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SCOPE

This document describes some introductions of CANalyzer using.

DOCUMENT REFERENCE LIST

SI.NO	Document Title	Drawing number
1		
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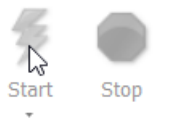
1 INTRODUCTION

This specification is to introduce some function of CANalyzer.

2 How to install CANalyzer

You can get the CANalyzer install package from system lab.
Ask Xing Yanbo.

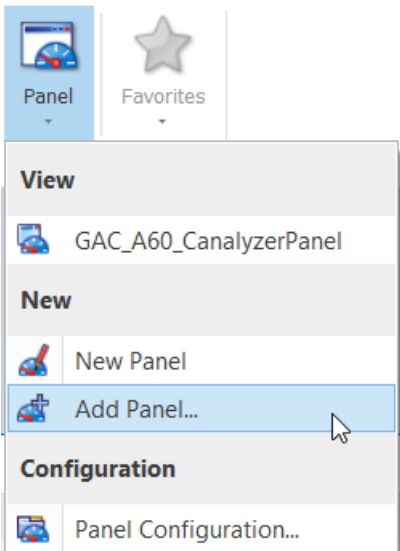
3 How to run and stop CANalyzer



- Click 'start' or 'stop' to control CANalyzer

4 How to add and open pannel window

- In Home menu, select 'Add panel'




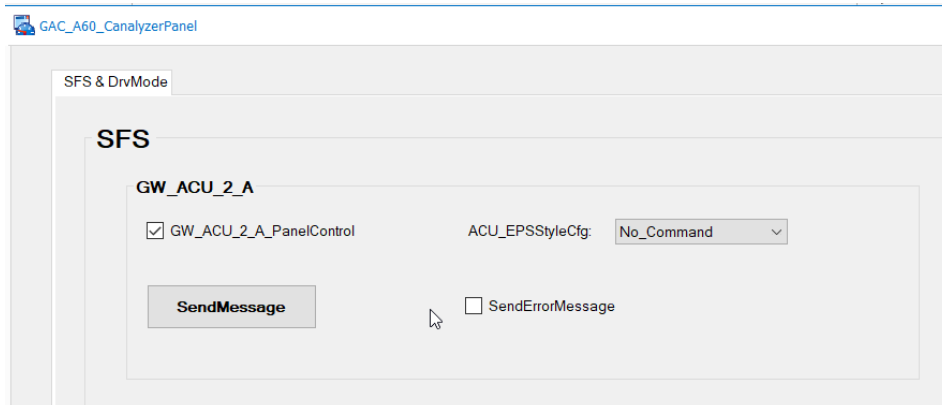
- Select correct .xvp file

Name	Date modified	Type
 GWM_V51_Panel.xvp	2021/3/17 13:44	XVP File

- Open panel window

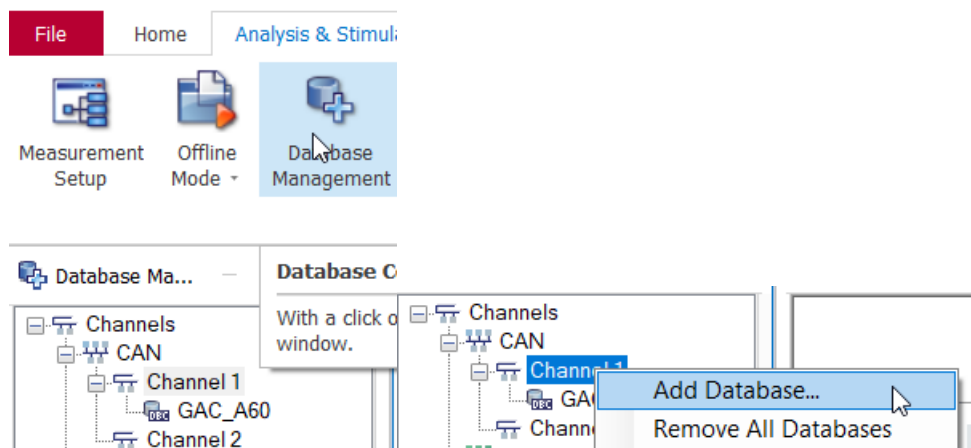
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5 How to add data base

- Select Database Management, right click Channel1,
- Choose 'Add Database'.

