

EHO CW

Reference manual

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1. Introduction

EhoCW is a morse keyer software wich runs on your PC under windows,

This software can be used efficiently by any telegraphist, confirmed or beginner who wants to use his personnal computer as a memory keyer.

In order to use it, you can use the PC keyboard, or a key (straight or double-contacts) plugged on the PC via the joystick port or a serial-port (com).

EhoCW can convert your own text files or automatically generated texts (EhoCW includes a text generator), towards wav or mp3 formats, it is easy to use a USB mp3 player to learn morse code. (on the road, waiting for the train, etc...).

EhoCW makes possible using a straight key or double contacts key, either for left-handed, or right-handed persons.

EhoCW is fully operational and is given new functions in time...

I am listening to all improvement suggestions, conseils or advices or comments.

email (<mailto:pascal@f8eho.net>)

EhoCW is a FreeWare, and you can download it freely.



2. Main functionalities :

- Ability to set keyer speed between 5 and 60 words per minute.
- Ability to Adjust the sound frequency

Interfaces : Interfaces:

- PC game port (usually on the sound card) to connect the key, double or 'straight'
- Serial port (COM input) from the PC to connect a key, double or 'straight'
- Serial port (COM output) PC to send from the 'Keyer' to a transceiver
- Ability to choose the COM port
- COM or USB support (Only those who meet the RS232 standard)

Differents ways of keying

- With the PC keyboard
- With a 'straight key'
- with a double key
- characters buffering
- Ability to assign messages to function keys
- Record texts in 'variables' that can then played by clicking on buttons
- Synchronized handling: You can hear the text that is keying in with a straight key (learn timings) on a earphone while hearing the automatic keyer on the other earpiece.
- Ability to change the inter-character spacing and inter-words

Text conversions to CW

- 'Wav' file format.
- 'mp3' file format (with use of blade encoder, freeware GNU licence),
- 'midi' ('general midi' standard) file formats

Ability to Decode:

- What you key in can be displayed as text
- Ability to decode via the sound card (include a 3rd order Butterworth digital band pass filter of 50 hertz width.

Text generator

- Allows generation or groups of words
- Selection of characters among the desired letters, numbers and punctuation,
- Ability of inserting words into groups
- Ability to generate groups of fixed or variable sizes
- Configuration Management (save of pre-set configurations)
- Words generation from multilingual dictionaries
- Dictionary Manager, you can add your own word files.
- Words Filtering based on size or content

Divers : Miscellaneous:

- Ability to saves what you keyed in.
- Displays UTC time

3. Setup, first play with EhoCW

After you have the **EhoCW_Install.exe program** downloaded on <http://www.f8eho.net>, then you can execute it.

the setup is quite conventional and implemented as a Wizard. Follow the instructions.

The default installation location is a good choice. You can still change the installation location, but the easiest way is to click on the 'Install' button.

On first use, you must configure your callsign in the software:

Once in the screen called 'Common', replace F8XXX by your callsign, and fill the areas %QTH, %NAME, do not forget to go to the menu 'Tools - Save Configuration'. (Otherwise the configuration is saved automatically when you exit the program).

If you did not make an interface between the PC and your cw key, you can key using the PC keyboard.

So: Make your own PC interfaces!

4. Interface Keyer sur le port Joystick

4.1. Keyer interface on Joystick port

The drawing here below shows the circuit which can be housed into the DB15 connector which could be recovered from an old joystick. The system proceed as if a joystick was connected thanks to the 5K resistors.

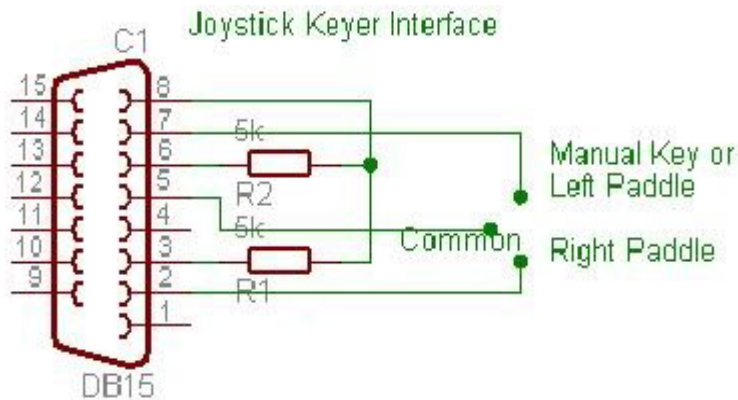


figure 1

In the Windows path 'Configuration panel ' \ 'Game options', you find now your keyer as a peripheral like that:

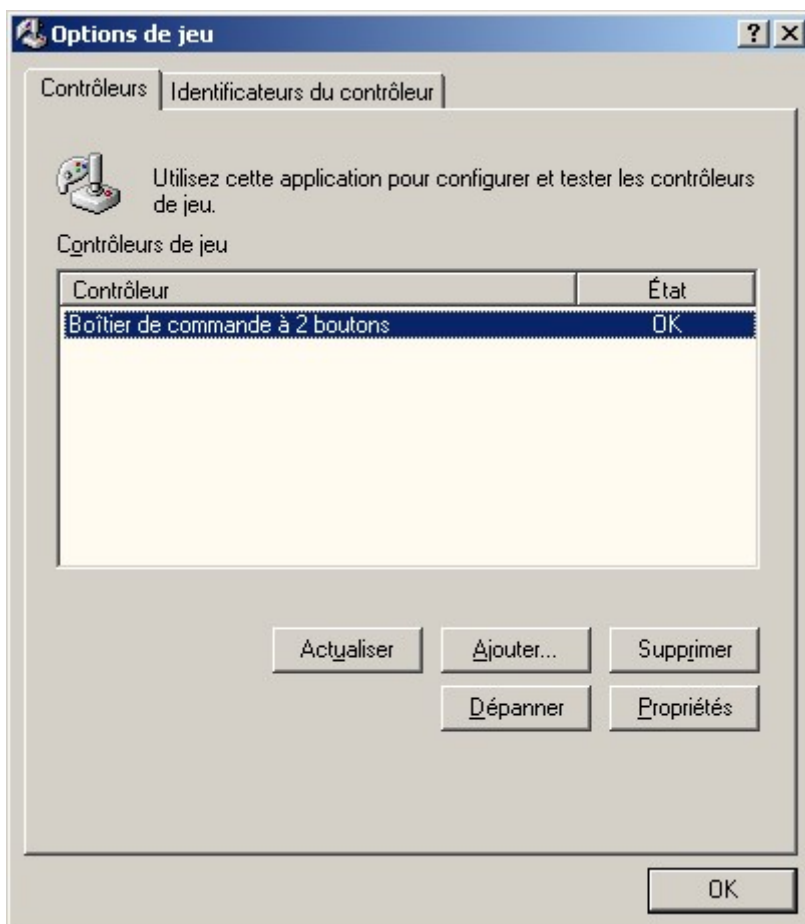


figure 2

4.2. Keyer to serial port interface (COM)

The drawing here below shows the circuit to be used in order to connect the CW keyer to a serial port (COM) of the PC. The idea is to connect the 'point' and the 'dash' to the CTS and DSR pins which are actually digital 'inputs'.

Nevertheless, the circuit needs a supply voltage for working, so it is necessary to enable the DTR or RTS which are digital 'outputs', otherwise to use an external positive 12 volts DC source (12 volts because of RS232, against the pin 5 GROUND)

It is possible to use the same serial port for the keyer input and the transceiver output , as explain here after:

-RTS is used for the transceiver control(CW manipulation)

-DTR is used for the positive power supply of the keyer

-CTS and RTS are used for the Keyer contacts connection

If you wish to use DTR for the PTT command of the transceiver , you have to provide an external power source for the keyer power supply.

All these configurations can be set in the menu 'Tools\Options'

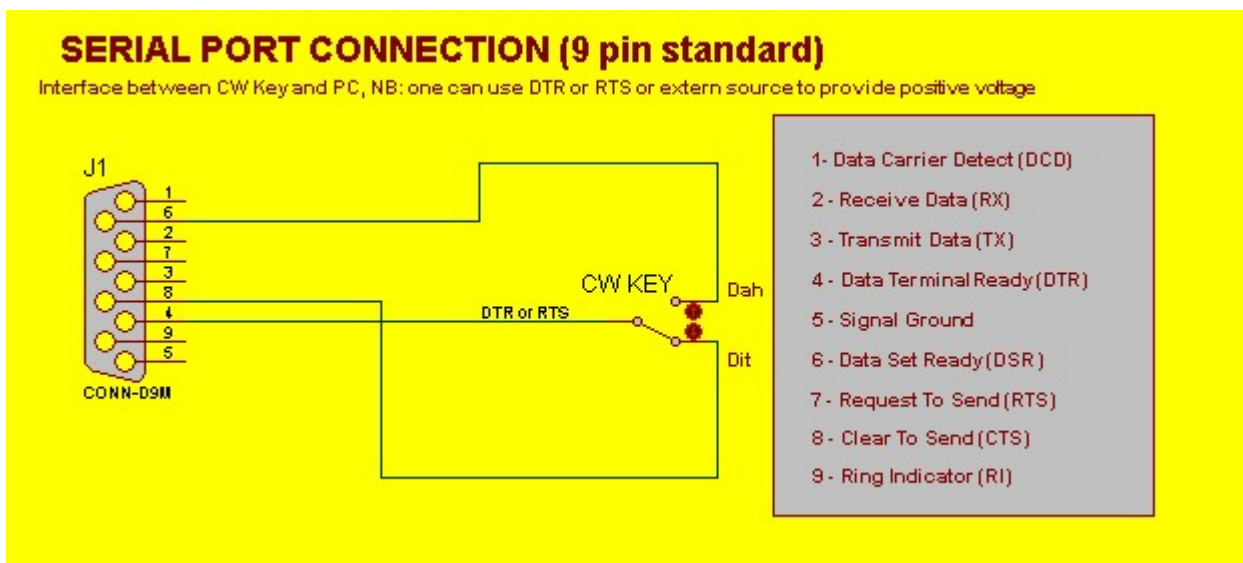


figure 3

4.3. Transceiver interface from a serial port

Here is the very simple connection of the output serial port interface to the transceiver keyer input. The drawing does not show the PTT command in order to keep it simple, and also, as it is the circuit is like a simple keyer which will work with any transceiver.

