# Graphical User Interface for generation of CAEN WaveDump configuration file

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# 1 Introduction

This is a graphical user interface for generation of configuration files for the CAEN WaveDump software. For now, it contains ONLY the configuration options that are available for all the CAEN digitizers (particularly because I am able to test it on the N6720A board only). Also it doesn't contain the register's operations yet.

# 2 Installation

To use it you need the following to be installed on your system

- **`Python 2.7.x`** or **`Python >=3.5`**
- Packages for **`Python`**:
  - **`Tkinter`**

Most probably all of the above packages are already installed provided **`Python`** is installed on your system.

Provided you've unpacked this package into **`<package_dir`**, change to the **`<package_dir/src`** directory. There you will find the file named **`caenccf`**. You may need to make it executable. In linux the following command does the work:

```
> chmod +x caenccf
```

Now just run it

```
> ./caenccf
```

If everything is OK you should see the following window on your screen:

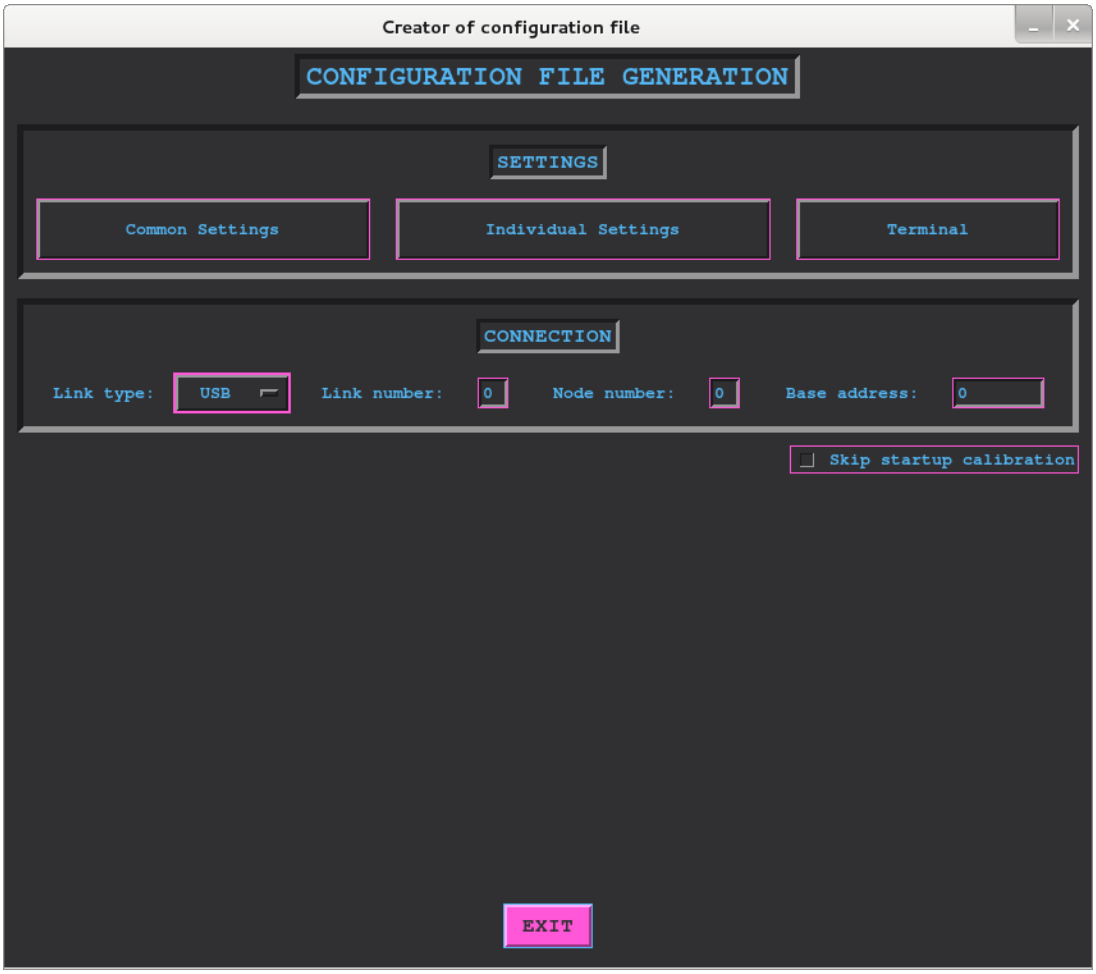



Figure 1: GUI starting page

It is very useful to be able to run it from everywhere on your system. In order to reach this you need to place the executable in your **`bin`** directory:

```
> cp caenccf /usr/bin/
```