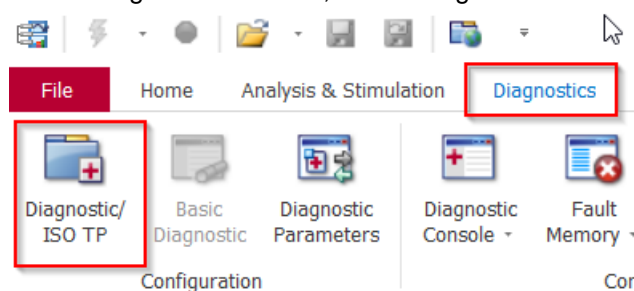


- Select correct dbc file


Name	Date modified	Type	Size
 GWM_V51_CANFD_V1.0 - Copy.dbc	2020/9/22 10:28	DBC File	
 GWM_V51_CANFD_V1.0.dbc	2021/3/17 16:44	DBC File	

6 How to add Diagnostic window

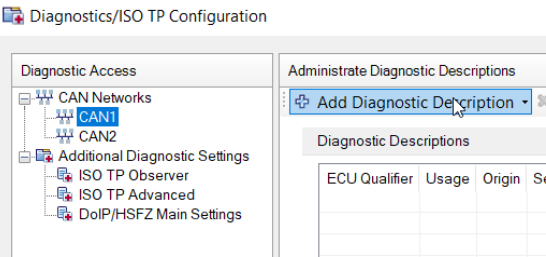
- Under Diagnostics window, select Diagnostic/ISO TP



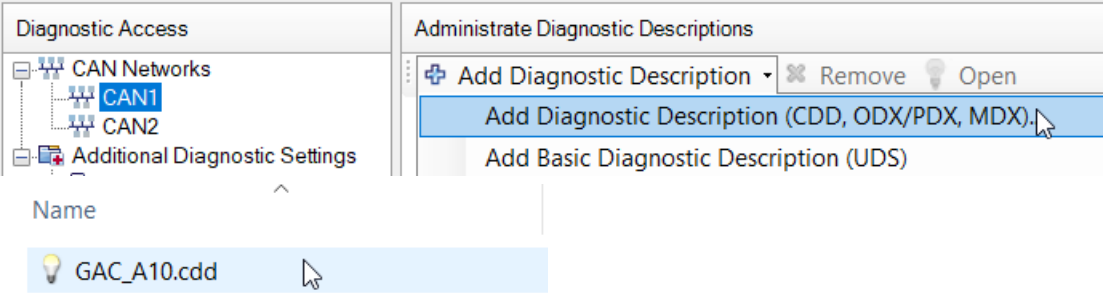
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- Select CAN1, add Diagnostic description file

