WaveAce Lab 5: Document

Summary

This guide provides step by step instructions explaining how to use the WaveAce Oscilloscope.

The WaveAce Oscilloscope provides tools for viewing, measuring and analyzing digital, serial and analog waveforms. This guide will explain how to use the various tools built-in to WaveAce such as cursors, waveform magnifier and history mode.

Overview: One of the most important aspects of your work is documenting the measurements. This exercise demonstrates the tools available.

Goal: Learn how to:
- Save and recall instrument set-ups
- Save and recall waveforms
- Save a picture (screenshot)
- Save waveforms for further processing

In this Lab you will learn how you can document your results.

System Requirements:

-        1 x WaveAce oscilloscope
-        1 x WaveAce passive probe
-        1 x USB Memory device
-        1 x PC computer (optional)

Setup: Connect the probe to the signal to be measured. In this case, to the calibrator (CAL) output loop on the front panel via hook adapter with the probe BNC connected on CH2.

Note:(Screenshots below show a white background configuration of your WaveAce to save black ink in printing. This configuration is explained in Lab 2 – VIEW)

Step 1: Reset the scope configuration to the default factory settings using the front panel DEFAULT SETUP button. An alternative method is to use the front panel SAVE/RECALL button, then press the Type button until Factory is displayed and finally press the Load button.
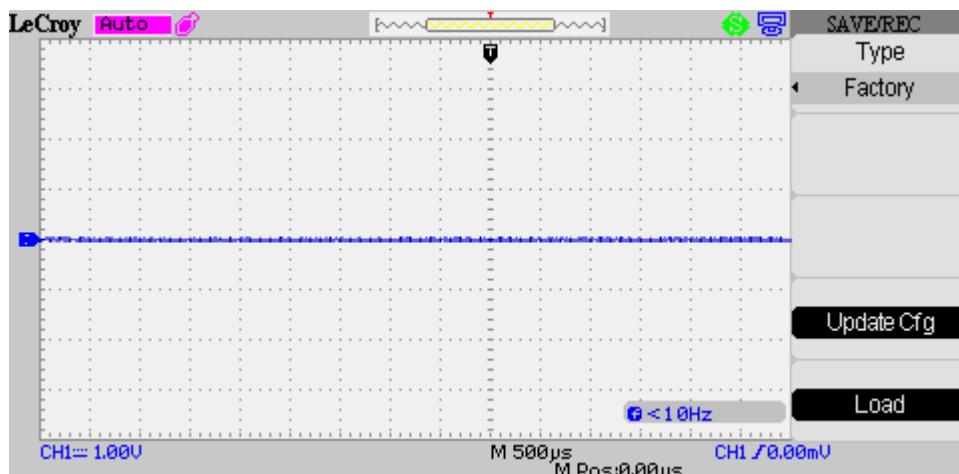

At any time the menu on the right-hand side of the screen can be removed/restored by pressing the front panel MENU ON/OFF button.

Step 2: Turn CH1 off and CH2 on by pressing the front panel CH1 and CH2 buttons. Pressing a channel button also displays the corresponding vertical settings. DC coupling on CH2 is selected by default. Check the slider switch on the probe is set to X10 and using the Probe button set 10X on the screen.
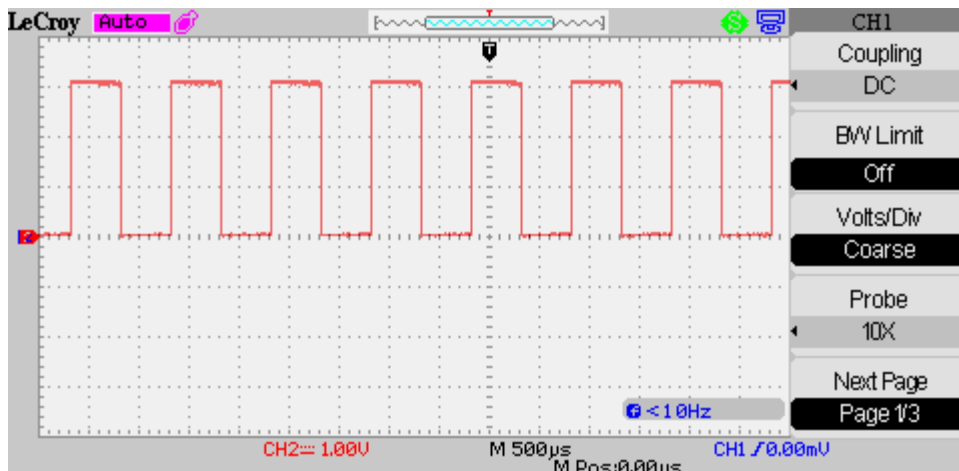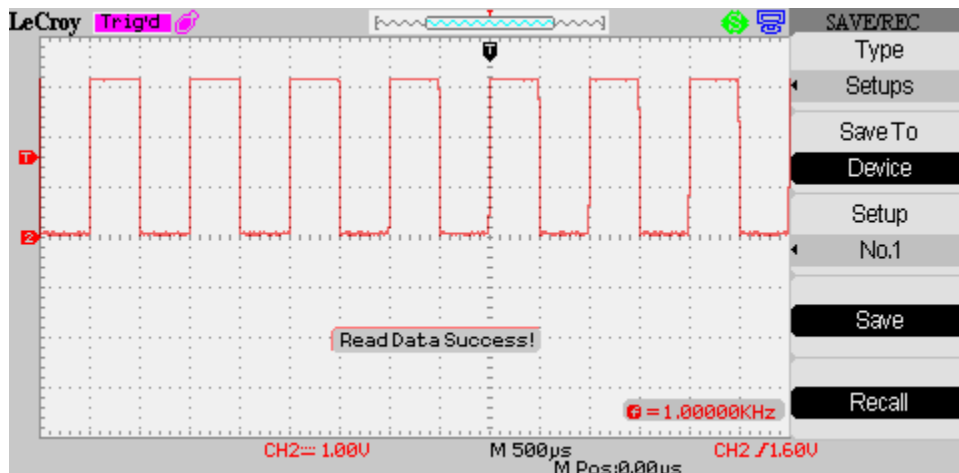
Step 3: Press the SAVE/RECALL button. Select Type as Setup, Save To as Device and Setup to No. 1. Now press the menu Save button.

