

GSDR CW subsystem

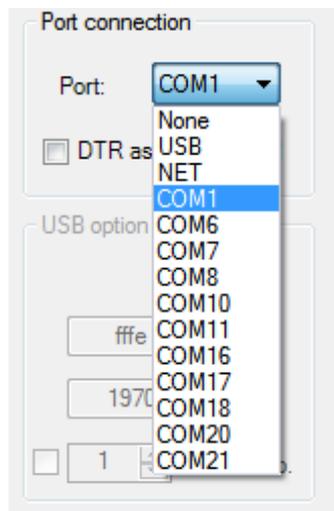
With GSDR you can establish CW connection on the various way. First you need to choose CWL or CWU modulation type on the main screen:



The label "MainRX Mode - CWU" means that if you are using VFOA as TX frequency, transmitted signal is CW. If you are using SPLIT mode must be activated "SubRX Mode" with two right mouse button clicks (in this example VFOB uses USB mode and will not transmit CW signal!).



Within GSDR program exist various settings for CW subsystems that depend on the used radio type. Simplest SDR radios use COM port for connection to a computer so it is necessary to select from the drop down menu. Open the Setup-> General-> config Genesis:



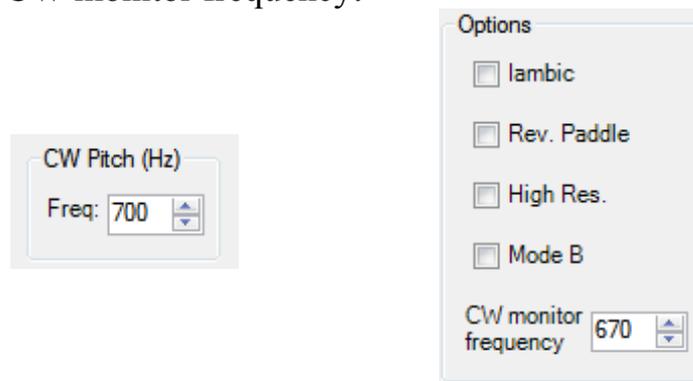
This example uses the COM1 port for connecting radio device like G40, G3020, SoftRock GSDR do not recognize RS232 port on the computer or USB-> COM adapters so you need to take into account adapter hardware compatibility. This is the source of the so-called "Primary Keyer". It allows several modes:

- Hand key;
- Iambic (A or B mode) using the built-in software GSDR Iambic Keyer;
- Iambic external which is connected as a manual, and will generate CW signal.

1. Manual key is the simplest because it requires only several parameters for their work. After selected COM port is necessary to adjust time for Rise and Fall edge of the CW signal, software control for keyer sparks (Debounce) and time for TX/RX transition after last character typed (Semi Break In) in milliseconds:



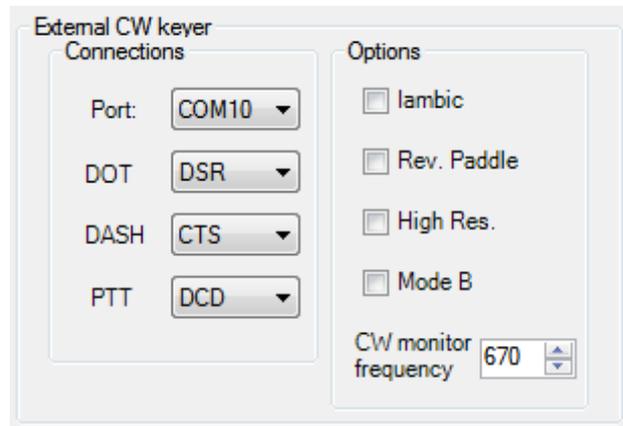
These are only approximate values and you need to experiment until you satisfied with results. Optionally you can change the CW Pitch (frequency received CW signal) and GSDR CW monitor frequency:



2. Software Iambic mode is a little complicated to set up. In addition to the above mentioned for Hand keyer, you first turn on the option and choose Iambic mode (A or B). "Weight" is length of DASH/DOT. "Rev. Paddle" is an option that inverts the DASH/DOT. The whole process of generating CW signal carried GSDR.

3. If we have external Iambic Keyer we can connect it him as a Hand key (Iambic option should be off). We set the same parameters as for the Hand keyer.