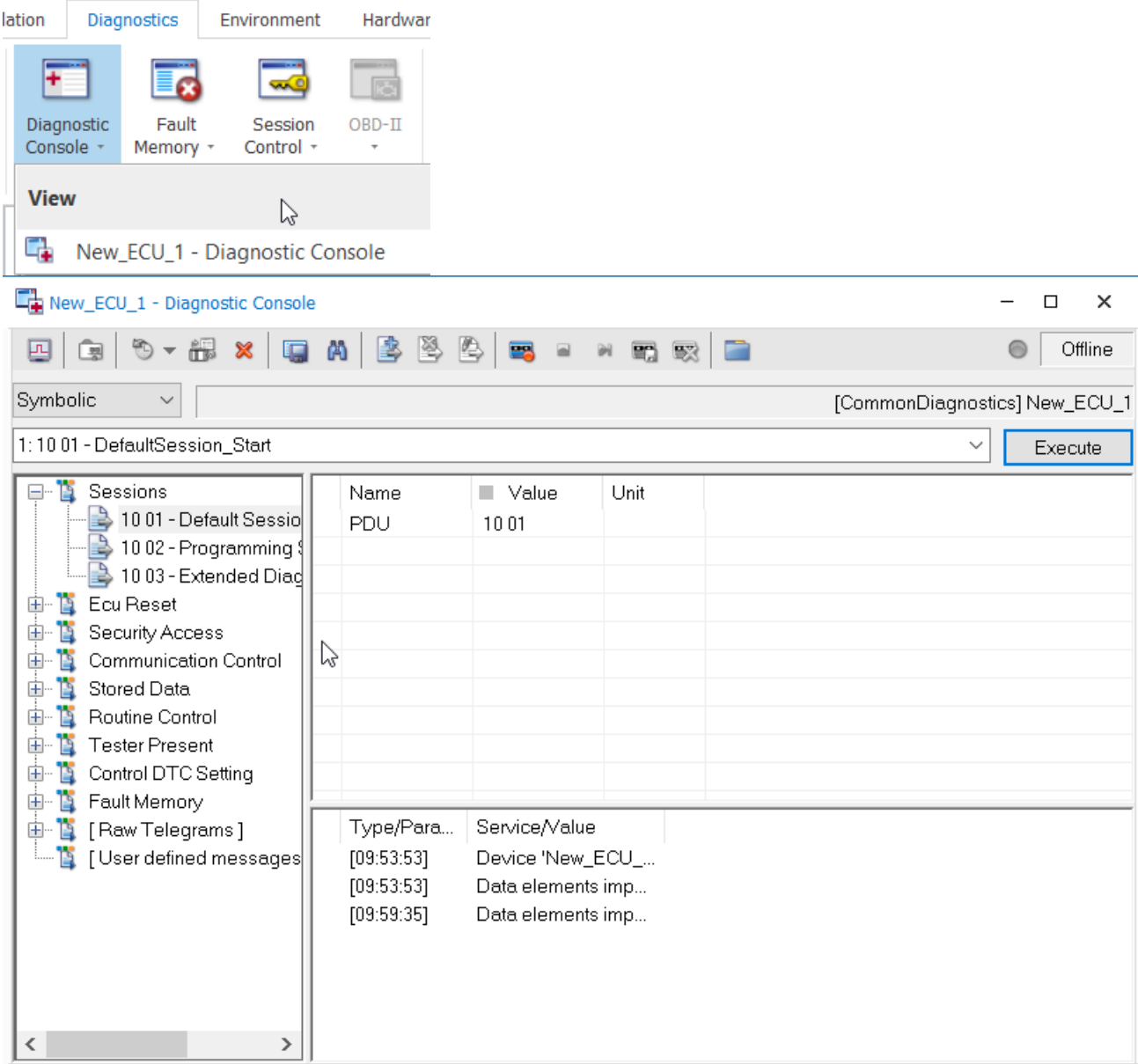


- Select correct cdd Diagnostic description file



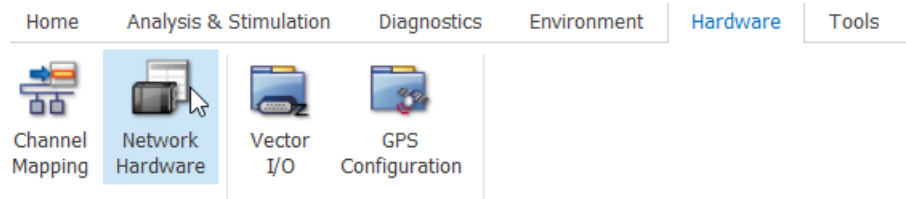
- Then open Diagnostic Console window, we can operate it.

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7 How to change CAN or CAN FD mode

- Select 'Network Hardware'



- Select correct CAN mode

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Network Hardware Configuration

CAN 1

CAN 2

Hardware Sync

CAN channel 1

Type: VN1610

Controller: Vector CAN IP Core

Cab/Piggy: Unknown

Exists: No

CAN Controller

Mode: ISO CAN FD

Baud rate: ISO CAN FD

Data rate: 2000.0 Kbaud

☐ Use database settings

Baud rate and Data rate must settings correct, or maybe can't connect.

8 How to add CAN channel

- Open Channel Usage window, select CAN channel number.

FileHomeAnalysis & StimulationDiagnosticsEnvironmentHardwareToolsLayout

Channel Usage

Channel Mapping

Network Hardware

Vector I/O

GPS Configuration

CANalyzer Options

Measurement

General

Event Sorting

Performance

Data History

Bus Systems / Protocols

Windows / Blocks

Channel Usage

CAN: 2

LIN: 0

MOST: 0

FlexRay: 0

J1708: 0

Eth: 0

Ath: 0

AFDX: 0

A429: 0

K-Line: 0

SENT: 0

☒ Perform consistency check

9 How to change hardware channel

- In Channel mapping window, select correct CAN hardware channel.

