Kvaser Memorator Setup Tool Example

This example will guide you through the creation of a useful configuration, engender two log files and help you to convert the logged files into different file formats for analysis. The example will also show you how to display a logged file in CANalyzer.



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2 Example Overview

This guide will help you to create a configuration that contains two triggers that each for it self can start the logging with Kvaser Memorator, one stop trigger that as the name applies will stop the logging and four filters to be able to minimize the log files from any uninteresting CAN messages. Further on this guide will help you to extract and convert the created log files to four different file formats for analysis. We will also replay one of our logged files in CANalyzer.



3 Create Configuration

To begin with we will create the configuration. To be able to create the triggers and filters we will use the example database file that comes with the installation of Kvaser Memorator setup tool. Start Kvaser Memorator setup tool from the start menu on your computer. You will find the application at **Start | Programs | Kvaser Memorator | Kvaser Memorator Setup Tool**. Click at the *New* button at the toolbar of the application to be sure that you will start with a new and clean version.

3.1 Add Database file

To be able to create our triggers and filters we must have access to a number of CAN messages and signals. We will therefore add a database file to our configuration.

• Click at *Log Configuration* and then *Databases* in the tree view to the left in the application, see Figure 1.



Figure 1. Databases.

- Click at the Add button. The Select Database window will be shown. See Figure 2.
- Click at the *Browse* button and browse to the Samples subdirectory in the directory where you installed the setup tool (which normally is C:\Program Files\KVASER\KvaConfigV2). Click at the file ExampleDatabase.dbc.
- Let the CAN Database (.dbc) box be checked.
- Check both of the CAN1 and CAN2 boxes.
- Click at the OK button.



61	3	4۱
U	J	4)

🎒 Select Database	×						
Database file: C:\Program Files\KVASER\KvaConfigV2\Samples\ExampleDatabase.dbc							
Browse							
Database information Size: 1745 bytes, Date: 3/21/2003 10:08							
Database format							
Cancel ? Help							

Figure 2. Add Database.

• You should now be able to see the added database file in the list of database files as shown in Figure 3 below.

🕅 Kvaser Memorator setup to	ol 📃 🗖 🔁
<u>File T</u> arget T <u>o</u> ols <u>H</u> elp	
1 🗳 🖬 New Open Save	Identify Connect Disconnect Upload Download
🖃 🥒 Kvaser Memorator	Databases
 General information Firmware upgrade 	Interface Format Filename
Generation G	All dbc C:\Program Files\KVASER\KvaConfigV2\Samples\ExampleDatabase.dbc
	Select one or more database files (dbc or uef format). Each file is associated with one or more interfaces. The databases are used when defining triggers and filters, and can also be used when extracting data from the log files.
	Add Modify Remove All

Figure 3 List of Databases.

3.2 Add Triggers

Now when the database file is added we can start to create our triggers. The first trigger should be a start trigger that will make Kvaser Memorator to start its logging when the signal door_pos's value becomes 1. The signal belongs to the message I_door with the identifier 0.

• Click at *Log Configuration* in the tree view and uncheck the *Log Everything* box. This should never be checked when using triggers.



- Click at *Triggers* under *Log Configuration* in the tree view.
- Click at the *Add* button. See Figure 4.

💐 Kvaser Memorator setup to	ool								×
<u>File T</u> arget T <u>o</u> ols <u>H</u> elp									
1 🚰 🖬 New Open Save	Identify Connec	Disconnect	Upload I	Download					
🖃 🏉 Kvaser Memorator	Triggers - configure trig	gers and pre/post	-trigger time						
 i General information i General information 	Active Interface	Trigger name	Variable		Condition	Phys val	Raw val	Activate	
Constant Log configuration									
• Define messages									
Databases									
Filters									
Bus configuration									
CAN1									
🖃 🖻 Flash disk									
🔲 Log files 🦷 🗒 Disk management									
	<								>
	Add Rer	nove Remov	re All	Modify	Propertie	es	Up	Do <u>w</u> n	
	Store traffic for	0	ms bero	ire the trigge	er point (pret	rigger)			
	Start log if	Enter expressions	s like ((Trigg	er1 & Trigge	ur2) Trigger	3)	(Right-click	to see menu	J)
	Don't stop u <u>n</u> til	Enter expressions	s like ((Trigg	er1 & Trigge	v2) Trigger	3)	(Right-click	to see menu	J)
	Wait for	5000	ms befo	re stop logg	ing (posttrig	ger)			

Figure 4 Triggers.