You have to know that the program is able to manage PTT (either on DTR or on RTS), in this case, feel free to adapt the interface. For example, you can use RTS for CW and DTR for PTT. You can change it in the EhoCW option screen.

The pin 7 is connected to the RTS (Ready To Send) which is driven by the EhoCW software according to the CW code. The optocoupler is a 4N33 from the junkbox, so any equivalent reference will do the job. The LED flash with the morse code.

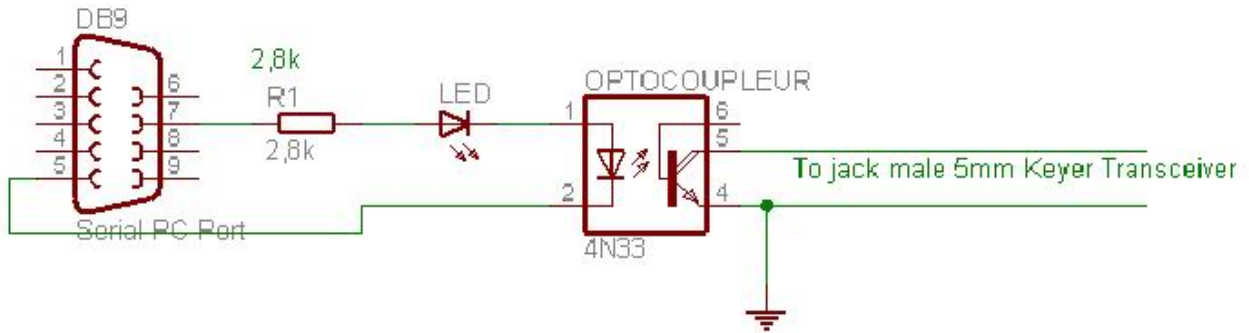


figure 4

4.4. Serial ports wiring

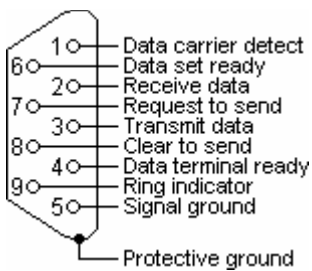


figure 5

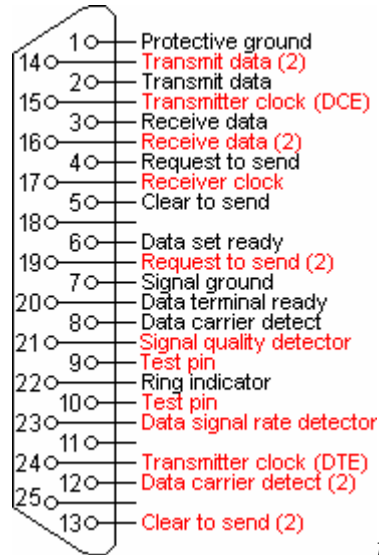


figure 6

5. Configuration tool

The screenshot shows the 'Parameters' window with the following settings and callouts:

- Language:** English (dropdown menu). Callout: "To change language, choose in the combo-box."
- Convert:** 'General Midi' instrument: 79:Whistle (dropdown menu). Callout: "Midi setting, used only when you convert a text file to midi file format. Leave it as is if you don't know"
- Com port selection, USB adapter can have numbers greater than four** (Callout pointing to the COM11 dropdown)
- Com port selection, for the key input.** (Callout pointing to the empty dropdown in the CW keyer input port section)
- COM port selection, for the key input.** (Callout pointing to the 'Serial port' dropdown in the CW keyer input port section)
- Apply the parameter updates** (Callout pointing to the 'Apply' button)
- You can force enabling RTS or DTR, if you need power for you interface (max232 ?)** (Callout pointing to the 'Enable DTR' checkbox)
- You can command the PTT with a serial com port signal, make sure you do not use the same wich is used for input (key)** (Callout pointing to the 'Active PTT signal on:' dropdown)

Here is the configuration screen, here you can change com ports and so on...
For the interfaces wiring, see '[interfaces](#)' chapter.

Input Ports :

You can plug a key either on the joystick port (generaly, you can find it on a sound card), either on a serial com port (COM1 thru COMn).

Output Ports :

You can control your transceiver with a com port. USB/Serial port adapters are supported according that they trust the RS232 standard. DTR or RTS signals can be used to power your interface hardware. It is possible to use the same com port to manage an input double key and an output to transceiver. In this cas, you have to provide external power to your interface.

Example :

I plug my double key on CTS and DSR inputs, (input signals on RS232 com port), i control my transceiver with the DTR signal. I do not use DTR. Then, I can power up my input interface with the RTS signal.

So, in this example, i must configure EhoCW this manner :

In the panel : 'CW Keyer input port', I check 'serial port' and I choose COM1 in the combo box. I check 'enable RTS' to power up my interface. In the panel : 'Out port select (PC to TX)', I choose COM1, then I choose 'CW out signal' on DTR.

I do not check the 'Active PTT signal on' on RTS pin.

Here's the job ! with just one com port i control my transceiver with my double key via my PC (and EhoCW)

5.1. Display configuration

Some of the screens can be disabled or hired, wether you intend to use them or not, depending on how you use EhoCW.

The screens called 'Calling', 'Called' or 'Decoder' can be disabled and hired, it is up to you.

For example, if you want to use EhoCW only to train sound reading, de-activate the 'Called' and 'Calling' pages.

How to do that ? : in the menu – View – check or uncheck depending your choice.

5.2. The keyer

The screenshot shows a software interface for a CW keyer. At the top, a blue bar displays the UTC time '19:42:46 UTC'. Below this, there are several control panels. On the left, a 'STOP' button is visible. The main area contains 'Speed' and 'Real wpm' indicators, both showing '24'. A 'Vol.' control is also present. A 'Balance' section has two sliders. An 'On AIR!' checkbox is checked, with a 'Sound' checkbox below it. A 'Tune...' button is on the left. Below these are radio buttons for 'Straight' and 'Double' keying, and checkboxes for 'Swap the paddles', 'Stop playing when key', and 'dot buffer'. The 'Audio Freq.' is set to '700'. 'Inter char space (duration)' is set to '3' and 'Inter-word (space) duration' is set to '7'. A 'Default' button is at the bottom left. The bottom of the screen features a grid of shortcut buttons for various QSO-related functions like '%OMCALL DE %CALLSIGN', 'QTH IS %QTH =', 'NAME IS %NAME =', 'RIG IS %RIG =', 'POWER %POW =', 'ANTENNA IS %ANT =', 'WX IS %WX =', 'TEMP %TEMP =', 'LOC IS %LOC', 'QRL?', 'QRX', 'QRM', 'QAZ', 'HW?', 'Ok', '=', '?', 'K', 'IS', '%ERR', 'TU', and '\see'. Red arrows point from these elements to descriptive text on the right.

- Display of UTC time, calculated giving the computer parameters
- Emergency STOP : Immediately stop automatic keying, it clear the input buffer.
- This pretty icon, runs with the rhythm of CW (You can see if you EhoCW is keying something even if sound power is low)
- To set the sound power output
- Setup of keying speed, from 5 to 60 words per minutes
- Check 'On Air' to send the CW signal to you transceiver (via Com port interface).
- Balance between left and right outputs.. Up is the manual keyer balance and down is the automatic keyer balance, (enable synchronized keying : you ear from automatic keyer in one ear and you ear what you key with the other
- Choose you weapon ;-) (straight key or double key, you can swap dash and dot paddles). The 'Stop play when key' enables to automatically stop the auto keyer when you key something manually.
- You can setup the time between words, and you can setup the time between chars. Click default to re-init standards timings.
- You can change the audio frequency of the keyer. The frequency change takes a little time.
- Some shortcuts buttons that can help when in QSO. First it seemed a good idea, i am not as sure now.

The real keying speed, intitled 'Real wpm' on the screen (in words per minutes) is calculated depending inter word spaces and inter characters spaces.
 The upper speed indicator shows the speed of character without mattering the spaces lengths.