FileHomeAnalysis & StimulationDiagnosticsEnvironmentHardwareToolsLayout

Channel Usage

Channel Mapping

Network Hardware

Vector I/O

GPS Configuration

Application Channel Mapping

Activate all

Deactivate Unmapped

Automatic Remapping

Revert Mapping

Status

Application Channel

Active

Hardware

CAN

CAN 1

CAN 2

VN1610 1 Channel 1

Free / Hardware

Transceiver

None

Virtual CAN Bus 1 Channel 1

Virtual CAN

Virtual CAN Bus 1 Channel 2

Virtual CAN

VN1610 1 Channel 1

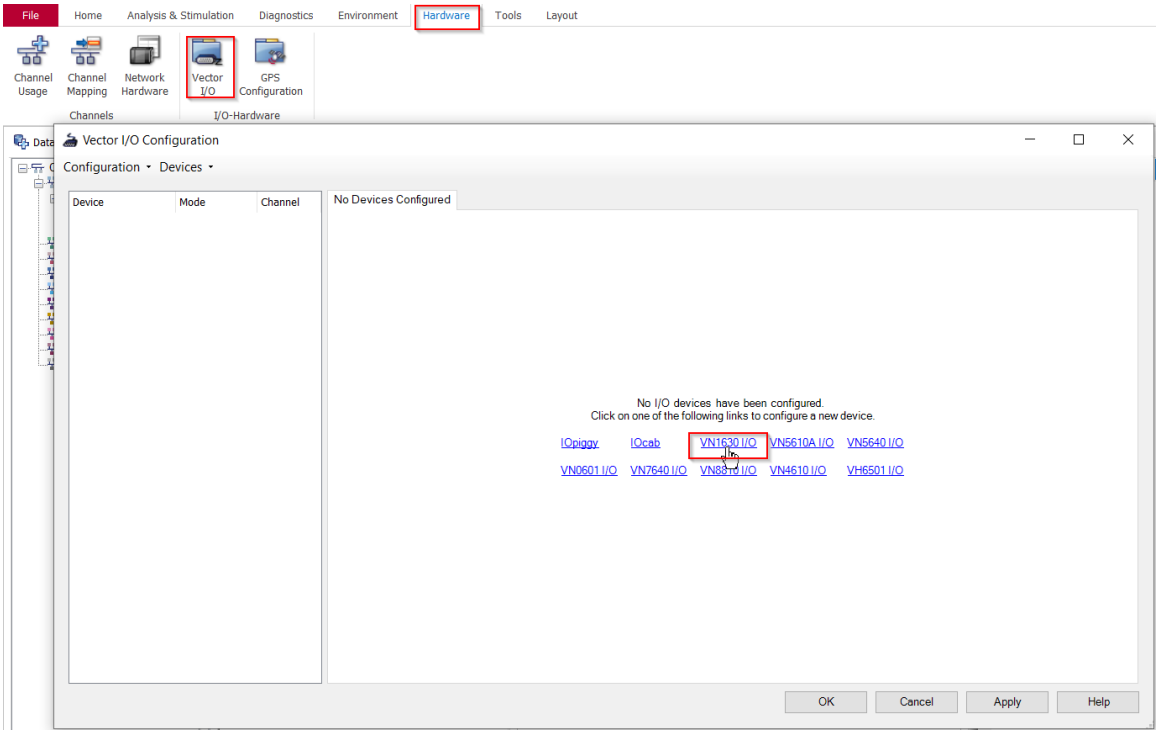
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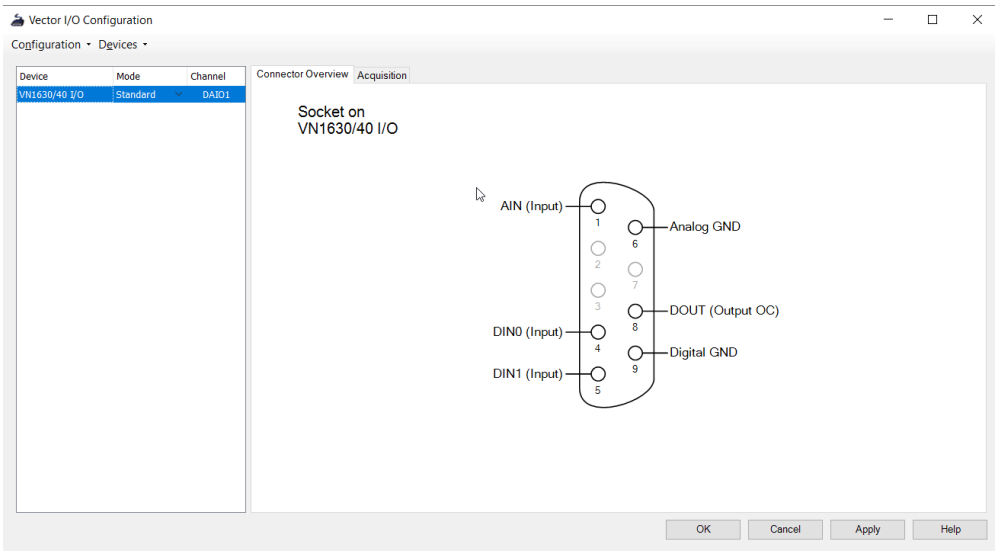
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10 How to add vector IO config