A wizard will be shown that will help you to add the trigger. See Figure 5.

- At the first page in the wizard you should change the name of the trigger from Trigger1 to Door_pos_left.
- Let Interface be CAN1.
- Protocol should be set to *None*. Click at the *Next* button.



Trigger Properties		×
Define or cha	nge a trigger	
This wizard will help y	vou define a trigger.	
<u>I</u> rigger name	Door_pos_left	
Interface		
Protocol		
	< Back Next > Cancel ? Help	

Figure 5. Add trigger.

At the second page we will define what the trigger should react on.

• Click at the *Select* button at *Trigger on the value of a signal in a CAN message*. See Figure 6.



Trigger Properties

Define what the trigger reacts on	
Trigger on a CAN <u>m</u>essage	Select
Trigger on the value of a signal in a CAN message	Select
Trigger using the external <u>t</u>rigger input	Select
Trigger on special <u>e</u>vents like error frames	Select
Current selection	
No selection made.	
< <u>B</u> ack <u>N</u> ext >	Cancel ? Help

Figure 6. Define what the trigger reacts on.

- Choose the signal door_pos that belongs to the message I_door and click at the *OK* button. See Figure 7.
- Click at the Next button.

🛃 Define Trigger So	urce		×
Tree view List view			
Database	Message	Signal	
邱 yExampleDatabase	l_door	window_pos	
命()ExampleDatabase	l_door	door_pos	
和 yExampleDatabase	r_door	door_pos	
和 yExampleDatabase	r_door	window_pos	
命 yExampleDatabase	steering_wheel_2	cruise	
命 yExampleDatabase	steering_wheel_2	indicator_left	≡
命 yExampleDatabase	steering_wheel_2	indicator_right	
命 yExampleDatabase	steering_wheel_1	window_left_down	
命 yExampleDatabase	steering_wheel_1	window_right_down	
和 yExampleDatabase	engine_1	Data1	
和 yExampleDatabase	engine_1	Data2	
和 yExampleDatabase	engine_1	Data3	
和 yExampleDatabase	engine_1	Data4	
和 yExampleDatabase	engine_1	Data5	
和 yExampleDatabase	engine_1	Data6	
和y ExampleDatabase	engine 1	Data7	×
View details			
	С ок	X Cancel ? Help	,

Figure 7. Define trigger source.



Since we have chosen a signal, we should define some conditions for the trigger. We want to start the logging when the value of our signal becomes 1.

- Enter 1 as value. See Figure 8. Watch out for hexadecimal and decimal adjustment. You can change the default setting for this at **File | Preferences**. Check or uncheck the Use hexadecimal numbers where applicable box depending on desired format.
- Let Activate be on reception.
- Click at the *Next* button.

Trigger Propert	ties	×
Define the	trigger conditions	
Condition	Equal to	
Value		
	Enter the trigger value as actually sent on the bus.	
	0x1	
	Calculate Press the button to calculate the raw value from the physical (scaled) value.	
Activate	on reception	
	< <u>Back</u> <u>N</u> ext > X Cancel ? <u>H</u> elp	2

Figure 8. Define trigger conditions.

The wizard will now show your trigger setup. Compare your trigger setup with the one at Figure 9. It should be the same.

• Click at the *Finish* button.



Trigger Properties	×Ì
Your trigger setup	
Trigger Properties	
Trigger name Door_pos_left Interface CAN1 Trigger type Trig on ExampleDatabase.l_door.door_pos Protocol None Condition Equal to Raw value 0x01 Phys value 1 Activate on reception	
< <u>B</u> ack <u>Finish</u> Cancel <u>? H</u> elp	כ

Figure 9. Trigger setup.

The trigger should be shown in the trigger list. Now it is time to add the second start trigger. This time we want Kvaser Memorator to start its logging when the message r_door with the identifier 1 is sent on the CAN bus.

- Click at the *Add* button once again.
- Name the trigger Door_msg_right.
- Click at the *Next* button on the wizard.
- Click at the *Select* button at *Trigger on CAN message* this time. Choose the message called r_door from the list view. Click at the *OK* button.
- Click at the Next button and then at the Finnish button.

You should now be able to see the two triggers in the trigger list as in the Figure 10 below.