Note: The scope can store up to 20 setups in its internal memory. Notice that a momentary message is displayed on the screen both when performing a save and a recall.
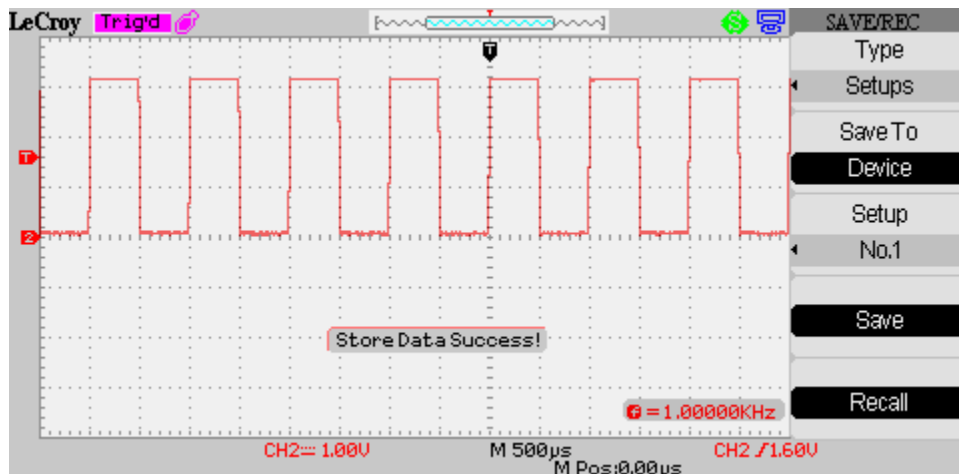
Now change the scope settings. Reselect the SAVE/REC menu but this time press Recall. Verify that the scope returns to its original settings

Step 4: Press the SAVE/RECALL button. Select Type as Waveforms, Save To as Device and Waveform

to No. 1. Now press the menu Save button. Disconnect the probe from CH2 and observe that the signal disappears. Now press the menu Recall button. The trace reappears


To prevent the trace being overwritten the scope is switched to Stop mode. Recoonect the probe and press RUN/STOP to restart the acquisition.

Step 5: Press the SAVE/RECALL button. Select Type as Picture and Print Key as Save Picture. The

Save button is greyed out. Pictures can only be saved to a USB memory device. Plug the memory in now.