- Open vector IO window, select vector IO device



- Then as below, IO device setting finished.

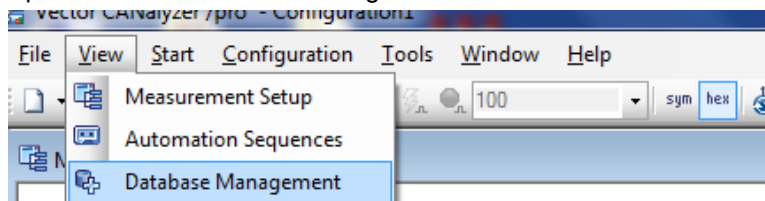


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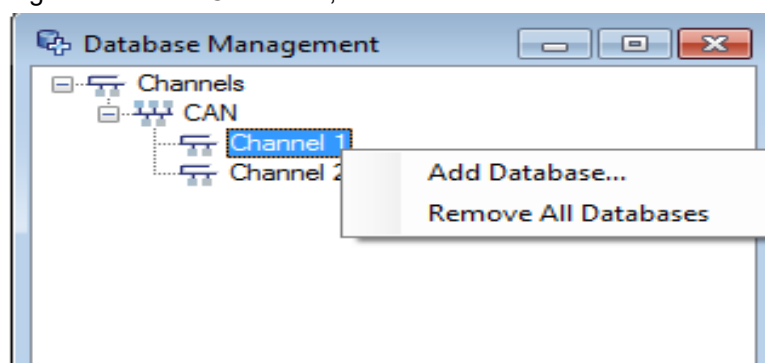
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11 How to insert CAN block to send CAN message

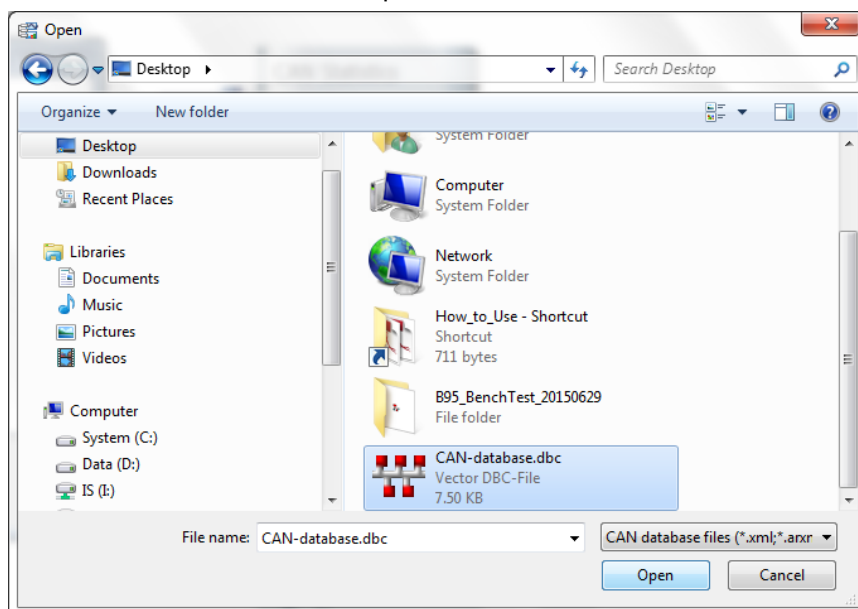
- If you want send the can message by CANalyzer you should add some can blocks first.
- First of all, the dbc file should be ready.
- Open "View→ Database Management".




