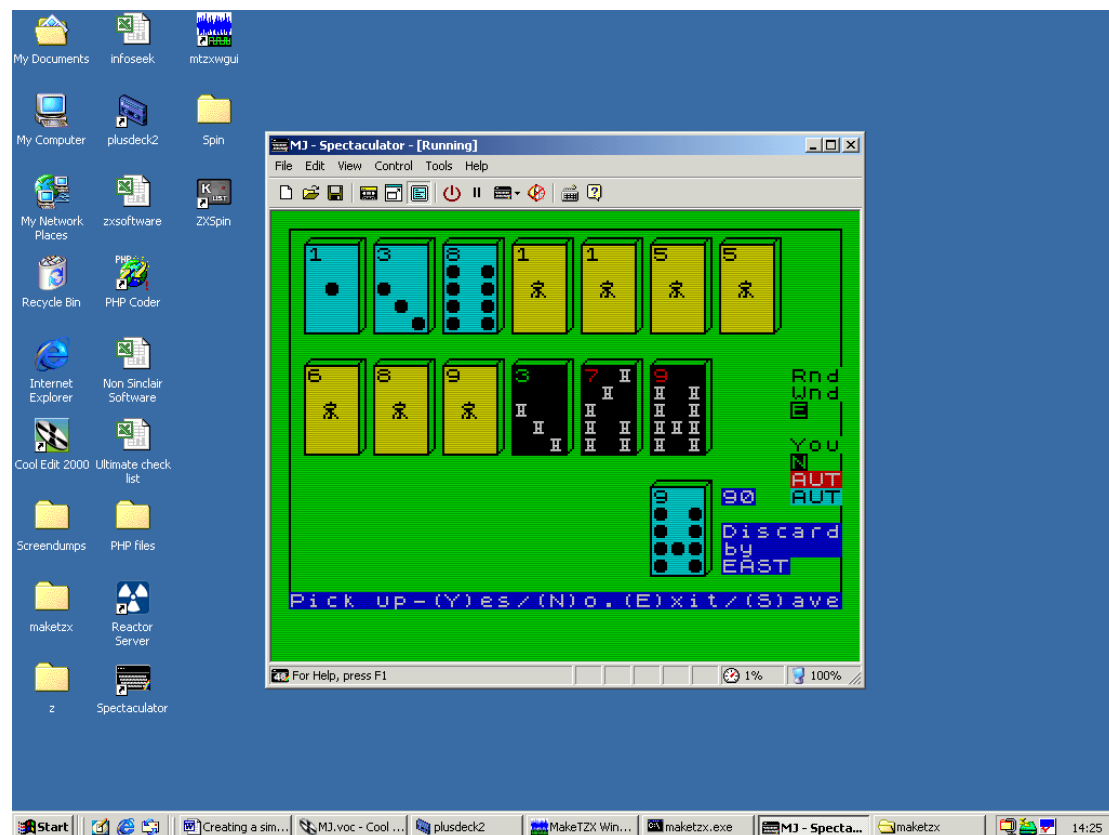
Here I am going to use Spectaculator but just use your favourite emulator.



When your testing your newly made tzx file its best to change the setting on your emulator to reflect the machine the game was originally made for and not to use any

of the fast loading options. Although most games will work on a variety of machines sometimes they can crash if you use the wrong model. This doesn't mean your tzx file is wrong, the opposite in fact, you have managed to capture the same bugs as the original had!.

And finally here we have the working game.



Downloads available from

Emulators

<http://www.worldofspectrum.org/emulators.html>

tzx tools

<http://www.worldofspectrum.org/utilities.html#tzxtools>

Sound Recording

The Cooledit program used here is no longer on sale having been purchased by Adobe and now released as Adobe Audition. If you need an Open Source (hence free) alternative Sourceforge has some excellent choices.

[http://sourceforge.net/softwaremap/trove\\_list.php?form\\_cat=115](http://sourceforge.net/softwaremap/trove_list.php?form_cat=115)