Kvaser Memorator setup tool	
Die Lander Topos Deuty Deuty Deuty Image: I	
Image: Second pure lingers and pre/post-trigger times Image: Second pure lingers Image: Second pure lingers Image: Second pure lingers Image: Second pure linger Image: Second pure lingers Image: Second pure linge	
Add Remove All Modify Properties Up Down	
Store traffic for 0 ms before the trigger point (pretrigger)	
Start log if Enter expressions like ((Trigger 1 & Trigger 2) Trigger 3) ((Right-click to see menu)
Don't stop until Enter expressions like ((1ngger1 & Trigger2)) Trigger3) (Wait for 5000 ms before stop logging (posttrigger)	(Right-click to see menu)

Figure 10. List of triggers.

Finally, we will add the trigger that should stop the logging.

- Click at the *Add* button again and name this trigger Engine.
- Click at the *Select* button beside *Trigger on a CAN message* as before at the *Define* what the trigger reacts on page in the wizard.
- Select the message *engine_1* in the list view.
- Click at the OK button.
- Click at the *Next* button in the wizard.
- After checking the Trigger setup page in the wizard, click at the *Finnish* button.

You should now be able to see our 3 triggers in the trigger list. The last settings to be made for the triggers are the pre and post trigger values and to write the start and stop trigger conditions.

- Write 3000 in *Store traffic for.*. below the trigger list, which means that all CAN messages that we don't filter out will be logged in 3 seconds before our trigger becomes true. See Figure 11.
- At *Start log if* you should write: **Door_pos_left | Door_msg_right** as you can see in Figure 11. This means that Kvaser Memorator will start its logging if the condition for either *Door_pos_left* or *Door_msg_right* becomes true.
- Check the *Don't stop until* box and write: **Engine**. When this trigger comes true the logging will stop.



• Write 3000 at *Wait for.*. See Figure 11. We want the logging to go on until 3000 milliseconds after we have received the stop trigger message.

📕 Kvaser Memorator setup to	ol - Connected							
<u>Eile T</u> arget T <u>o</u> ols <u>H</u> elp								
New Open Save	Identify Connec	t Disconnect	Lipload Download					
🖃 🥒 Kvaser Memorator	Triggers - configure tri	ggers and pre/po	st-trigger times					
 General information Eirmware ungrade 	Active Interface	Trigger name	Variable	Condition	Phys val	Raw val	Activate	HLP
CON Log configuration	CAN1 [Door_pos_left	ExampleDatabase.l_door.window_pos		0	1 [0×01]	on reception	None
Define messages	CAN1 E	Engine	ExampleDatabase.r_uoor ExampleDatabase.engine 1	-	-	-	on reception	None
		-						
Filters								
A CAN1								
CAN2								
E Log files								
🔤 Disk management								
	Add Rer	move Remo	ove All Modify Properties	L Lp		Do <u>w</u> n		
	Store traffic for	3000	ms before the trigger point (pretrig	jger)				
	Start log if	Door_pos_left	Door_msg_right				(Right-click to see n	nenu)
	🗹 Don't stop u <u>n</u> til	Engine					(Right-click to see n	nenu)
	Wait for	0	ms before stop logging (posttrigge	r)				
	Connected							

Figure 11. Trigger settings.

Now that our triggers are set, we are going to add the filters.

3.3 Add Filters

We will create four filters. It is important to understand that the filters are evaluated before the triggers, which means that the identifiers of our triggers must pass the filters otherwise the triggers will never come true.

• Click at *Log Configuration* in the tree view and then at *filters*. See Figure 12.



🛃 Kvaser Memorator setup to	tool	
<u>File T</u> arget T <u>o</u> ols <u>H</u> elp		
🏠 😅 🖬 New Open Save	Identify Connect Disconnect Upload Download	
🖃 🏉 Kvaser Memorator	Filters - setup message filters	
 i General information i Firmware upgrade 	Active Interface Message Id/Pgn Type Protocol	
 Graduation Graduation Graduation Graduation Filters Graduation Graduation	Use filters to limit the number of logged messages. The filters are evaluated before the triggers, so watch out and don't filter away mess used in the triggers! Add Remove Add Remove	ages

Figure 12. Filters.

- Click the *Add* button. A wizard will be shown and help you to define the first filter. See Figure 13.
- Let the CAN1 and CAN2 boxes be checked.
- Click at the *Next* button.

🛃 Define filter	×
Define or change a filter	
This wizard will help you define a filter.	
First, choose the channel(s) you want the filter to work on.	
CAN1	
CAN2	
< Back Next > X Cancel ? Help]

Figure 13. Define filter.

• Don't choose a higher layer protocol, just let the *None* box be checked. See Figure 14.