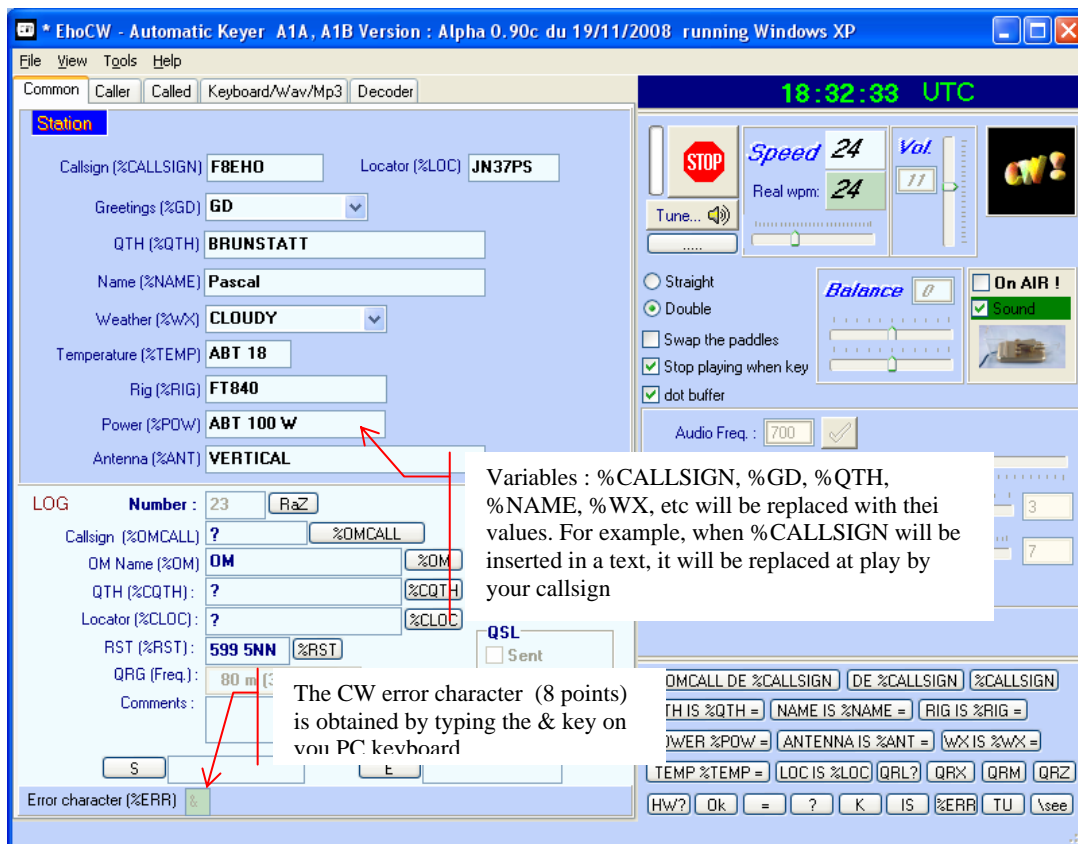
6. Traffic with EhoCW

EhoCW can be used to practice telegraphy, but it also permits to make QSO without a key.

CW QSOs have some use rules, and the process is well defined. So, I thought about a 'standard' QSO defined once.

I defined some QSO variables as 'RIG', 'WX', 'CALLSIGN', and you can access them with a '%' sign at the beginning of the variable name. So, if I place '%CALLSIGN' included in a text I play with EhoCW, the program will play my callsign instead of the variable name.

6.1. The variables



This is very simple. On the 'Common' screen, there is editables text fields :
Example : %CALLSIGN, %GD, %WX, etc...

These texts, are stored in these 'variables' (%CALLSIGN, etc).

Then, in the screens, 'Calling' ou 'Called', every time you will use one of these variables preceded with the percent sign (%) in a text to play with EhoCH, the EhoCW program will play the stored text instead.

Example :

In the common screen, we have : %CALLSIGN : F8EHO

When in the 'Calling' screen, i set :

« CQ CQ CQ de %CALLSIGN \s%CALLSIGN PSE K »

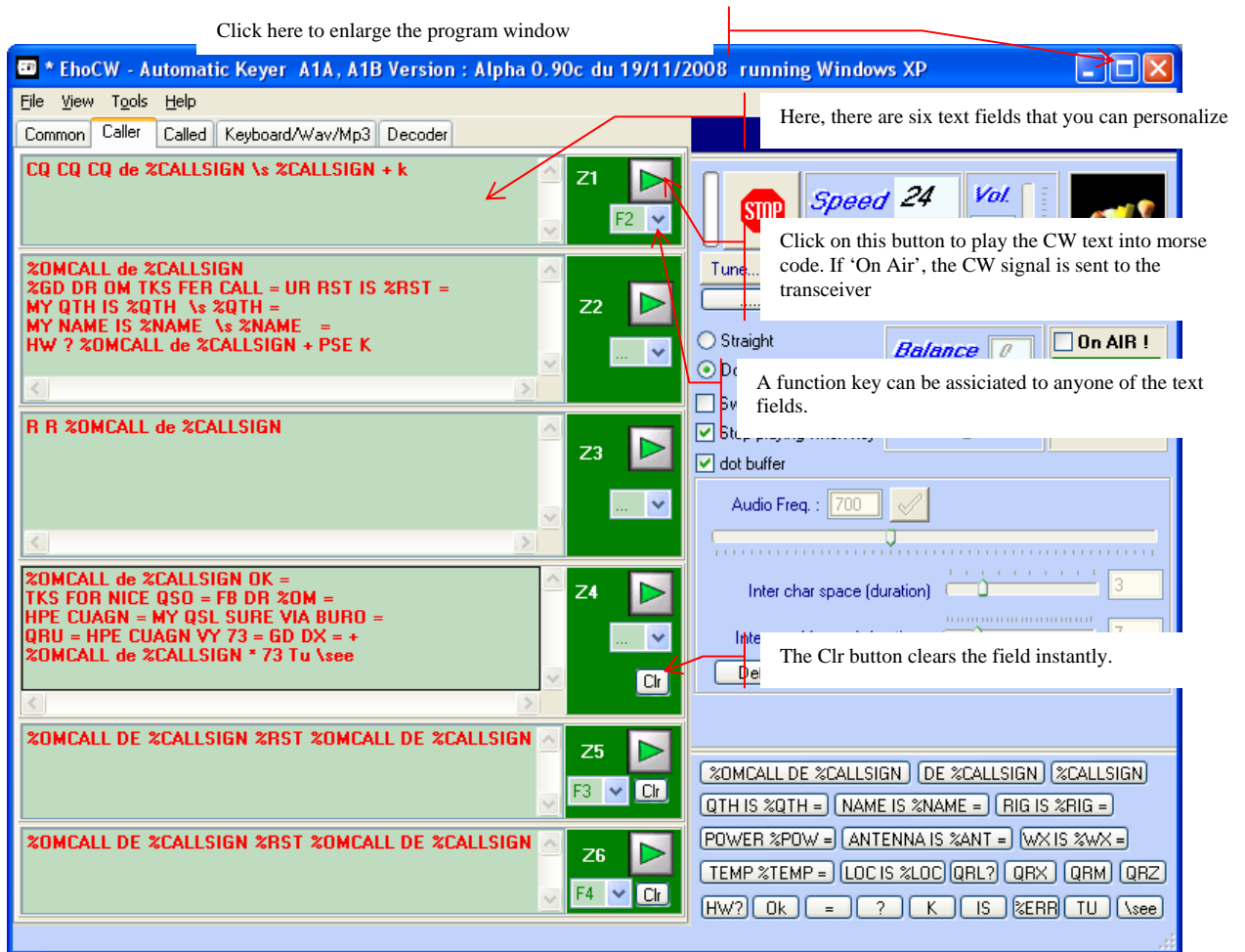
If i play this text with EhoCW, i will hear
 « CQ CQ CQ de F8EHO F 8 E H O PSE K »

Note that « \s » means ‘Play with a space between the letters’.

You can assign a function key to the text if you want.

