Kvaser Memorator Setup Tool - Trigger Guide

This guide will help you to get started using the triggers in your Kvaser Memorator setup tool.

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2 Log Everything – The Most Basic Way of Logging

The easiest way to log traffic on the CAN bus with the Kvaser Memorator is to simply *Log everything*.

To get started and *Log everything* open Kvaser Memorator setup tool and click on *Log Configuration* in the main tree view (see Figure 1).

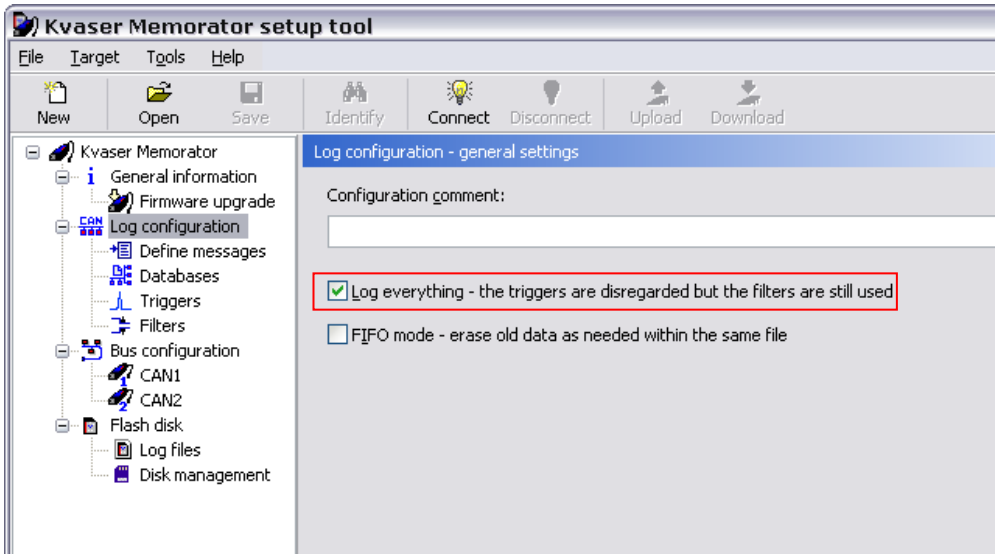

Figure 1. Log everything.

Make sure the *Log Everything* checkbox is checked. The *Log Everything* checkbox is always checked by default when starting up a new clean configuration. That's all.

3 Creating a Simple Trigger

Start logging when receiving a specific CAN identifier.

1. Click on Log configuration in the main treeview and uncheck the *Log everything* checkbox to be able to trig on a specific event such as the reception of a specific CAN identifier.

2. Click on Define messages in the main treeview and then click on *Add message* to define the message we want to trig on (see **Figure 2**). Enter the message properties and click *OK*. Note that the default is to enter the identifier as a hex number. A hexadecimal number can always be entered with '0x' before the number to make sure it is entered as hexadecimal.

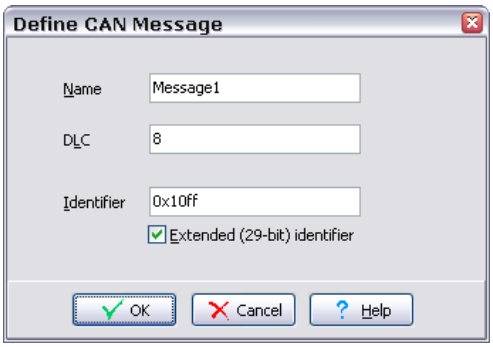

Figure 2. Defining a CAN message.

3. Click on *Triggers* in the main treeview. Then click *Add* to create a new trigger. The trigger wizard will show up. On the first page, the channel that the trigger should trig on can be chosen. Click next. On the second page click on the *select* button next to the *Trigger on a CAN message* text (red in **Figure 3**).