- Right click at the Channel 1, and choose "Add Database..."



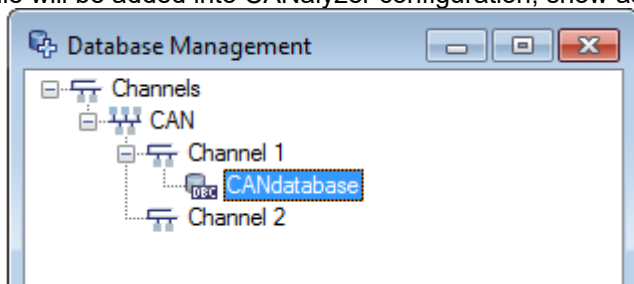
- Select the dbc file, and click "Open".



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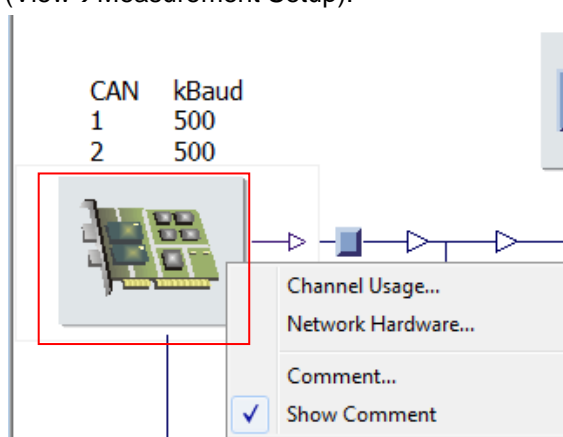
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- Then the dbc file will be added into CANalyzer configuration, show as bellow, and close the “Database

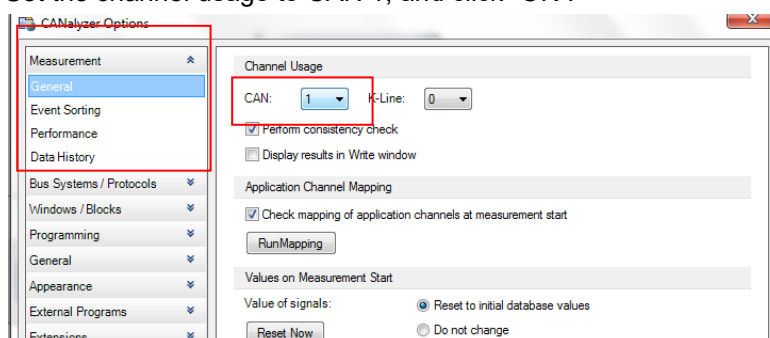


Management”

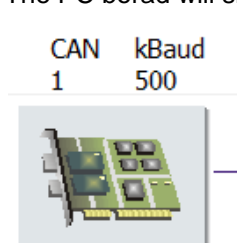
- Assign the CAN channel, right click on the red area. This area is under “Measurement Setup”. (View→Measurement Setup).



- Set the channel usage to CAN 1, and click “OK”.

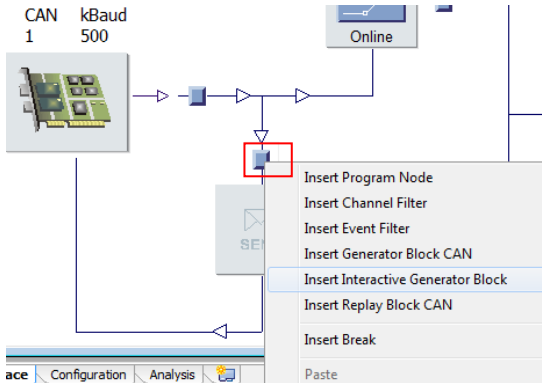


- The PC board will show as bellow.

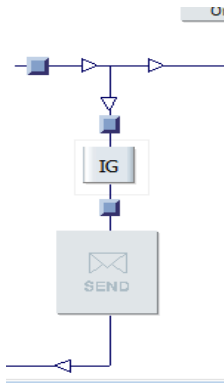


- Right click on the red area, and choose “Insert Interactive Generator Block”.