• Click at the *Next* button on the wizard.

🕽 Define filter 🛛 🔀
Choose HLP
Choose the higher layer protocol you are using.
● None
◯ J1939 mode
< Back Next > Cancel ? Help

Figure 14. Choose HLP.

Now you will be able to see the messages from the database again in either a tree view or a list view.

• Click at the *I_door* message and click at the *Next* button. See Figure 15.

🛃 Define filter					
Choose one or more messages					
Tree view List view					
Database	Message	Id	DLC		
ExampleDatabase	l_door	0 [0×0]	8		
ExampleDatabase	r_door	1 [0×1]	8		
ExampleDatabase	steering_wheel_2	2 [0×2]	8		
ExampleDatabase	steering_wheel_1	3 [0×3]	8		
ExampleDatabase	engine_1	4 [0×4]	8		
ExampleDatabase	gateway_1	5 [0×5]	8		
ExampleDatabase	gateway_2	6 [0×6]	8		
]	
	< <u>B</u> ack	<u>N</u> ext >	X Cancel	<u>? H</u> elp	

Figure 15. Choose message.

- Check the Pass filter box if not already checked. See Figure 16.
- Click at the *Finish* button.





Figure 16. Choose filter type.

You should now be able to see the created filter in the filter list. See Figure 17.

• Create three more filters for the messages: r_door, engine_1 and gateway_1. You should then be able to see all four filters like in the filter list at Figure 17.

🛃 Kvaser Memorator setup to	bol				
<u>File T</u> arget T <u>o</u> ols <u>H</u> elp					
🎦 😅 🖬 New Open Save	Identify Connect Disconnect Upload Down	त त			
🖃 🏉 Kvaser Memorator	Filters - setup message filters				
General information	Active Interface Message	Id/Pgn Type	Protocol		
Firmware upgrade	CAN1,CAN2 ExampleDatabase.l_door	0 [0x0000] Pass	None		
Define messages	CAN1,CAN2 ExampleDatabase.r_door	1 [0×0001] Pass	None		
Databases	CAN1,CAN2 ExampleDatabase.engine_1	4 [0×0004] Pass	None		
Triggers	CAN1,CAN2 ExampleDatabase.gateway_1	5[UXUUU5] Pass	None		
Filters					
CAN1					
anz					
🖻 🖷 🖪 Flash disk					
Disk management					
	a construction of the second				
use nuers to innic the number or logged messages. The nicers are evaluated before the triggers, so watch out and don't nicer away in used in the triggers!					
	Add Remove Remove All	Modify Up	Do <u>w</u> n		

Figure 17. List of filters.

Now we are done with the triggers and filters.



3.4 CAN Channels Settings

To be able to log any traffic on the CAN bus, it is imported that Kvaser Memorator is configured with the same bit rate as all the other CAN equipment. In this example we have chosen to set the bit rate to 1 Mbit/second. Change this to fit your own CAN settings.

Click at *Bus configuration* and then *CAN1* in the tree view.

Let the Enter bus parameters box be checked.

Check the 1 Sample box.

The bit rate 1 Mbit/second is set by default when you first start up Kvaser Memorator setup tool. Change the bit rate to 1Mbit/second if it is not already. See Figure 18.

Choose 1 at the SJW box.

Uncheck the *Silent Mode* box if Kvaser Memorator should be the only device connected to the CAN bus.

💕 Kvaser Memorator setup to	pol				
<u>File Target Tools H</u> elp <u>D</u> el	bug				
🎦 😅 🖬 New Open Save	Identify Conne	ect Disconnect Upload Downle			
🖃 🎻 Kvaser Memorator	CAN Channel 1 settin	ngs			
i General information	 Enter bus param 	eters 🔿 Enter chip para	ameters		
* Define messages	Current settings				
🚆 Databases	Bitrate:	1000000 bits/s	BTRO/1:	[0x00]/[0x14]	
Triggers	Sampling point:	75 %	Silent mode:	Not Activated	
Bus configuration	Samples:	1	High-speed mode:	Not Activated	
CAN1	SJW:	1	J1939 mode:	Not Activated	
CAN2	Bus parameters				
W Kvaser Memorator II	Bitrate and	1000 kbite/e 75%	Salact ather	Samples	
	sampling point:	1000 10103/3) 1010	<u>Delect ocher</u>	I Sample	
	SJW:	1 💌		O 3 Samples	
	Chie annual ann				
	Chip parameters	The chin par	ameters are beyadecimal.	numbers and are entered in 82c200 styl	le assuming a 16 MHz CAN clock
	BIRU:	For example	, 0x00 and 0x14 for 1 Mbi	t/s.	
	BTR1:	14			
	Options				Default settings
	Silent mode - th	e device doesn't transmit anything.			Use current
	High-speed mod	de (single-wire CAN only)			Applies to bitmete and the different
	11939 mode				modes.