Besides the main source of keyer commands also exist a secondary (Secondary Keyer):

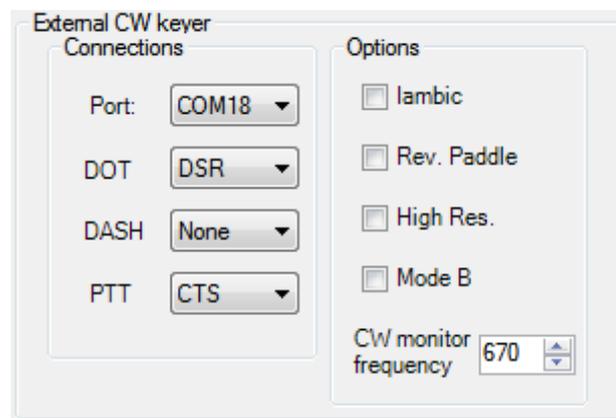


It is possible to connect an external CW keyer (manual or Iambic) or an external program with ability to send CW commands (like N1MM logger program).

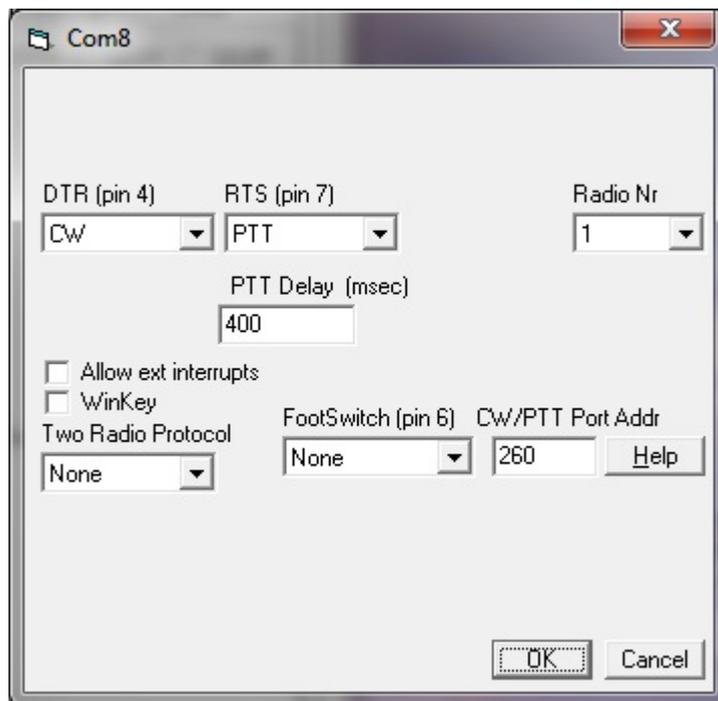
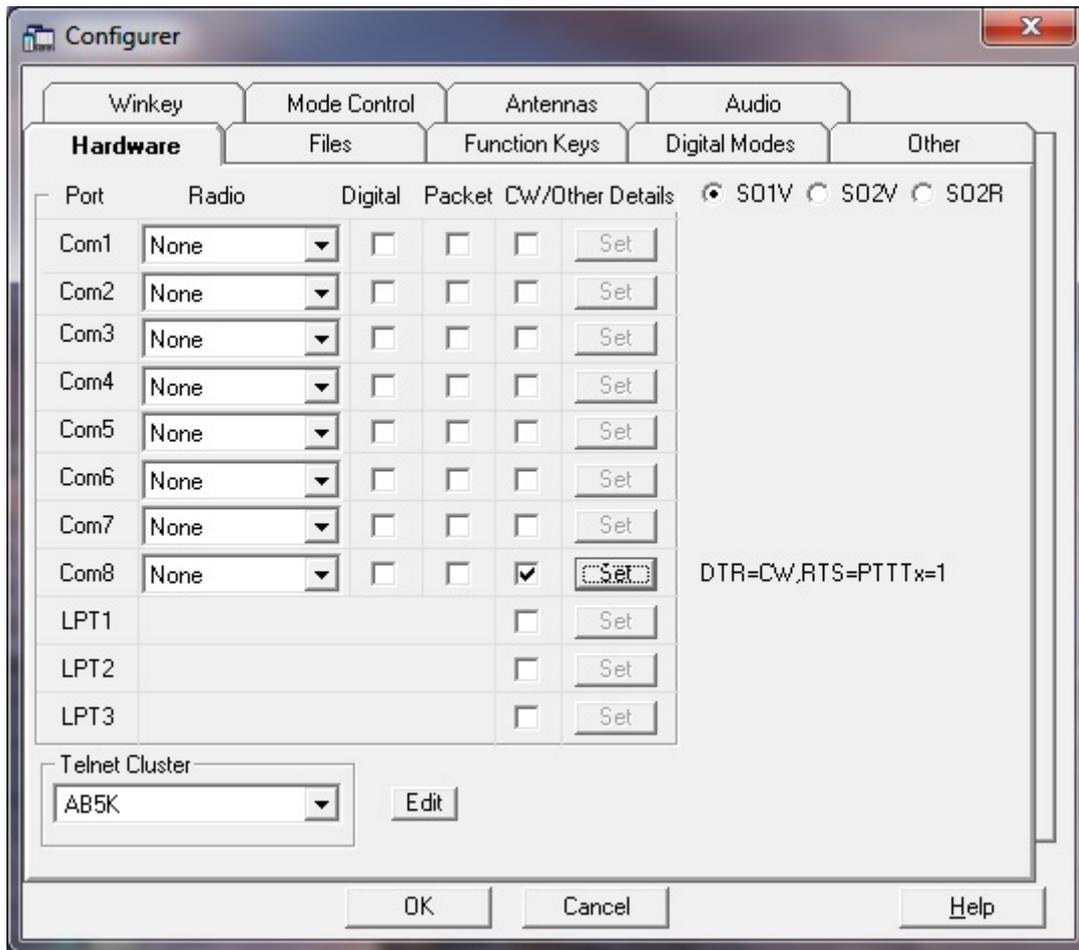
If you are using the standalone keyer all settings are the same as for primary with the additional choice of pins for each function:

- the DOT Hand key command source;
- Iambic adjust DOT/DASH according to your hardware and turn on the Iambic;
- PTT is an option for quality keyer, because it allow to sequentially turn on transmitter before sending the first character.

If we connect this port to an external software you need to use virtual COM port software (in the example in Figure COM8 and COM18 make a virtual pair).



N1MM settings:



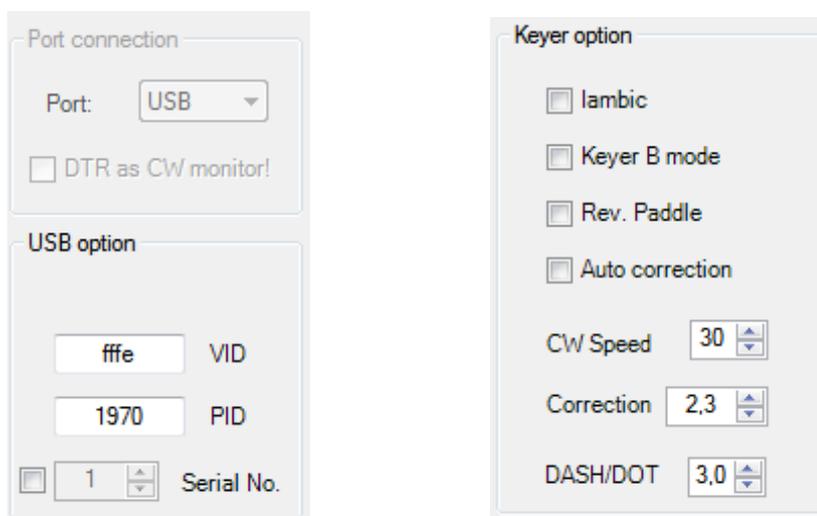
In our example we use DTR pin for sending CW signals and RTS as a PTT command with 400ms initial delay before sending the first character.

If the external program does not have the ability to send CW and PTT commands at the same port, it is necessary to use an additional COM port for PTT command:



This is in Setup-> CAT-> CAT Control. Here is a used virtual COM ports pair COM11 <-> COM21 (source for PTT is RTS pin).