6.2. The ‘Calling’/‘Called’ screens

6.2.1. Calling



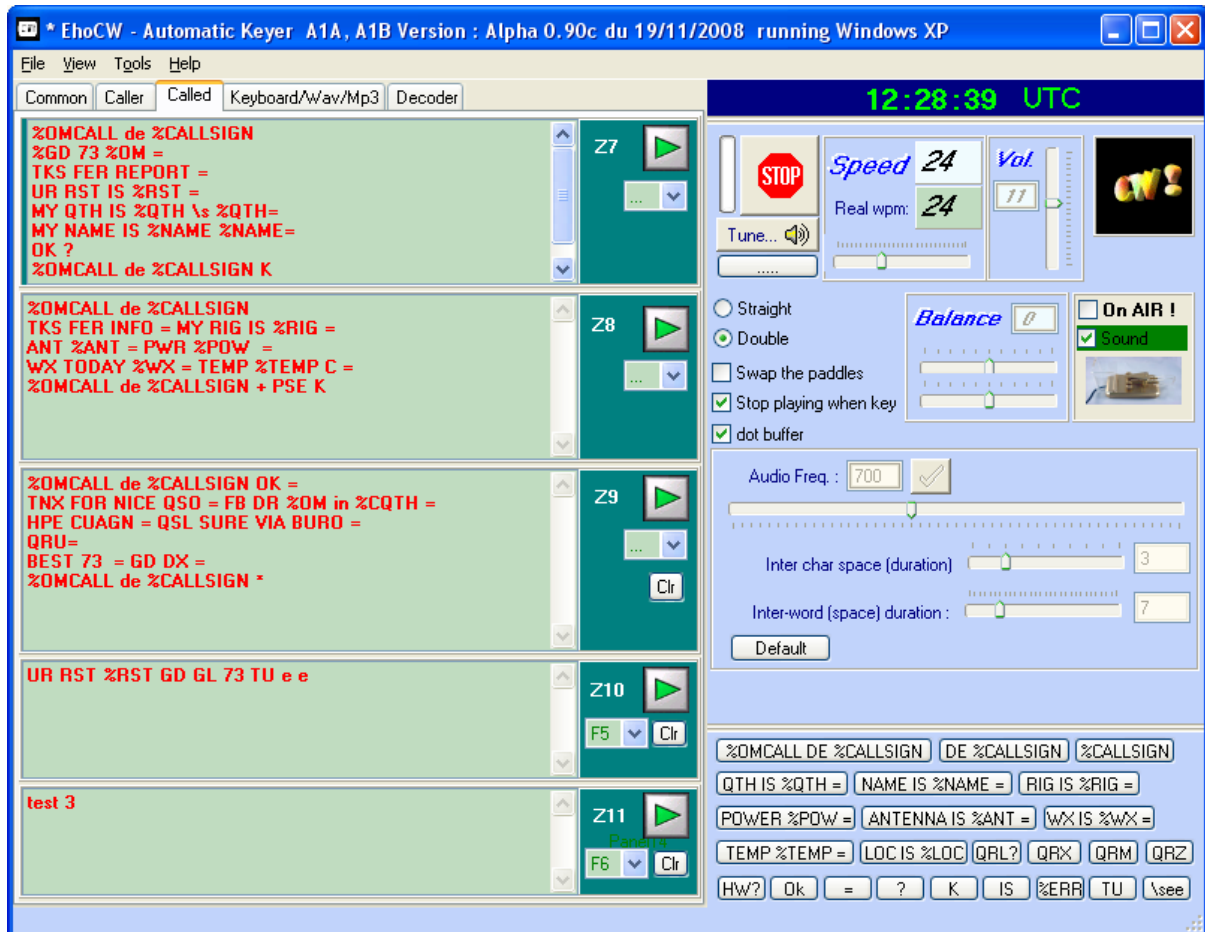
The text fields are filled as the different steps of a QSO where the user is calling. All the fields can be modified.

The ‘\s’ parameter can be used to slow down the playing of the word after the ‘\s’. The effect of ‘\s’ is to increase the white space between characters until the next space character. After a space character, the playing speed returns to normal operation.

Naturally, you can use variables in all the text fields on this screen.

See ‘Traffic with EhoCW’ page to see how to use variables.

6.2.2. Called screen



This screen is very similar to the calling screen. The text fields match a QSO where the user is answering to a CQ call.

You can change any of the text fields according to your needs.

The '\s' parameter can be used to slow down the playing of the word after the '\s'. The effect of '\s' is to increase the white space between characters until the next space character. After a space character, the playing speed returns to normal operation.

You can assign a function key to the text if you want.

If you edit some text fields, don't forget to save the configuration in the 'File' menu.

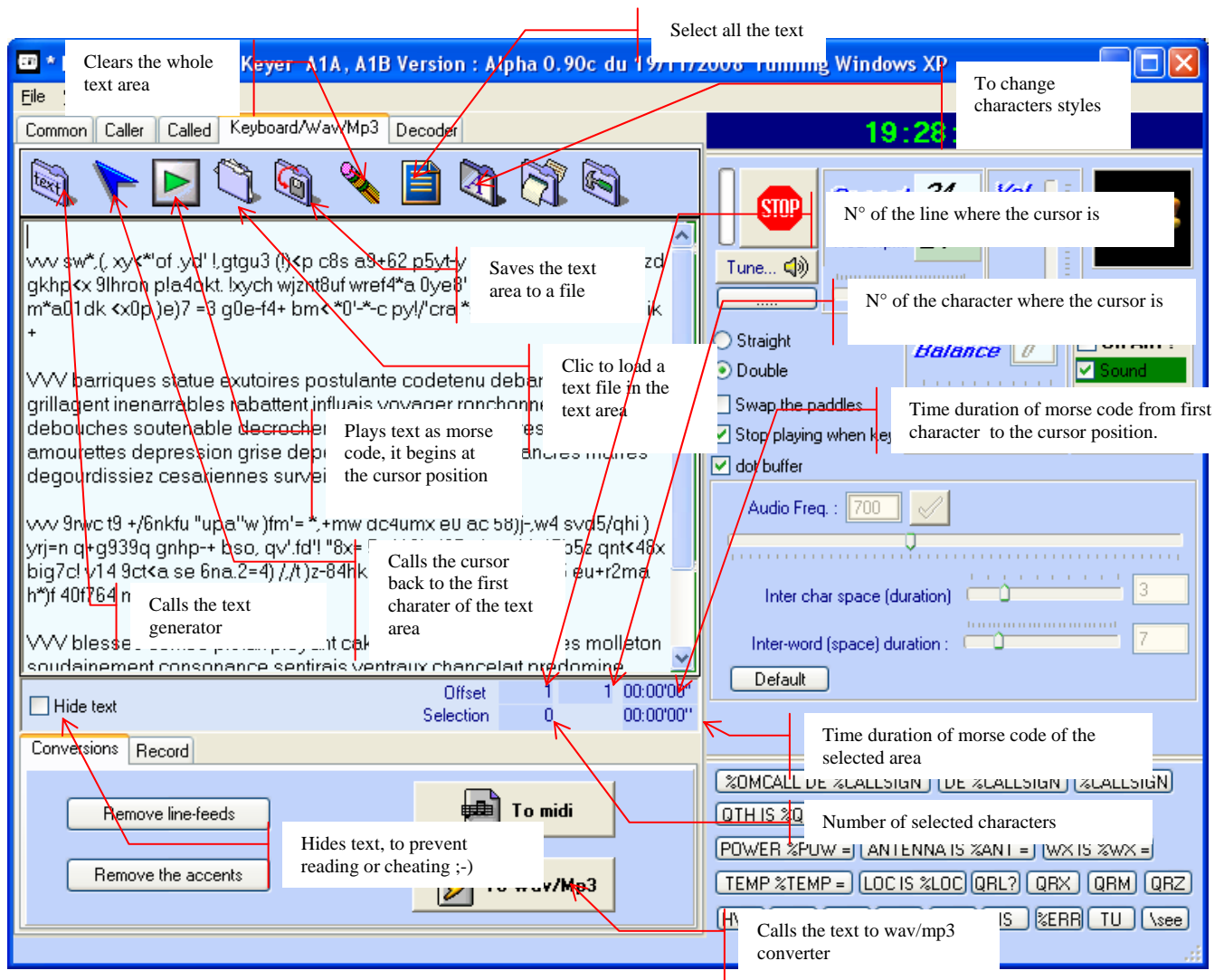
See 'Traffic with EhoCW' page to see how to use variables.

7. Keyboard/Wav/MP3 screen

The main goal of this utility is to train morse code.

7.1. Using the PC keyboard to key morse code or to train

If needed, you can key morse code just with you PC keyboard. This is not the best way, but it can helps



What you key in the text area is played immediately.

You can load a text file by clicking the 'open file' icon or as well do a copy and paste into the text area.

Then you can play the text in morse code. Just place the cursor at a given position in the text and click the play icon.

If you select a part of the text and clic the play icon, only the selected text will be played.

In the bottom of the text area, you can read the position of the cursor, the morse code time duration, and if you select a part of the text, you can read the time needed to play the selected text in morse code.

If there is no selection, what you read is the morse code time needed to play from the first character to the character at the cursor position.

To prevent reading the text, check the 'Hide' check box, this will display ' ? ' instead of the real characters.

8. Characters groups, and word generator

8.1. Groups generator

The screenshot shows the 'Groups and words Generator' interface. At the top, there's a title bar 'EhoCW - Text generator' and a subtitle 'Groups and words Generator'. Below that, a 'Configurations' section shows a dropdown menu set to 'Default', with 'Add' and 'Delete' buttons. The main area is divided into 'Groups' and 'Words' tabs. Under 'Groups', there's a 'Character configuration' section with checkboxes for 'Alphabets', 'Numerics', 'Punctuation', 'Various', and 'Words'. Each has a corresponding character set and a 'Freq. +/-' field. Below this is the 'Size of groups' section with 'Fixed' and 'Variable' options. The 'Variable' option is selected, showing a range from 2 to 8. At the bottom, there's a 'Number of groups to generate' field set to 60, a 'Limit time to' section set to 03 min. 10 sec., and a 'Generate' button. A 'Quit' button is also present. Annotations with red arrows point to various parts of the interface, explaining their functions.