Also you need to extend the **PYTHONPATH** environment variable in order **Python** to see necessary modules. Add the following lines in your **.profile** (or **.bash_profile**) file:

```
if [[ -n "$PYTHONPATH" ]]; then
    PYTHONPATH=$PYTHONPATH:/path/to/<package_dir>/src
else
    export PYTHONPATH=/home/path/to/<package_dir>/src
fi;
```

Log out and log in back. After that you should be able to run the GUI from anywhere on your system.

# 3 Usage

## 3.1 Create configuration file

As it was mentioned in **Introduction** in order to configure a digitizer you must use configuration file for WD. The complete instruction how to create it see in WD documentation. This section is how to do this using the GUI presented in this package. Here there will be no explanation of what each configure option means, for this, please, check WD documentation.

Firstly, open terminal and change to the directory when you want to place config-file. Then run the GUI there:

```
> caenccf
```

You will see the GUI's starting page (see Fig.1). All configure options have the same names as in the official WD documentation so using is straightforward. However, some things require additional explanation.

### Pages

The GUI consists of four pages (including the starting page). The **Common Settings** page contains configure options applied to each channel. The **Individual Settings** page is for the channels' configuration. The **Terminal** page contains terminal frame for running WD (see below).

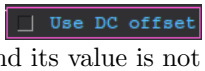
### Path to file

It is possible to place config-file in a directory that differs from that in which the GUI was launched. To save config-file wherever you wish use the **Save to** entry


By default it is the current directory (**./**) but it can be changed either by changing the entry directly or by using file browser: **Browse**  button.

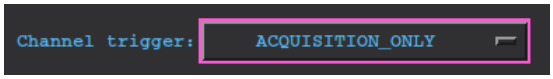


### Baseline and DC offset


As it is said in WD documentation the **BASELINE_SHIFT** and **DC_OFFSET** options *are intended to be used one alternatively to the other*. The GUI reflects this in the following way. If **Use DC offset**  check button is OFF then only the **Baseline shift** scale matters; the **DC offset** scale is disabled and its value is not shown. And vice-versa — if that button is ON only the **DC offset** scale is taken into account, and the **Baseline shift** scale is disabled.

### Trigger source option

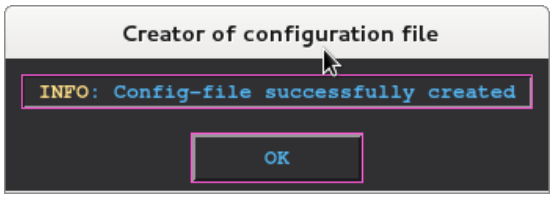
There are two choices for trigger: **External** and **Channel**. **External** trigger can be used either for the acquisition only or for the acquisition-&-trigger-out signal. **Channel** trigger has one additional option: trigger-out-only. These options are not independent (for example, it is nonsense to use the **Channel** trigger for the acquisition and the **External** for the aucquisition-&-trigger-out simultaneously). These options are automatically aligned in the interface (the latest changed option has the highest precedence). For example, if you changed the **Channel** trigger option of some channel to the **ACQUISITION_ONLY**:




then every other channel, if its option is not the **TRGOUT_ONLY**, is disabled automatically, so the **External** trigger:


### Saving configuration file

Once the configuration is done press **Save**  button (right lower corner). If succeeded you should see the following popup window




and a file called **config.txt** inside the specified directory.

## 3.2 Running WaveDump inside GUI

After successful creation of a config-file it's time to run WD. In the **Terminal** page one will find a frame with running **xterm** inside. It is intended to eliminate the need for users to use another window to run WD. Go to the **Terminal** page and call WD with the path to the config-file you created before as an argument:

```
> wavedump config.txt
```

WARNING: The terminal is running in the directory where the GUI was launched. And if you chose another directory to save the config-file you must provide the full path to that file. That is why it is recommended to run the GUI from the directory where you place a config-file.

In the same page one will find WD cheat sheet.