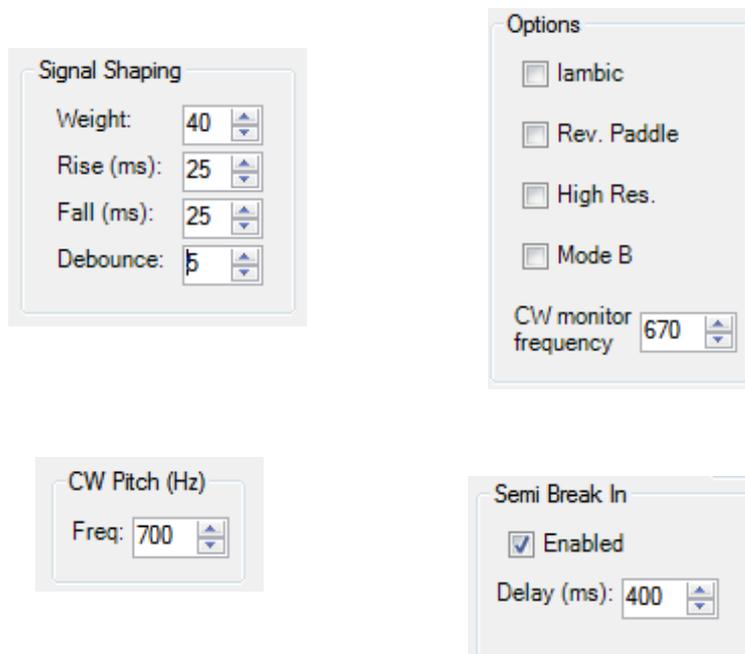
G59, G11 and QRP2000 GSDR connect to PC via USB and there is no possibility of changing the port for the primary keyer, only options (G59 and G11):



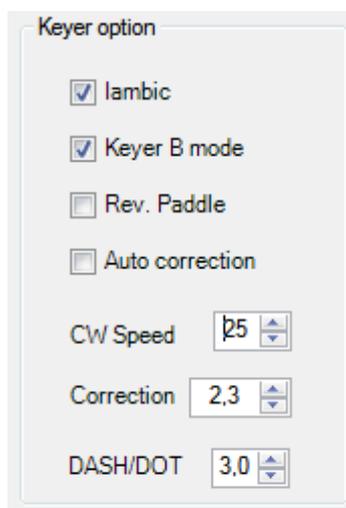
There are several modes:

- Hand key;
- Iambic (A or B mode) built in G59 and G11;
- Iambic software within GSDR;

In the Hand key mode setting are identical to the primary keyer connected to the COM port.



In this mode it is possible to connect an external Iambic keyer and let him to generate a CW signal. If you want to use the G59 (G11) built-in Iambic keyer is necessary to turn on Iambic option:



In the example from picture we use Iambic B mode.

Description of options:

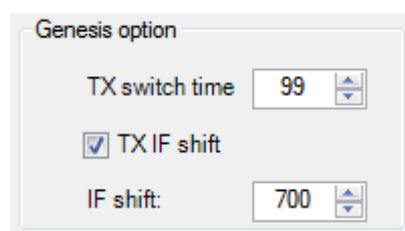
- Rev. Paddle invert DASH/DOT commands;
- Auto correction is used to automatically broadcast break after last character;
- CW Speed changes CW signal speed (it is also possible to change the speed on GSDR main screen or with keyboard shortcuts);
- DASH / DOT change DASH/DOT ratio;

If you want additional CW signal filtering in Iambic mode it is necessary to turn on an Iambic option in Setup->DSP->Keyer:



Note: The inclusion of Mode B and Rev Paddle would lead to double negation, so it is possible to do only once in Genesis config or in DSP> Keyer!

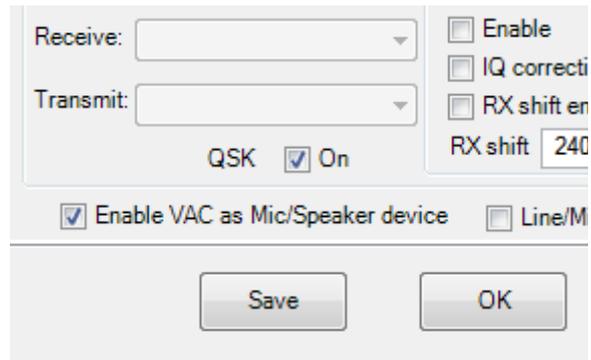
G59 and G11 have the option to adjust time delay before sending the first character because mechanical relays are slow and we can lose first character(swallowed partially or whole):



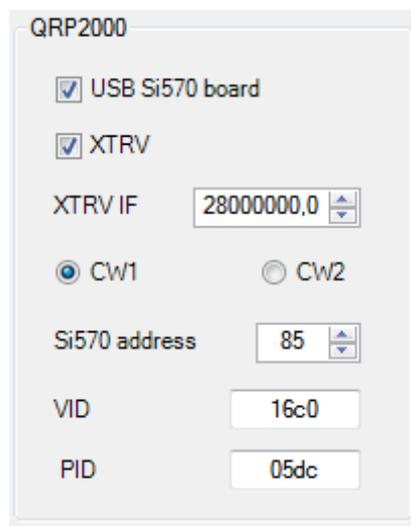
(TX switch time divide by three to obtain true value expressed in milliseconds).