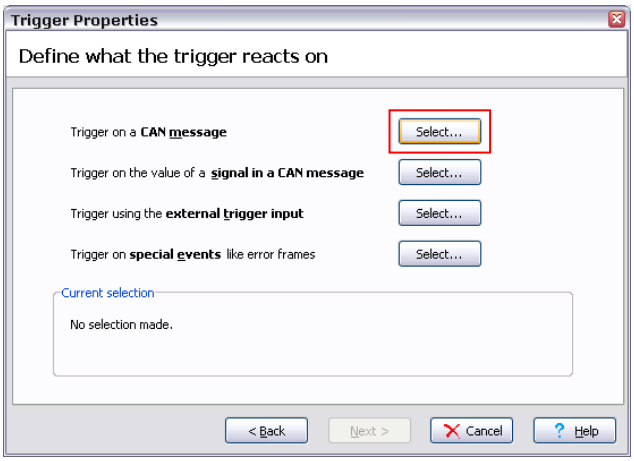

Figure 3. Selecting trigger types.

Then select the message just created and click *OK* (see **Figure 4**). Then click next; the trigger properties should then be visible (see **Figure 5**).

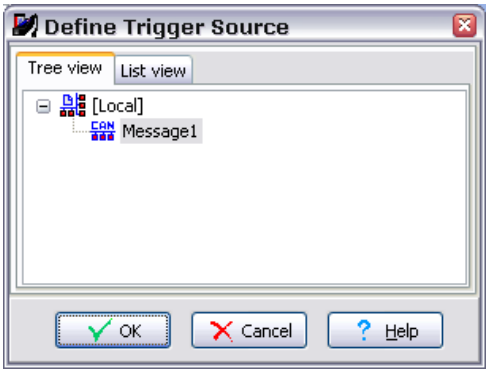

Figure 4. Selecting a CAN message.

4. If the trigger properties look ok, click *Finish*. The trigger can now be seen in the trigger list.

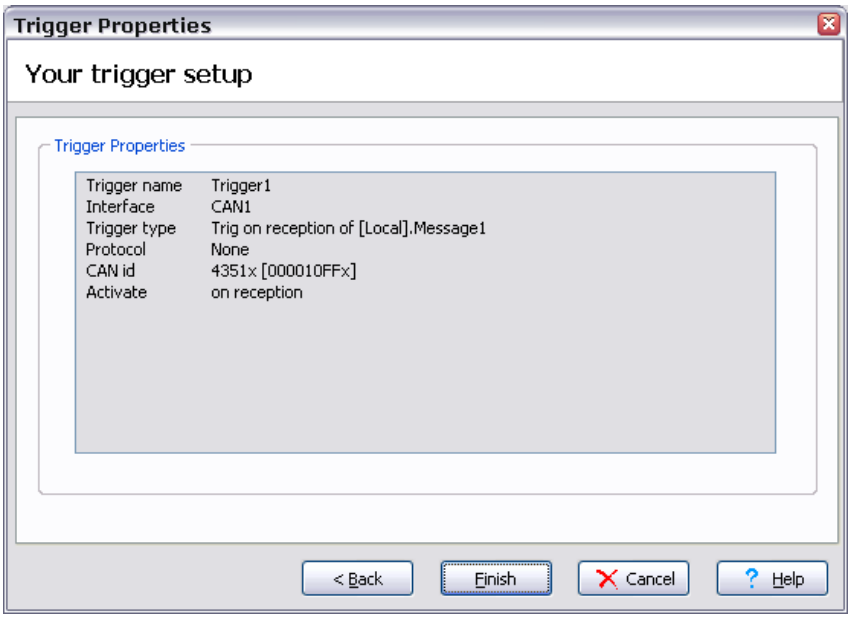

Figure 5. Trigger properties.

5. Enter the name of the trigger in the *Start log if* field (see **Figure 6**). This will activate the logging in the Kvaser Memorator if the trigger expression is satisfied.