Figure 18. Bus configuration.

Now the settings for channel 1 are done. Make the same settings for channel 2.

Connect and Download

Now we are ready to download our configuration to Kvaser Memorator.

- Make sure that your Kvaser Memorator is connected via the USB cable to your computer. Read more about how to install and connect Kvaser Memorator in the *Getting Started Guide.pdf*.
- Click at the *Connect* button at the toolbar.



• A wizard to select the device to work with will be shown. See Figure 19.

No. Select Device			X
Select device to w	ork with		
Device	S/N	Location	
Vise a device other than a Kv Check this box if you want to reasuch as an external SD/MMC car	696 aser Memorator Id data from a dev I reader.	USB connector 1 vice other than a Kvaser Memorator,	
< Back	Next >	Cancel ? Help	

Figure 19. Connect.

- Click at the *Next* and then at the *Finish* button.
- You should now be able to see the LEDs on Kvaser Memorator flash in a running light pattern. The Connect button should be greyed and not clickable.
- Click at the *Download* button at the toolbar.
- Press yes at the question: Do you want to download the configuration? The old configuration will be overwritten.
- Now that the configuration is downloaded to Kvaser Memorator, it is time to start the logging.



4 Create the Log File

By using any kind of CAN analysing software you are able to send the messages that we have defined in our configuration. To be able to create one or more log files, you need to:

- Remove the USB connector from Kvaser Memorator before you can start logging.
- Connect Kvaser Memorator to a CAN bus where you are able to send the messages defined in the database file we have used. If you don't have the possibility to send the messages we are using, you will need to change your configuration to fit the messages you are able to receive.
- Read the *Getting Started Guide.pdf* to learn more about installation and cabling of Kvaser Memorator.
- Connect both channels on Kvaser Memorator to the CAN bus.
- When Kvaser Memorator is connected the green LED should start flashing slowly. If not, you may not have power connected to the CAN bus. Kvaser Memorator need power supply on its channel 1. Read more about this at the *Getting Started Guide.pdf.* Now Kvaser Memorator is ready to start the logging.

4.1 Start Sending Messages

We will send the message Gateway_1 periodically during the whole logging procedure. After a while we will send the start trigger message that will make Kvaser Memorator start to log. Some seconds later it is time to send the stop trigger message and after 3000 milliseconds Kvaser Memorator will stop the logging.

- Send the message Gateway_1 with the identifier 5 once every 100 millisecond. This message will pass our filter but will not cause Kvaser Memorator to start log. When one of our trigger conditions becomes true, Gateway_1 will be logged approximately 3000 milliseconds before the trigger condition came true. To be able to get a nice graph when analysing the logged files in for example ATI Apollo or CANalyzer, try to vary the first byte in the gateway message.
- Set the value of the signal dor_pos that belongs to the message called I_door with the identifier 0 to 1 and send it once.
- Kvaser Memorator should now start log and keep logging. You can see that it is logging by watching the green LED pwr that should be flashing quite fast while logging. The yellow LEDs CANI and CANII should be flashing once for every message that is sent on the bus.
- After some seconds, send the message engine_1 with the identifier 4 to stop the logging. The logging should stop and the green LED should stop flashing fast after approximately 3 seconds. The first log file is created.
- Keep sending the Gateway_1 message with identifier 5 every 100 milliseconds.
- Send the message called r_door with the identifier 1 once.



- Kvaser Memorator should now start to log and keep logging until we send the stop trigger message. You can see that it is logging by the green LED pwr that is flashing fast again.
- After a few seconds, send the message engine_1 with the identifier 4 to stop the logging. The logging should stop and the green LED should stop flashing fast after approximately 3 seconds. The second log file is created.
- We have created two log files. Now it is time to extract and convert these files to a readable format.



To be able to view and analyse the two logged files we must extract and convert the files to a readable format. We have chosen to convert the logged files to Vector ASCII format and later replay the files in CANalyzer.

5.1 List the Log Files

Before we can extract and after that convert the log files, they have to be listed.