G59 has the classic relays and expected value is about 150 while the G11 using Pin diodes for RF and Reed relays for AF switching that are much faster than mechanical, so it is possible to significantly reduce TX/RX switch time. The practical value must be obtained by experiment and depends on several factors: the speed of the relays, computer speed, external keyer characteristics ...

TX/RX switch speed can be increased by turning on QSK option in Audio setup tab (avoid enable/disable groups of controls that requires a lot of time):

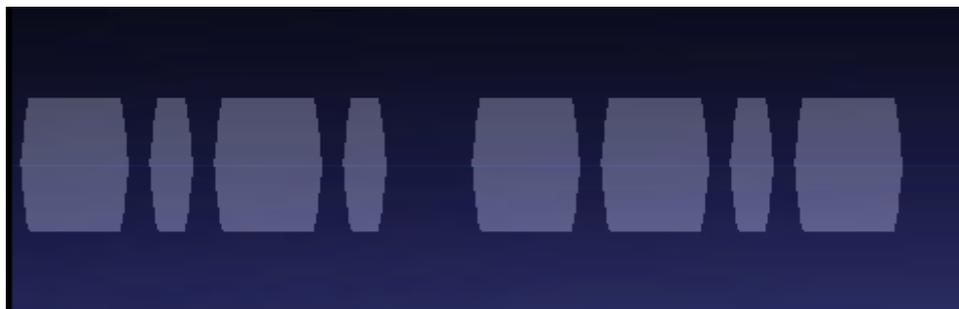


In QRP2000 radio options we can change CW signal source (CW1 or CW2):



Here you can only use Hand key or connect an external Iambic. The settings are identical to the primary keyer connected to the COM port and set in Hand key mode.

To test all settings best way is to use Panascope screen mode where we can monitor signal shaping:

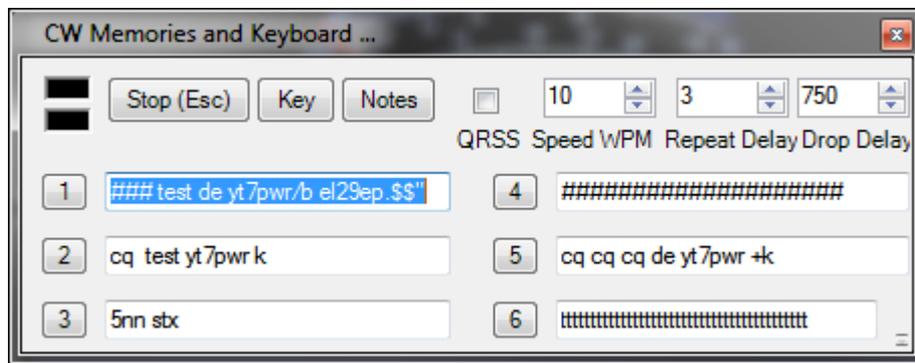


(we can clearly see the generated C and Q characters, excellent quality with Rise and Fall set to 25).



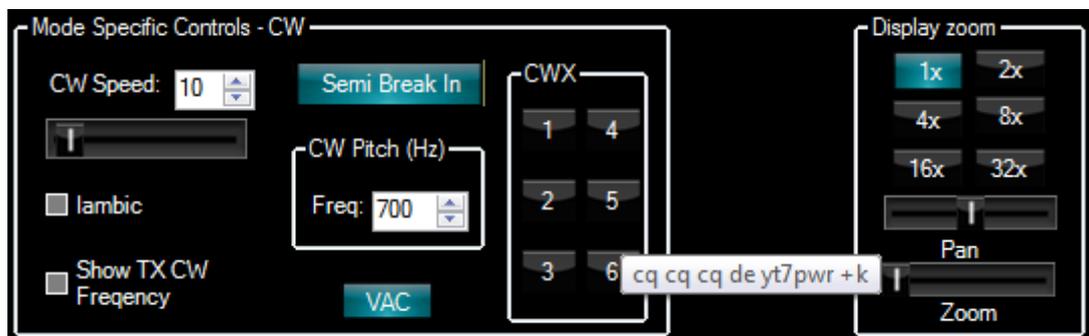
(here is generated CQ very poor quality, Rise and Fall set to 5. This signal is very unpleasant to listen because it produces "clicks" and generates interference to surrounding stations).