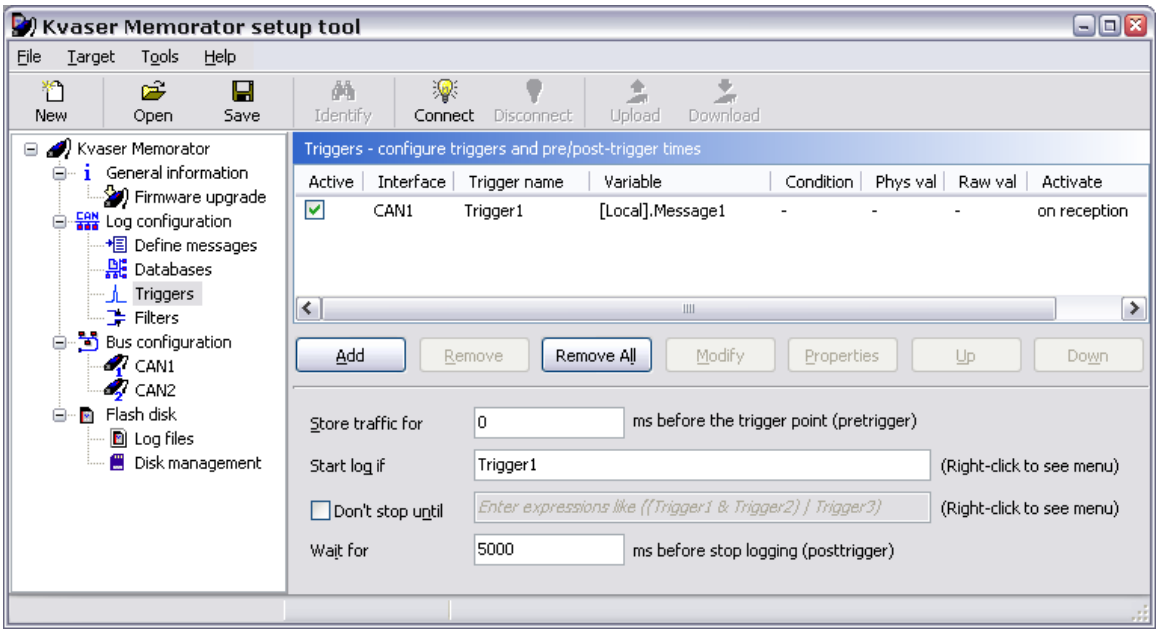

Figure 6. Entering trigger expression.

6. The trigger part of the configuration is now ready to be downloaded to the Kvaser Memorator.

4 More Advanced Trigger

This example involves four different triggers that will make Kvaser Memorator start and stop triggering when the data of a message becomes certain values. The aim is to log all messages (with a specified identifier) that contain a signal with a value between 10 and 17 (a and 11 hexadecimal).