Notes: Pictures can also be directly printed on a suitable USB printer by selected Print Picture in the Print Key option. The front panel PRINT button can also be used in place of the menu Save button. Only pictures can be saved/printed using this button. To open an existing directory first select it using the Intensity/Adjust knob, then press the knob. To exit the directory scroll to UP and press the Intensity/Adjust knob.
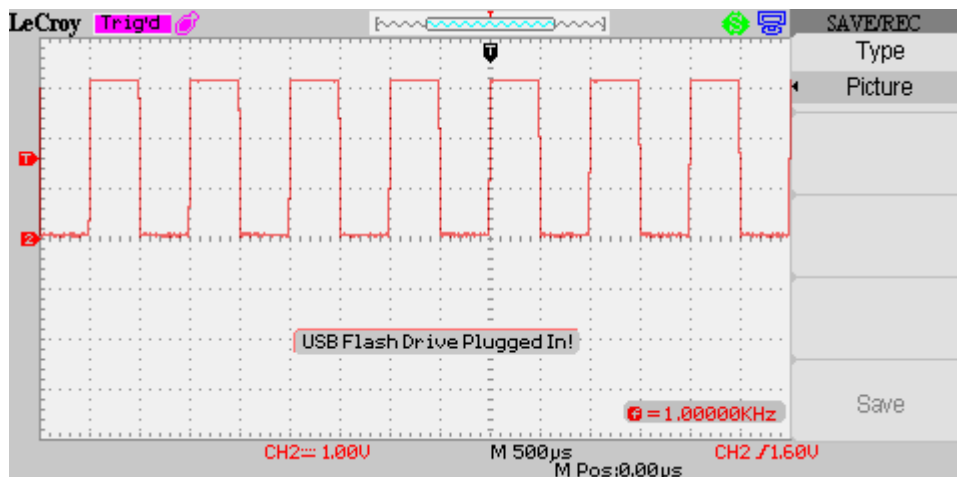
A brief message is displayed on the screen and a new icon appears on the top line of the screen next to the Trig'd marker. After a few seconds the message disappears and the Save menu item is now active
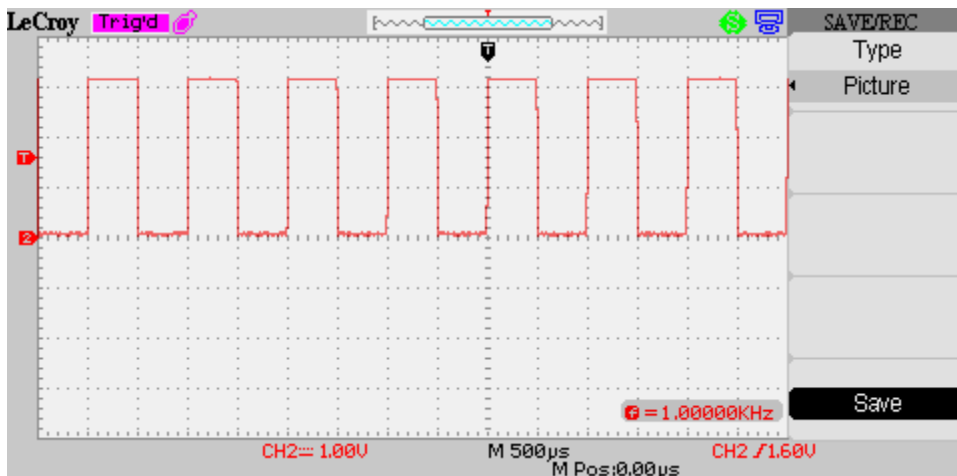
Step 6: Press the menu Save button or the front panel PRINT button. After a few seconds the listing of the USB memory is shown on the screen. Picture files can only be saved so the Load button is greyed out.
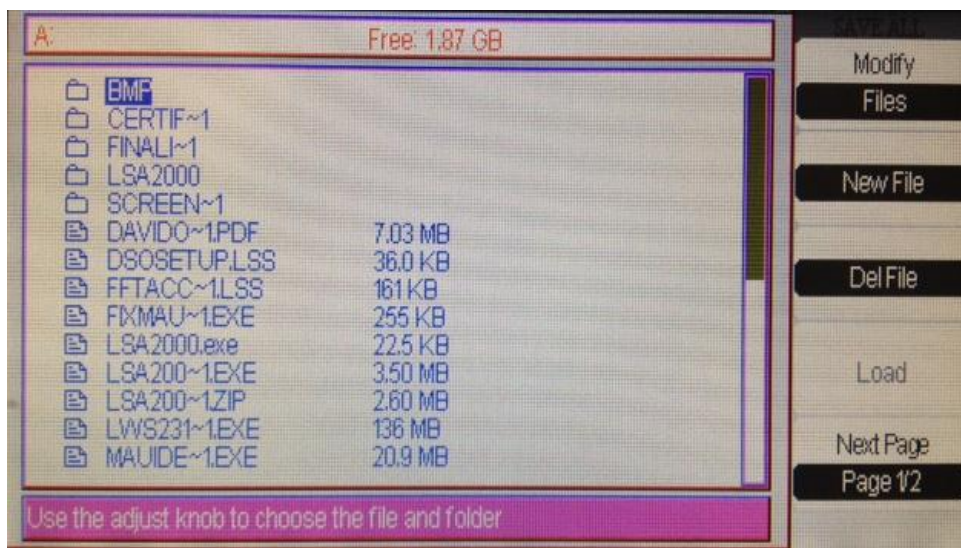
Select New File and the filename to use. Familiarize yourself with the editing functions by changing the name to SD00001.
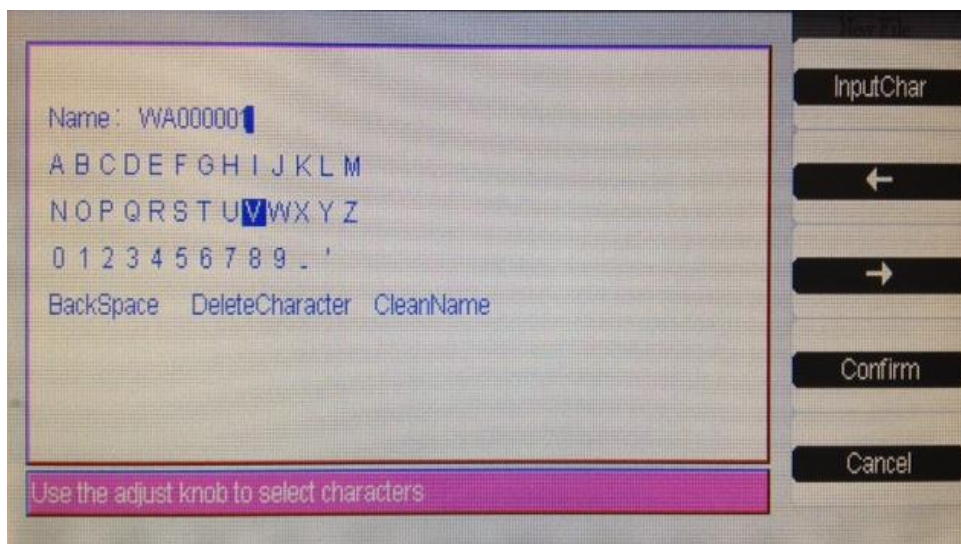
Press Confirm when done. Be patient! Saving a picture can take approximately 45 seconds. Picture files have the extension .BMP