With GSDR we can generate CW signals using CWX system:



You can prepare in advance up to 9 different messages that can be sent by clicking on the message number. From the main screen we can start CW messages using buttons 1.. 6 or keyboard shortcuts (initial F1 ... F6).

If you hold the mouse pointer over the button 1 .. 6 you will see the message as a reminder(hint).

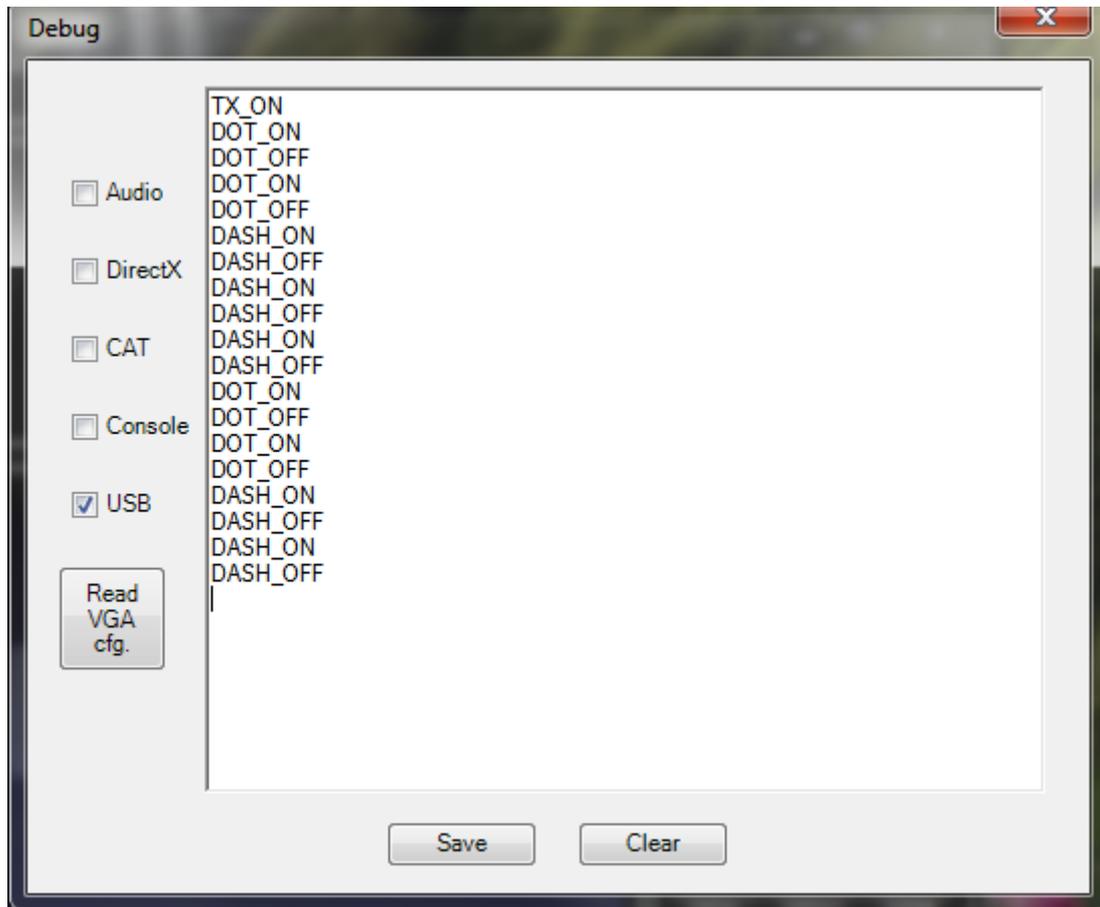


In Setup-> Keyboard keys we can change CW message shortcuts:



CW messages can be interrupted by pressing the selected message again or from the keyboard using message shortcuts or Esc key.

If you have problems open the Debug form from the main menu and select USB to record keyer messages. In receive state each message begins with request to start transmitter and after a positive reply from GSDR followed by sending DASH/DOT commands.



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