Store a new configuration

Stored configuration

Delete a configuration

You can filter the characters to generate

You can filter numeric characters

Filter for punctuation marks

Here you can specify any characters of your choice

Groups sizes can be fixed or of variable length

This button calls the dictionary manager

You can manage the probability of character generation by increasing or decreasing the 'Frequency' fields

Select the word dictionary file that will be used to generate random words

You can specify the number of groups to generate, or the time. (The time limit is considered first)

The group generator is highly parametrable, the size of groups, the number or the time, the characters can be set.

The groups can be composed by a mix of alphabets, numerics, or punctuation marks.

And you can even mix groups and words.

Example : If you set 'Alphabets' with a frequency of 5 and 'Numerics' with a frequency of 1, you will obtain a text like :

```
v v v x z r h l j f t x o q u l g b m o k q a 5 g l o l v p h 6 8 a u n z l f 2 9 w x i v y m i x f c o e i n i j l d g w i c t w l d v
v a g q e 2 n d y t h l f j m w a n a s k p i o f x l e w o m b u n i n j u i m u o w k b q 9 b i a 3 u i c q z y s r r a v j q w u z 0 u j
k d d t c f 8 w k l a 5 k l y x q f d h g l i j a 3 6 g b b x b w f v u 7 p q j n q m v x y w s z 4 d q u p p i j s x d b j u n d 0 m f h p
u n k 0 s s p j r j q b a j x
```


8.2. Words generator

Words filter. In the example, you select the words that are beginning by an 'e' and that are ending with an 'r'

Words size can be specified, variable or fixed.

You can choose a dictionary, and add other dictionaries.

You can specify the maximum number of words to generate, or limit by the time needed to play the whole text.

Word filter. Click to count the words selected

You can shuffle some letters in the words. Choose the number of permutations.

The generator find words in dictionaries (any text file could be a new dictionary).

A filter on the content of words may be used,

Another possibility is to limit the time.

The list of filtered words is loaded in memory at the generation and the words are chosen randomly. When operating the button 'Generate', words are added to the screen Clavier/Wav/mp3 'at the current cursor position (inserted).

8.3. Configurations management

EhoCw keeps parameters in configuration file as EhoCW.ini in the program file directory.

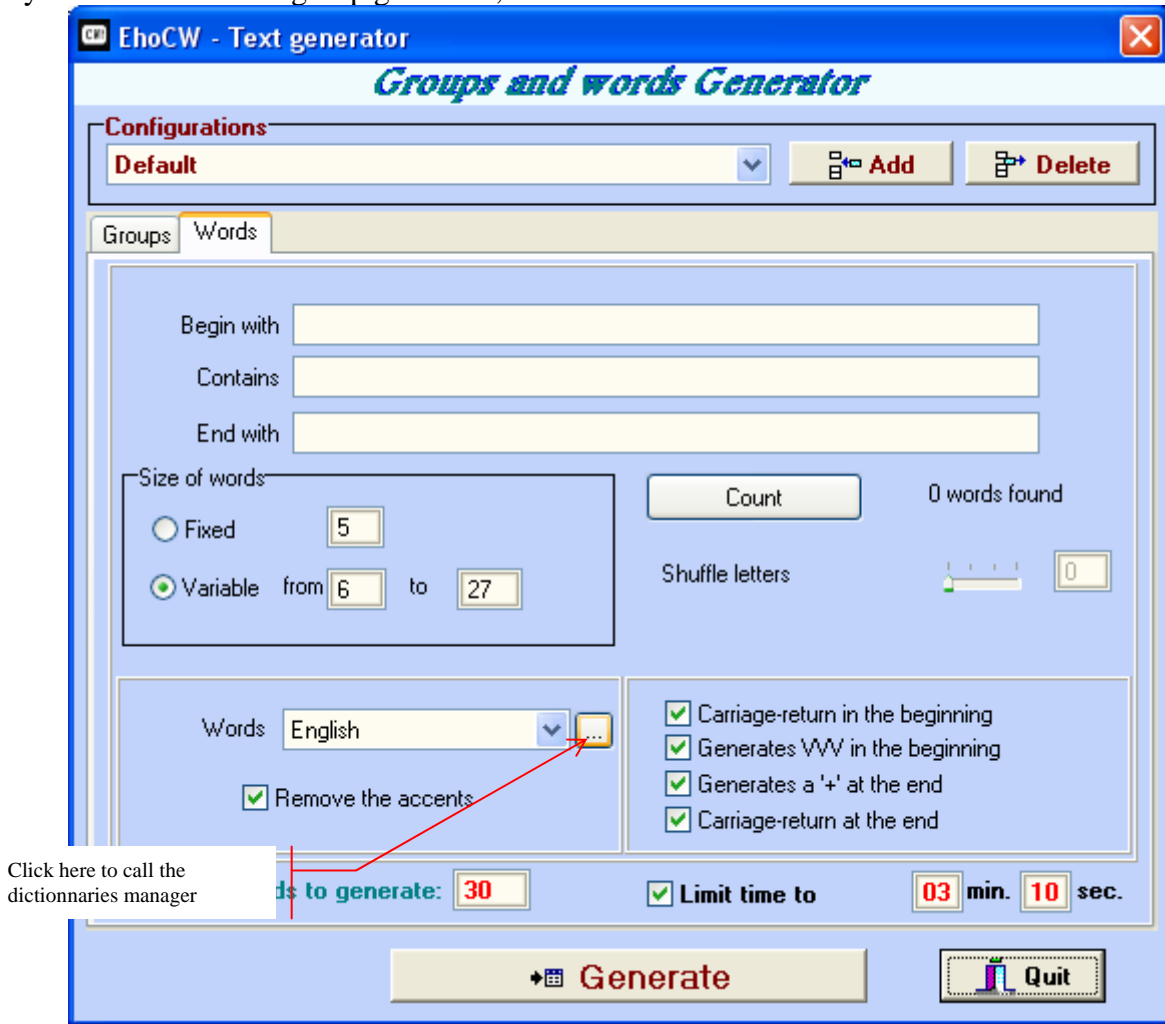
You can save configurations on other files for different purposes.

When you save a configuration on file, all the options are saved, except the configuration of the text generator whose filename is “textgen.conf.”

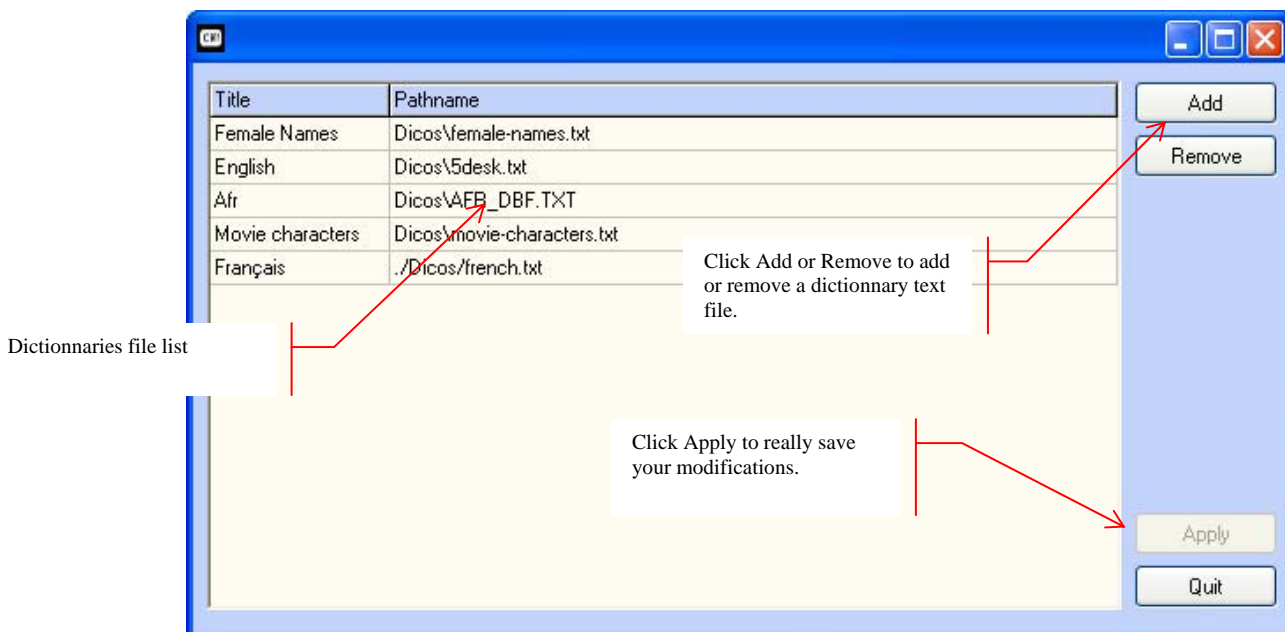
Many parameters of the EhoCW program are saved automatically when you exit the program. Otherwise, to be sure all the parameters changes are written in a conf file, save it.

8.4. Dictionaries management

When you call the text and group generator,



Then you get the following screen...



You can use any text file as a dictionary, it is better that a distinct word appears only once (as a dictionary). Open the files given with EhoCW, to see examples on how to create such files.

These files are ASCII flat files, and each word must be ended with an end of line character (in hexadecimal the codes are 0a for unicies (Linux) or 0d,0a or windows operating systems.