- Connect Kvaser Memorator to your computer by the USB cable again.
- Click at the *Connect* button at the toolbar and proceed as you did before.
- Click at *Flash disk* and then *Log files* at the tree view. See Figure 20.

🛃 Kvaser Memorator setup to	pol - Connected	
<u>File T</u> arget T <u>o</u> ols <u>H</u> elp		
🏠 🚔 🛃 New Open Save	Identify Connect Disconnect Upload Download	
🖃 🏉 Kvaser Memorator	Log files	
 i General information i General information 	File number Events Creation date	
Fillinivare upgrade		
Define messages		
Triggers		
📑 Filters		
Bus configuration		
CAN2		
🖃 💿 Flash disk		
Disk management		
	List files Note: this operation can take some time.	
	Extract riles	
		Carry
		Сору
		Clear
	Connected C:\Program Files\KVASER\KvaConfigV2\Samples\conf.kmc	

Figure 20. Log files.

- When connected, click at the *List files* button. See Figure 20.
- You should now be able to see the two log files in the list of files as in the Figure 21.



🔊 Kvaser Memorator setup to	pol - Connected
Eile <u>T</u> arget T <u>o</u> ols <u>H</u> elp <u>D</u> et	bug
New Open Save	Mail Identify Connect Disconnect Upload
Kvaser Memorator	Log files
Firmware upgrade	File number Events Creation date
Configuration	□ 1 372 2005-12-2010:15:34 □ 2 372 2005-12-2010:15:50
Define messages	
Triggers	
Filters	
A CAN1	
AN2	
E Flash disk	
📕 Disk management	
	Lieb Files Note: this operation can take some time.
	Extract files
	There are 0 files on the disk.
	I here are 2 hies on the disk.
	Clear
	Connected C:\Documents and Settings\extaî\Desktop\Samples\configurationSample.kmc

Figure 21. List files.

5.2 Extract and Convert

Now when the files are listed, its time to extract and convert the chosen log files to an analysable format.

- All files will be extracted by default if you do not mark any files in the list. If your disk contains more files than you want to extract, just mark the files by pressing the Ctrl button at the same time as you click at the files one by one.
- Click at the *Extract* button. A wizard will start and help you with the necessary steps to make a successful extraction of the two files. See Figure 22.
- The first thing to do is to browse to a place on your computer where you want the converted files to be saved and where you can find them again. We will place our files at the Samples subdirectory in the directory where you installed the setup tool (which normally is C:\Program Files\KVASER\KvaConfigV2). You can find our sample files that come with the installation in C:\Program Files\KvaSer\KvaConfigV2\doc\memo\Samples.
- Let the Overwrite without warning box be unchecked.
- Name the files doorSample at *File options*. See Figure 22.
- Click at the *Append creation date and time* box. This will add creation date and time of the files to the name doorSample as you can see in the *Sample file name* at the bottom of the wizard.
- Click at the *Next* button at the wizard.



🕅 Extract and convert files	\mathbf{X}
File destination	- I
Files will be placed in the following directory:	
C:\Program Files\KVASER\KvaConfigV2\Samples	
Browse	
Overwrite old files	5
Our service and files without unversion	
verwrite old nies without warning	
File options	5
Base name of the files:	
doorSample	
Append creation date and time	
Opon't append anything (all selected Kvaser Memorator files will be merged into one output file)	
-Sample file name	2
C:\Program Hies\KVASER\KVaConrigV2\Samples\doorSample2UU5-12-2U_1U-15-34 <i>.ex</i> r	
< Back Next > Cancel ? Help	

Figure 22. Extract and convert files.

- Check the *Vector ASCII format* box. This makes it possible to use the files in CANalyzer. See Figure 23.
- Click at the Next button at the wizard.



🛃 Extract and convert files	×
Format of the extracted files	
Selected signals in CSV format	
◯ Selected signals in Matlab format for ATI Apollo	
O Kvaser binary format (KME 2.4) - used for Vector CANalyzer	
CAN frames in CSV format	
◯ CAN frames in plain text format	
◯ Kvaser binary format (KME 2.5)	
For more file formats, check out the File Converter in the Tools menu.	
< <u>B</u> ack Next > Cancel ? Help	

Figure 23. Choose format.

- Let the Start of measurement box be checked. See Figure 24.
- Let both channel boxes be checked at the *Extract from*.
- Check the *Write informational header* box to be able to view data like creation date and time.
- Click at the *Finnish* button.