1. Define a CAN message with a signal. Then create the triggers as seen in **Figure 7**.

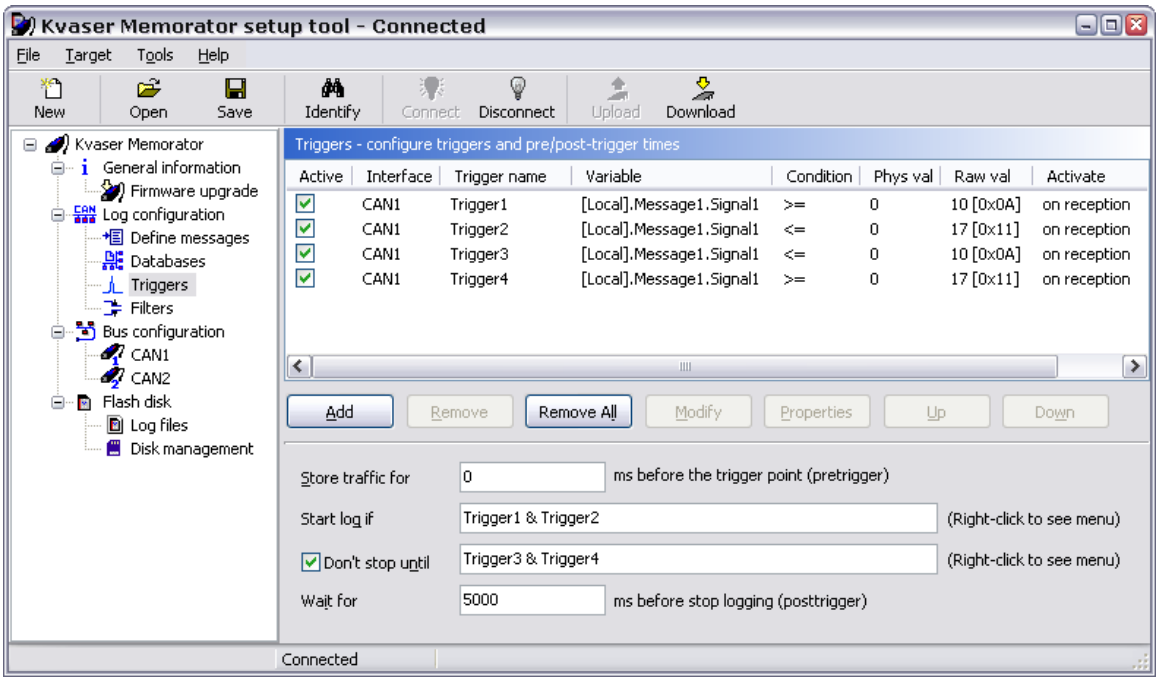

Figure 7. More advanced triggers.

2. The *Start log if* expression is an expression that should evaluate to true when the Kvaser Memorator should start logging. Since we want it to start logging when the signal is between 10 and 17 we should enter: 'Trigger1 & Trigger2' (see **Figure 1**). So when the signal is received and the value is >= 10 and <= 17 the *Start log if* expression will evaluate to true and the Kvaser Memorator will start logging.

3. Since we also want the logging to stop if the signal value is < 10 and > 17 we have to enter the *Don't stop until* expression: 'Trigger3 & Trigger4' (See **Figure 7**).

NOTE: The trigger expressions can be checked by pressing F6.

With the trigger configuration above the Kvaser Memorator will start logging when a signal with a value between 10 and 17 is received. It will also stop logging when a signal with a value smaller than 10 or larger than 17 is received.

The trigger part of the configuration is now ready to be downloaded to the Kvaser Memorator.

5 Trig on an Error Frame

Set up the Kvaser Memorator to log traffic before and after the detection of Error Frames.

1. Click on Log configuration in the main treeview and uncheck the *Log everything* checkbox. Go to Triggers in the main treeview and add a trigger for a special event (red in **Figure 8**). Select *Error Frame*.

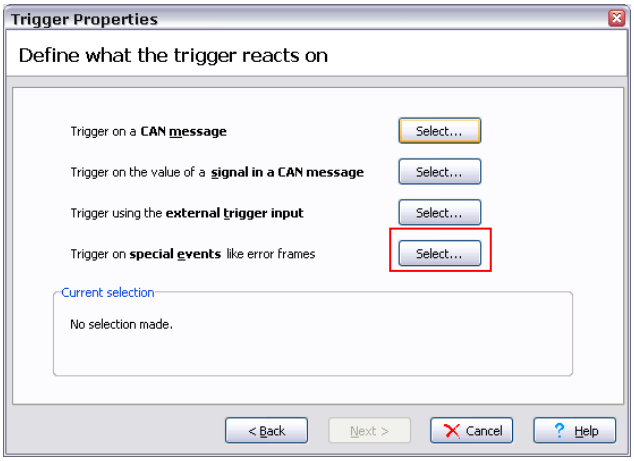

Figure 8. Selecting Error Frame trigger.