(Nb: EhoCw doesn't work on Linux yet, sorry).

The files pathes are stored into the TextGen.conf file wich is in the EhoCW installation directory. Expert users can edit this file (notepad or other text editor) directly, but beware not to break it. See example below.

TextGen.conf file sample

```
; -----  
; Text generator configuration file  
; -----  
  
[Configurations]  
Default=0|ABCDEFGHIJKLMNOPQRSTUVWXYZ|1|0|0123456789|1|N|(|,|.|'|"-=  
<+*/|1|N|1|1|N|0|1|V|5|2|8|0|0|0|0|0|-1|0|150|0|0|0|0|0|03|10|0|03|10|V|5|1|27|1|1|0|  
Alphabetic groups=0|ABCDEFGHIJKLMNOPQRSTUVWXYZ|3|N|0123456789|1|N|(|,|.|'|"-=  
<+*/|1|N|1|1|N|0|4|F|5|1|27|48|0|0|0|0|1|0|0|0|0|0|N|00|00|N|00|00|V|12|2|27|1|1|0|  
Numeric Groupes 5 char=N|ABCDEFGHIJKLMNOPQRSTUVWXYZ|1|0|0123456789|1|N|(|,|.|'|"-=  
<+*/|1|N|1|1|N|0|4|F|5|1|27|128|0|0|0|0|1|0|0|0|0|0|N|00|00|N|00|00|V|12|2|27|1|1|0|  
English words (32)=N|ABCDEFGHIJKLMNOPQRSTUVWXYZ|1|N|0123456789|1|N|(|,|.|'|"-=  
<+*/|1|N|1|1|N|0|4|F|5|1|27|0|0|0|0|0|1|0|32|0|0|0|0|N|00|00|N|00|00|V|12|2|27|1|1|0|  
Mots français (32)=N|ABCDEFGHIJKLMNOPQRSTUVWXYZ|1|0|0123456789|1|N|(|,|.|'|"-=  
<+*/|1|N|1|1|N|0|4|F|5|1|27|0|0|0|0|0|0|64|0|0|0|0|N|00|00|0|03|00|V|12|2|27|1|1|0|  
test=0|ABCDEFGHIJKLMNOPQRSTUVWXYZ|3|0|0123456789|1|0|,|.|-=  
<+*/|1|N|1|1|0|0|4|F|5|1|8|100|0|0|0|0|0|0|0|0|0|0|03|00|N|00|00|V|12|2|27|1|1|0|
```

```
[Dicos]  
Français=./french.txt  
English=./5desk.txt
```

9. Howto convert texts to sound

Common | Caller | Called | Keyboard/Wav/Mp3 | Decoder

ww sw*(. xy<*of .yd' !,gtgu3 (!)<p c8s a9+62 p5yt-y ql myrq 4)(3d" r8v. 6zd
gkhp<x 9lhron pla4okt. !xych wjznt8uf wref4*a 0ye8' <pmjz9l z3v(!f1
m*a01 dk <x0p)e)7 =3 g0e-f4+ bm< *0'!*-c pyl/'cra *si. 2(kb nda3! sj.36q ik
+

VVv barriques statue exutoires postulante codetenu debanderai sarrau
grillagent inenarrables rabattent influais voyager ronchonne precede
debouches soutenable decrocherent imaginais roussatres poivrons
amourettes depression grise depeinte motocycliste echancre marres
degourdissiez cesariennes surveillantes +

ww 9rwc t9 +/6nkfu "upa"w)fm'= *,+mw dc4umx e0 ac 58)j-.w4 svd5/qhi)
yrj=n q+g939q gnhp++ bso. qv'.fd! "8x= 5e1f 0bd37 qi+yqkir *5b5z qnt<48x
big7cl v14 9ct<a se 6na.2=4) /,/t)z-84hk .- 7x2kiw 6e'xqa -u co5 eu+r2ma
k*4f 40f764 m6tl,q q24 pl,cel) +

Offset	1	1	00:00'00"
Selection	0		00:00'00"

Hide text
 Conversions | Record
 Remove line-feeds
 Remove the accents
 To midi
 To Wav/Mp3

Click to remove the extra carriage returns.
Carriage returns are interpreted as long spaces.

Click to remove accented characters (they are in fact replaced by their equivalent)

Click to call the mp2 file generator.
If you do not select a part of the text, then the whole text will be used in the mp3 resulting file.

In this example, I used the text generator to create some random text.

You can load any text file (flat file, ascii file), but you can paste a text you copy from internet explorer or a ms-Word document or other word processing software.

Once the text is created or copied in the “Keyboard/Wav/mp3” screen, you can proceed to mp3 or wav conversion. The wav format file enables you to make an audio CD very easily. Be aware of file size, because wav files can be very large. You’ll see in the wav/mp3 generator that you can limit file by size or time duration. An Audio CD is about 70mn of sound, and the total of the wav files sizes is about 650Mo.

The mp3 format enables to ear CW on usb mp3 players and so on (iPod,...). So you can copy you CW mp3 files on mp3 pen drive. It is better to make small files, for examples 5 to 10 minutes files, because, it is easier to navigate thru the multiples files, than search in a large file what you want to ear. You can also make an mp3 CD very easily.

9.1. WAV/MP3 file generator

Speed of wav generator keyer (in words per minutes)

Creation of a Wav file is the first step even when creating a mp3 file

One can cut the generated file in slices of fixed time or in a specified number of files.

If you slice the file, you can ask to write the text corresponding to wav/mp3 files to a text file on hard-disk.

Speed: 24

Only convert the selected text

MP3 Conversion

Delete wav file after mp3 conversion

Cut file in slices (minutes) [5]

Cut in files of equal length (minutes) [2]

Save corresponding text files

Generates a silence of 200 ms in beginning of file

Number of files: 1

Length of one file: 00:09'39" Wav file size: 35.347 Mb

Total duration: 00:09'39" Total Wav file size: 35.347 Mb

Generate

To make a file with the text you selected before calling this screen.

If you do not check this, the wav file will be conserved.

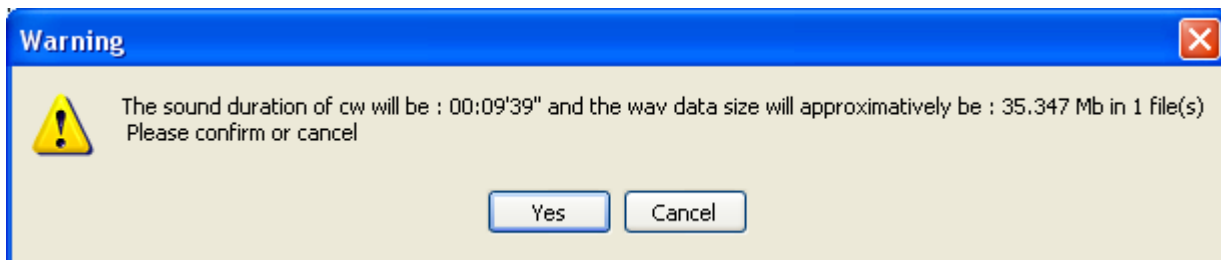
When you are ready, click 'Generate', then you'll be asked for a prefix of the file name.