Extract and convert files	
 Time stamp offset Start of measurement First trigger 	Channel 1
Miscellaneous options J1939 mode Include calendar stamps Write informational header	☐ Write identifier in hex ☐ Write data in hex
- CSV file options Separator character , Decimal separator ,	
	< <u>B</u> ack <u>F</u> inish X Cancel ? <u>H</u> elp

Figure 24. Other settings.

The files will now be extracted and converted to .asc format. At the message area at the bottom of Kvaser Memorator setup tool you will get information about each file. See Figure 25.



Vi Kvaser Memorator setup tool - Connected			
<u>File T</u> arget T <u>o</u> ols <u>H</u> elp <u>D</u> e	bug		
New Open Save	Add Identify Connect Disconnect Download		
New Open Sove Open Sove Open Sove Open Sove Open Sove Open Sove New Copensite Open Sove New Copensite Open Sove New Copensite Open Sove New Copensite Open Sove Open Sove Op	Identify Connect Uplad Download Log files File number Events Creation date I 1 372 2005-12-20 10:15:34 I 2 372 2005-12-20 10:15:50 List files Note: this operation can take some time. Extract files There are 2 files on the disk. No file setted: so all files will be converted.		
	Converted file (1) to C:\Program Files\KVASER\KvaConfigV2\Samples\doorSample2005-12-20_10-15-34.asc. Converted file (2) to C:\Program Files\KVASER\KvaConfigV2\Samples\doorSample2005-12-20_10-15-50.asc. Clear		
	Connected C:\Documents and Settings\extal\Desktop\Samples\configurationSample.kmc		

Figure 25. List of log files.

In Figure 26 below you can see part of the first sample file viewed in Notepad. The first trigger is the start trigger and the second is the stop trigger. In the middle we have removed some of the messages to make it possible to view both triggers in the same figure.



doorSample2005-12-20_10-15-3	34.asc - Notepad	
File Edit Format View Help		
15.4550 1 5 15.5546 1 5 15.6543 1 5 15.7451 Trigger: type=0 15.7451 1 0 15.7549 1 5 15.8545 1 5 16.0557 1 5 16.1553 1 5 16.2568 1 5 16.3565 1 5 16.4580 1 5 16.4580 1 5 16.6577 1 5 16.5577 1 5 17.5575 15 17.5575 15 17.55	Rx d 1 40 Rx d 1 66 Rx d 1 D0 00x4, active=0x01, pre-trigger=3000, post-trigger=0 Rx d 8 01 01 00 00 00 00 00 00 Rx d 1 68 Rx d 1 30 Rx d 1 30 Rx d 1 32 Rx d 1 38 Rx d 1 41 Rx d 1 22	
$16.7588 1 5 \\ 16.8585 1 5 \\ 22.2808 1 5 \\ 22.3824 1 5 \\ 22.4820 1 5 \\ 22.6832 1 5 \\ 22.6832 1 5 \\ 22.7828 1 5 \\ 22.7828 1 5 \\ 22.9840 1 5 \\ 23.0855 1 5 \\ 23.1852 1 5 \\ 23.1852 1 5 \\ 23.2867 1 5 \\ 23.3864 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.4860 1 5 \\ 23.6872 1 \\ 23.6872 1 \\ 23$	Rx d 1 91 Rx d 1 90 Rx d 1 10 Rx d 1 10 Rx d 1 10 Rx d 1 41 Rx d 1 4F Rx d 1 4F Rx d 1 4F Rx d 1 02 Rx d 1 02 Rx d 1 02 Rx d 1 2C Rx d 1 2C Rx d 1 53 Rx d 1 53 Rx d 1 CB Rx d 1 CB	m
23.7887 1 5 23.8883 1 5 23.9880 1 5 24.0895 1 5 24.1892 1 5 24.2907 1 5 24.3903 1 5 24.4482 Trigger: type=0 24.4482 1 4 24.4490 1 5 24.5925 1 5 24.6921 1 5	<pre>Rx d 1 12 Rx d 1 12 Rx d 1 33 Rx d 1 33 Rx d 1 9E Rx d 1 0C Rx d 1 0C Rx d 1 0C Rx d 1 F4 0x4, active=0x00, pre-trigger=3000, post-trigger=3000 Rx d 8 01 00 00 00 00 00 00 00 Rx d 1 D5 Rx d 1 D5 Rx d 1 9F</pre>	

Figure 26. Start and stop trigger.

In the sample folder that comes with the installation of Kvaser Memorator setup tool you can also find the two logged files converted to other file formats.