Step 7: Waveforms can also be saved (but not loaded) in a text format compatible with Excel. In the SAVE/REC menu select type as CSV. Data Depth determines if the whole waveform is saved or only the portion displayed on the screen. Parameters can also be saved by selecting on in the Para Save item. Follow the procedure in Step 6 to save this data but using the menu Save button and setting CS00001 as the filename. CSV files have the extension .CSV
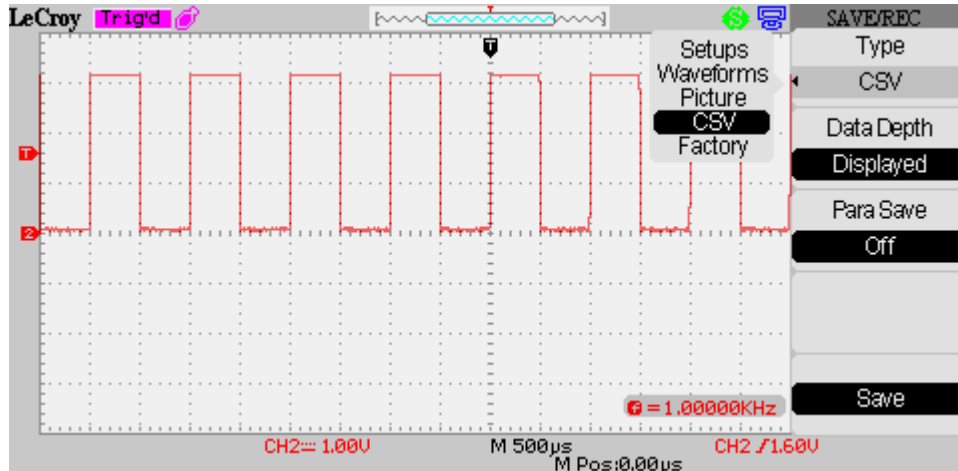
Step 7: Repeat Step 4 but this time select Save To as File. Use the filename SU00001. Now try to load the file back in. Note: to use the Load button first select Save, scroll to the correct file and then press Load. Setup files have the extension .SET

Step 8: Repeat Step 4 but this time select Save To as File. Use the filename SU00001. Now try to load the file back in. Note: to use the Load button first select Save, scroll to the correct file and then press Load. Setup files have the extension .SET

Step 9: Repeat Step 5 but this time select Save To as File. Use the filename WA00001. Now try to load the file back in. Note: to use the Load button first select Save, scroll to the correct file and then press Load. Waveform files have the extension .DAV

Step 10: As a final exercise remove the USB memory. A short warning message is displayed. Plug the USB memory into a PC and verify that the files created above exist. BMP files can be opened with a suitable image viewer and CSV files can be opened with a standard text editor. If Excel is available try importing the CSV file.