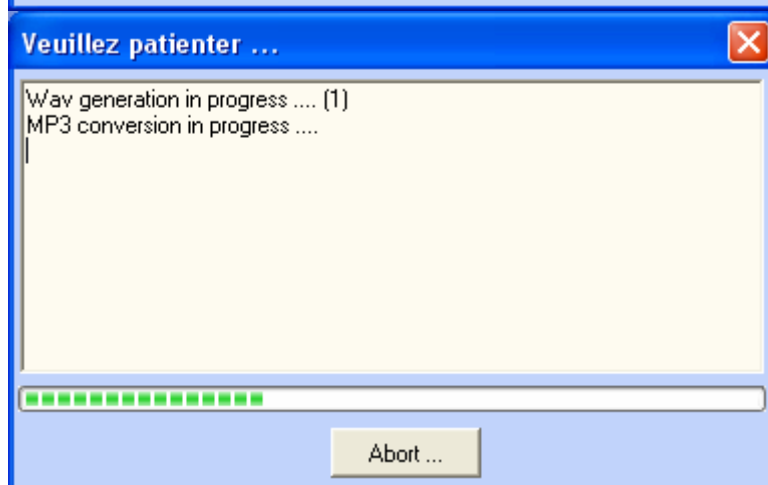
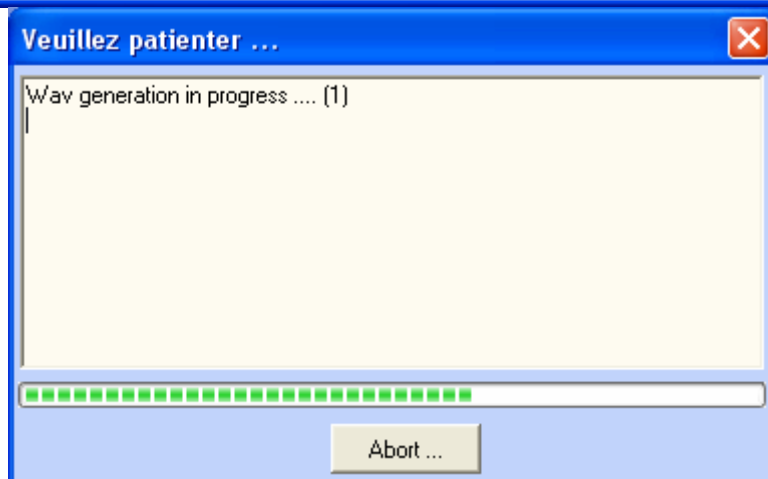
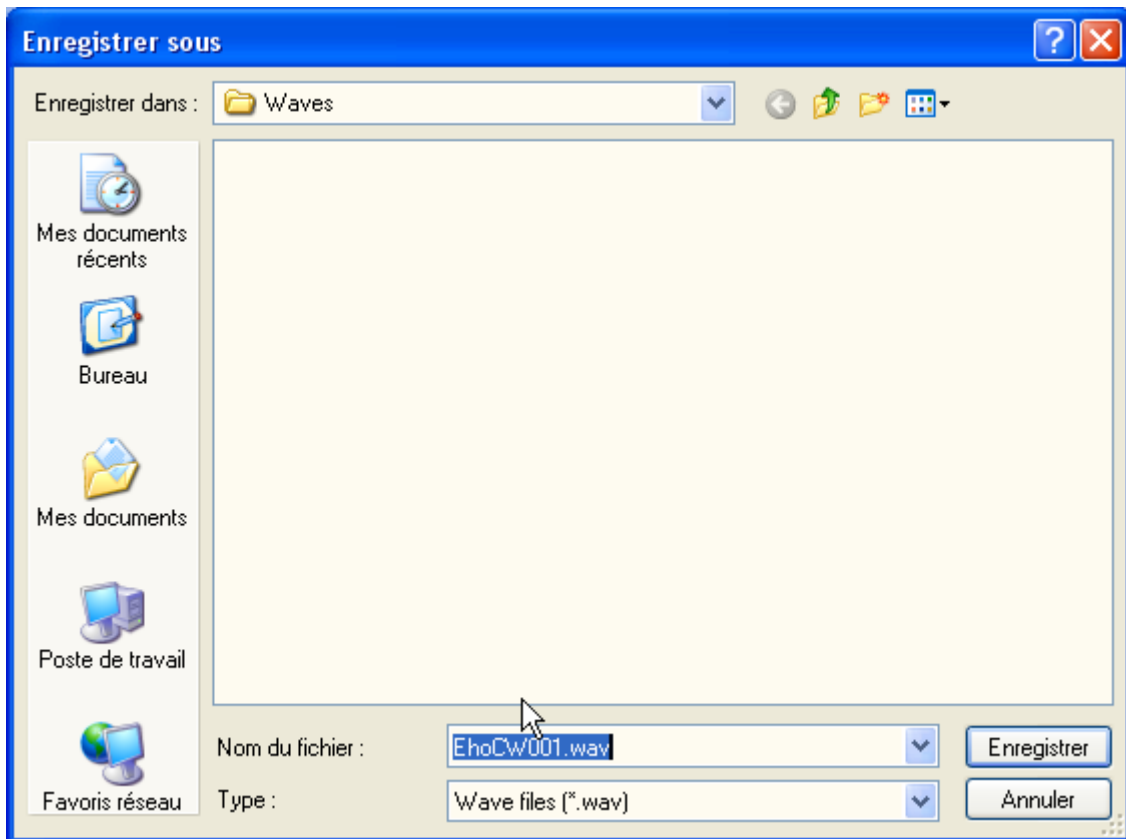
Duration and file sizes are displayed, to allow some control. Be aware that you could fill your entire hard disk with CW ! :-)

If you want cut the file in slices, the file name will be made of a prefix you'll be asked to provide, followed by a sequential number.

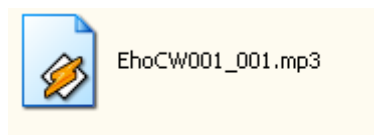
Then, if you check : 'Save corresponding text files', the sequence numbers will match the sequence of the wav or mp3 files. The CW contained in the wav/mp3 will match the text files.

Text to Mp3 conversion can take a long, because it requires a lot of CPU resources. The time needed to convert is directly proportionnal to the text file size, (and the speed of your computer).





Finally i got :



9.2. Midi file format generation

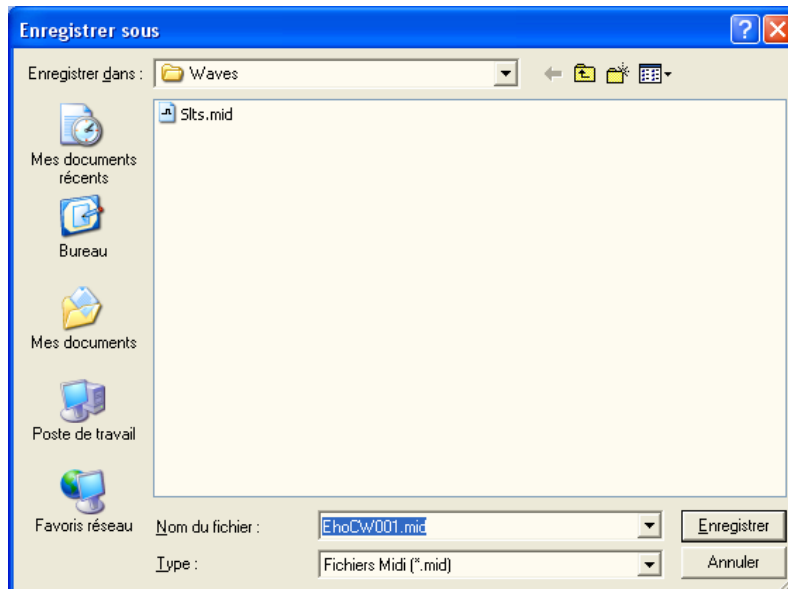
Files in midi format can be read under Windows (double click on the file name will open the appropriate program).

This format is a format used to record music. The file contains indeed notes, note lengths, an indication of note 'on' or 'off'. In short, without going into detail, this allows to store morse code.

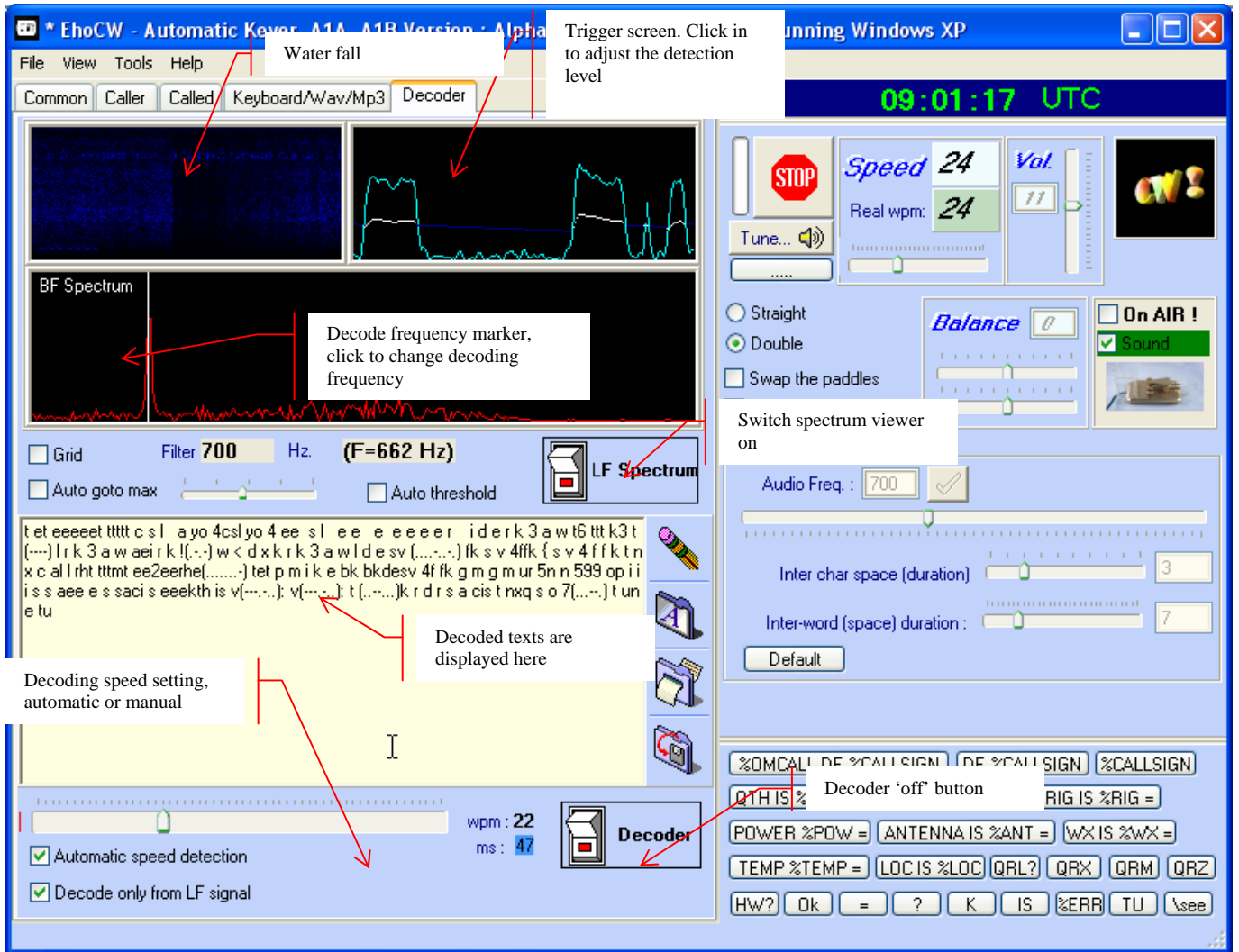
One advantage of this file format, is very small and encoded files. You can easily send Morse in midi format, as an attachment to an e-mail. That is possible with data files in wav or mp3 but the file size is very stronger, several megabytes.