- The files *doorSample2005-12-20_10-15-34.mat* and *doorSample2005-12-20_10-15-50.mat* can be opened and analysed in Matlab and ATI Apollo.
- The files *doorSample2005-12-20_10-15-34.txt* and *doorSample2005-12-20_10-15-50.txt* can be opened and analysed in a text editor.
- The files doorSample2005-12-20_10-15-34.csv and doorSample2005-12-20_10-15-50.csv can be opened and analysed in Microsoft Excel.



6 Analyse logged files in CANalyzer

In this part of the example we will show you how to use the files logged by Kvaser Memorator in CANalyzer. We will analyse the file *doorSample2005-12-20_10-15-50.asc* by connecting it to a replay block and reproduce the messages and signals that was sent on the CAN bus. A graph window will display the logged signals.

• Start CANalyzer and create a new clean configuration. See Figure 27.

🚟 Vector CANalyzer /pro	
Eile Yjew Start Mode Configure Window Help	
🗅 🖆 🖬 🖼 🌠 🏙 🥰 💿 🗙 🗉 🔺 🖾 🎇 Hex 0:00:00	0:51
> Mail · · · · · · · · · · · · · · · · · · ·	
🖺 Statistics 📃 🗖 🗙	🖥 Graphics
Imagy a] Imagy a) Imagy a) 30.0 Imagy a) Imagy a) 18.0 Imagy a) Imagy a) 14.0 Imagy a) Imagy a) 10.0 Imagy a) Imagy a) Imagy a) Imagy a) Imagy a)	
Ext. Data [fr/s] · · · · ·	
Std. Remote [fr/s]	
Ext. Remote [fr/s]	Trace
Ext Renote (Iotal) Erronframe (Irofa) Erronframes (Iotal) Chip state	Time Dhn ID Name Dir DLC Data
📱 Write 📃 🗖 🗙	
Source Message	
All System CAPL	
	KVASER Navinator C\Program Files\CANalyzer

Figure 27. New configuration in CANalyzer.

- Click at **Window | Measurement Setup** to open the measurement setup window. See Figure 28.
- Right click at the square right above the send block and then click at *Insert replay block* in the menu.
- Double click at the inserted replay block.





Figure 28. Measurement setup.

- Write DoorSampleReplay at *replay name*. See Figure 29.
- Browse to the location where the log files are placed and choose the file doorSample2005-12-20_10-15-50.asc. See Figure 29.
- Close the replay configuration window.
- Double click at the PC Board at the measurement setup window and change *baudrate* to 1000 kbit/second.



Replay configuration	X		
General Advanced			
General Replay name: DoorSampleReplay Source file: C:\Program Files\KVASER\KvaConfig Edit			
Output modes Start timing conditions Image: standard Image: start dimension of the start dimensis dimension of			
Keys			
OK Cancel Help			

Figure 29. Replay configuration.

- Right click at the graph block in the measurement setup window.
- Click at Configuration in the menu. The signal selection window will be opened.
- Click at the *Define* button in the *signal selection* window.
- Write 5 at message ID. See Figure 30.
- Name the signal Gateway.
- Click at the OK button.



Message and signal parameters		
Message		
Message ID :	8	
Signal name :	Gateway	
Start bit :	0	
Bit count :	8	
Value type :	Unsigned 💌	
Format :	Intel	
Scaling		
Factor 1	Offset 0 Unit of	
✓ Break database connection (define signal)		
ОК	Cancel Options Help	

Figure 30. Message and signal parameters.

- Define three more signals and name them; Engine with ID=4, Door_msg_right with ID=1 and Door_pos_left with ID=0 as in Figure 31.
- Click the OK button.



S	gnal Selection				
	Name Gateway Engine Door_msg_right Door_pos_left	Unit	Message 5 4 1 0	CANdb User defined User defined User defined User defined	User defined name: Gateway Display Physical Raw value
	<			>	User defined signals: Define Modify
	Add Signal			Delete	
L	OK Car	icel			Help

Figure 31. Signal selection window.

• Click at the *start measurement* button at the main menu bar of buttons.

Figure 32 below displays how the logged file *doorSample2005-12-20_10-15-50.asc* can be viewed and analysed in CANalyzer.





Figure 32. Replay in CANalyzer.

Hope this example has given you a good hint on how to use and get the most out of the Kvaser Memorator suite and of course, don't hesitate to contact our support for further questions.



7 Document revision history

Revision	Date	Changes
1	2006	Original revision
2	2006-11-13	Reviewed, new layout.