2. Enter the name of the trigger in the *Start log if* field.

3. Since we want to record what traffic both before and after the Error Frame we have to set up both a pretrigger and a posttrigger. If we want to capture everything for 500ms before the Error Frame and 500ms after the Error Frame we should set the *Store traffic for* (pretrigger) and *Wait for* (posttrigger) fields to 500 (see **Figure 9**).

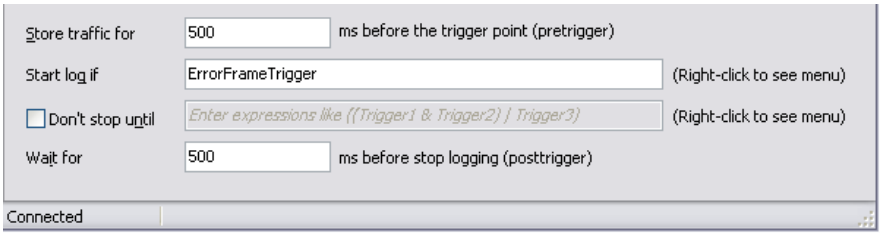

Figure 9. Pre- and Post-triggers.

6 Trig Using an External Trigger

It is possible to configure Kvaser Memorator to trig on a trig pulse using an external button.

1. Click on Log configuration in the main treeview and uncheck the *Log everything* checkbox. Then go to Triggers in the main tree view and click at the add button. Choose channel 1 on the first page in the wizard (red in **Figure 10**). In the trigger properties select external trigger input.

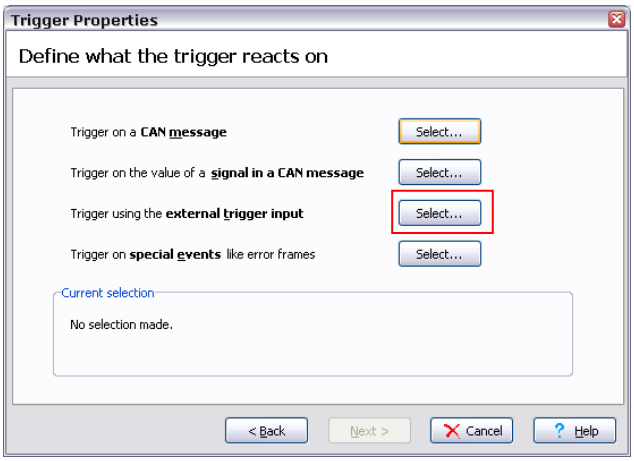

Figure 10. Selecting external trigger.

2. There are two ways to create an external event for the trigger to activate on.

   * Connect pin 4 to ground (for example pin 3) or
   * Connect 5V to pin 4.

   If Kvaser Memorator is set to trig on *Falling edge* the trigger is activated when pin 4 is connected and if it is set to trig on *Rising edge* the trigger is activated when pin 4 is disconnected (see **Figure 11**).

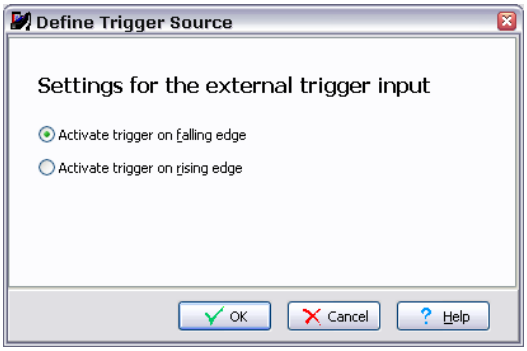

Figure 11. Selecting external trigger properties.

3. Type the name of the trigger in the *Start Log if* field and change the *Store Traffic for* and *Wait for* fields to something suitable if pre and post trigger logging is desired.

7 Document revision history

Revision	Date	Changes
1	2006-09	Original revision
2	2006-11-09	Reviewed – no major changes