There is no particular screen for the midi file generator. Only the dialogue box will ask for file name, so you can specify the file path to create.

Note: If you want to change the tone of your phone ring for a morse code, the midi format is the format that will allow you to do so.



10. The decoder



The best decoder for morse code, in fact, is still the human brain. EhoCW is not the ultimate decoder, it is an attempt to help those who starts, but it is only effective when the manipulation is relatively steady.

Make sure that the AF signal is not too strong for the input of your sound card. When the receiver is turned on and the analyzer is not lit, then the receiver decodes what is keyed with the key plugged into the joystick or serial com port.

If both are lit, then the decoder receives pulses from the sound card via a digital filter BF, and displays the decoded characters on the screen.

The un-decoded characters are displayed in the form 'dash and dots' (---.-- for example).

11. Configuration file Ehocw.ini

Section [ManipParam] contains keyer settings, speed, frequency, and configuration settings for Input / Output ports.

[ManipParam]

Speed=27
Freq=700
Manip_In_Port=1
Manip_In_Com_Port=1
Manip_Out_Com_Port=9
Manip_Out_Com_Sig=2
Manip_Out_Com_Ptt=0
Manip_Com_Port=0
Manip_In_Com_RTS=0
Manip_In_Com_DTR=0
InterCharSpace=3
InterWordSpace=7

[User]

CallSign=F8EHO
Gd=GD
Qth=BRUNSTATT
Locator=JN37PS
Name=Pascal
Wx=SUNNY
Temp=ABT 18
Rig=FT840
Antenna=LOOP

[Caller]

Cq=CQ CQ CQ de %CALLSIGN \s%CALLSIGN PSE K
Memo1L0=%OMCALL de %CALLSIGN
Memo1L1=%GD DR OM TKS FER CALL =
Memo1L2=UR RST IS %RST =
Memo1L3=MY QTH IS %QTH \s%QTH =
Memo1L4=MY NAME IS %NAME \s%NAME =
Memo1L5=HW ?
Memo1L6=%OMCALL de %CALLSIGN + PSE K
Memo2L0=R R %OMCALL de %CALLSIGN
Memo2L1=ALL OK %OM=
Memo2L2=MY RIG IS %RIG =
Memo2L3=ANT %ANT =
Memo2L4=PWR %POW =
Memo2L5=WX TODAY IS %WX =
Memo2L6=TEMP %TEMP C =
Memo2L7=TKS FOR NICE QSO=
Memo2L8=%OMCALL de %CALLSIGN + PSE K
Memo2L9=
Memo3L0=%OMCALL de %CALLSIGN OK =
Memo3L1=TKS FOR NICE QSO =
Memo3L2=FB DR %OM =
Memo3L3=HPE CUAGN =
Memo3L4=MY QSL SURE VIA BURO =
Memo3L5=QRU =
Memo3L6=HPE CUAGN VY 73 =
Memo3L7=GD DX = +
Memo3L8=%OMCALL de %CALLSIGN * 73 Tu \ee
Libre1=%OMCALL DE %CALLSIGN %RST %OMCALL DE %CALLSIGN
Libre2=%OMCALL DE %CALLSIGN %RST %OMCALL DE %CALLSIGN

[Answer]

MemoR1L0=%OMCALL de
MemoR1L1=%CALLSIGN
MemoR1L2=%GD 73 %OM = TKS
MemoR1L3=FER REPORT =
MemoR1L4=UR RST IS %RST=
MemoR1L5=MY QTH IS %QTH
MemoR1L6=\s%QTH= MY NAME
MemoR2L0=%OMCALL de
MemoR2L1=%CALLSIGN
MemoR2L2=TKS FER INFO = MY
MemoR2L3=RIG IS %RIG =
MemoR2L4=ANT %ANT = PWR
MemoR2L5=%POW =
MemoR2L6=WX TODAY %WX =
MemoR2L7=TEMP %TEMP C =
MemoR2L8=%OMCALL de

MemoR3L0=%OMCALL de
MemoR3L1=%CALLSIGN OK =
MemoR3L2=TNX FOR NICE QSO
MemoR3L3== FB DR %OM in
MemoR3L4=%CQTH =
MemoR3L5=HPE CUAGN = QSL
MemoR3L6=SURE VIA BURO =
MemoR3L7=QRU=
MemoR3L8=BEST 73 = GD DX =
Libre1=UR RST %RST GD GL 73 TU e e
Libre2=test 3
MemoR1L7=IS %NAME %NAME=
MemoR1L8=OK ?
MemoR1L9=%OMCALL de
MemoR1L10=%CALLSIGN +
MemoR1L11=K
MemoR1L12=
MemoR1L13=%CALLSIGN + PSE
MemoR1L14=K
MemoR2L9=%CALLSIGN + PSE K
MemoR2L10=
MemoR2L11=TEMP %TEMP C =
MemoR2L12=%OMCALL de
MemoR2L13=%CALLSIGN + PSE K
MemoR2L14=
MemoR3L9=%OMCALL de
MemoR3L10=%CALLSIGN *
MemoR3L11=QRU=
MemoR3L12=BEST 73 =
MemoR3L13=GD DX =
MemoR3L14=%OMCALL de
MemoR3L15=%CALLSIGN *

[Corresp]
CallSign=?

Name=OM
Qth=?

Locator=?

[General]

NoQSO=14

Freq=800

Speed=18

Volume=725

Balance=-10000

Lang=FR

CallerScreenVisible=1

CalledScreenVisible=1

SpectreScreenVisible=1

BalanceTexte=10000

[FunctionKeys]

F1=0

F2=Z1

F3=Z5

F4=Z6

F5=Z10

F6=Z11

F7=0

F8=0

F9=0

F10=0

F11=0

F12=0

[Midi]

Instrument=79

[DefaultPathNames]

Textes=C:\Program Files\Borland\CBuilder6\Projects\morse\EhoCW\Text

Waves=C:\Program Files\Borland\CBuilder6\Projects\morse\Waves

Config=C:\Program Files\Borland\CBuilder6\Projects\morse\EhoCW\

Lang=C:\Program Files\Borland\CBuilder6\Projects\morse\EhoCW\

Log=C:\Program Files\Borland\CBuilder6\Projects\morse\EhoCW\Logs

12. Language file : EhocwL.ini

This file contains all the titles of visual components of the program in several languages. To date, only four languages are implemented: French, English, German and spanish. An additional translation effort must be made to implement other languages.

Here is the beginning of the file, the principle is simple.

```
-----  
; Version du 08/05/2007  
; FR (Français) : By Pascal, F8EHO  
; EN (English) : Original translations by Pascal, F8EHO  
; DE (German) : Translations by Hubert, F8DFT and Laurent F8CZI  
; NL (Dutch) : To do !  
; ES (Spanish) : To do !  
; IT (Italian) : To do !  
; PO (Portugues) : To do !  
-----  
  
[frmAutoManip]  
DE.Text = EhoCW - Automatische taster A1A, A1B  
DE.Hint =  
EN.Text = EhoCW - Automatic Keyer A1A, A1B  
EN.Hint =  
ES.Text = EhoCW - Automatic Keyer A1A, A1B  
ES.Hint =  
FR.Text = EhoCW - Manipulateur Automatique A1A, A1B  
FR.Hint =  
IT.Text = EhoCW - Automatic Keyer A1A, A1B  
IT.Hint =  
NL.Text = EhoCW - Manipulateur Automatique A1A, A1B  
NL.Hint =  
PO.Text = EhoCW - Automatic Keyer A1A, A1B  
PO.Hint =  
  
[frmAutoManip.chkCom]  
DE.Text = On AIR !  
DE.Hint = Schaltet den cw Signal auf den Port der in Parameter Konfiguriert ist  
EN.Text = On AIR !  
EN.Hint = Switch the CW signal on the port configured in the parameters  
ES.Text = On AIR !  
ES.Hint = Switch the CW signal on the port configured in the parameters  
FR.Text = On AIR !  
FR.Hint = Commute le signal CW sur le port configuré dans les paramètres  
IT.Text = On AIR !  
IT.Hint = Switch the CW signal on the port configured in the parameters  
NL.Text = On AIR !  
NL.Hint = Commute le signal CW sur le port configuré dans les paramètres  
PO.Text = On AIR !  
PO.Hint = Switch the CW signal on the port configured in the parameters
```

13. Simplified fonctionnal schematics