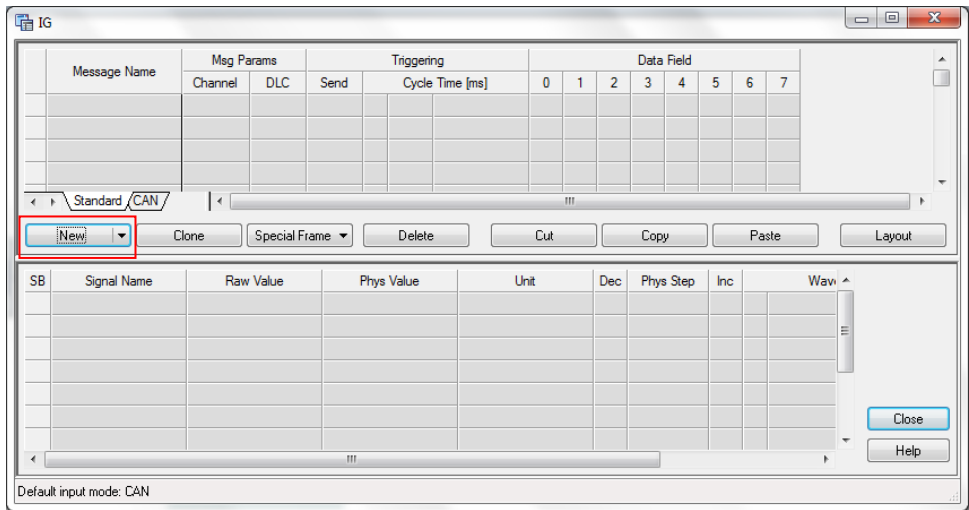
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- The above step will add an “IG” block.

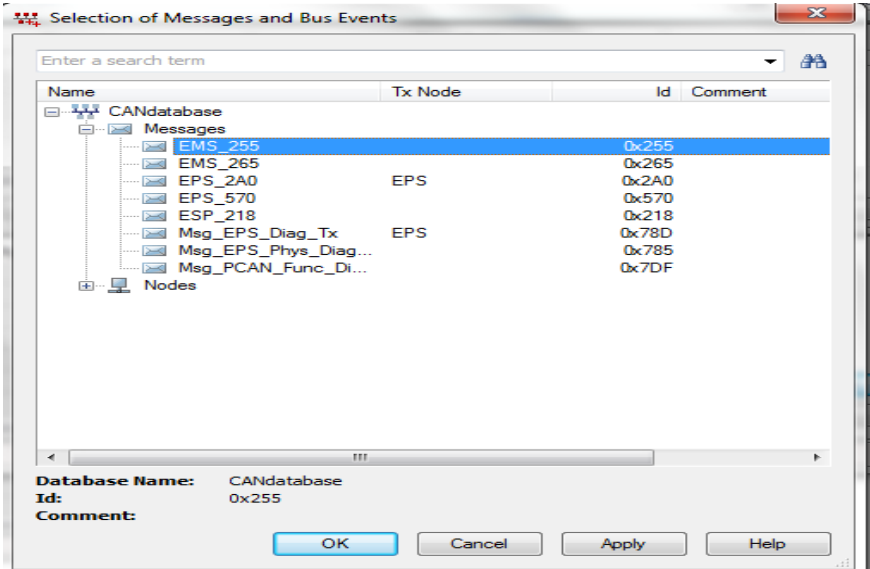


- Double click on the “IG” block.
- It will poped up a window as bellow, click the button “New”.



- It will poped up the following window.

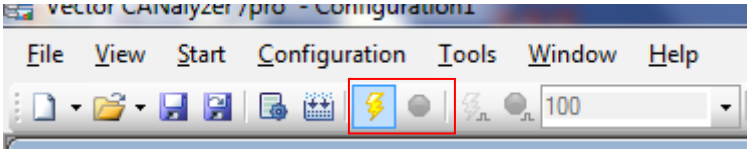
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- Choose the CAN message which you want to send out, and click the button “OK”.
- Choose the cycle time and close the window.

Message Name	Msg Params		Triggering		Data Field							
	Channel	DLC	Send	Cycle Time [ms]	0	1	2	3	4	5	6	7
> CANdatabase::EMS_25...	CAN 1	8	now	<input checked="" type="checkbox"/> 10	0	0	0	0	0	0	0	0

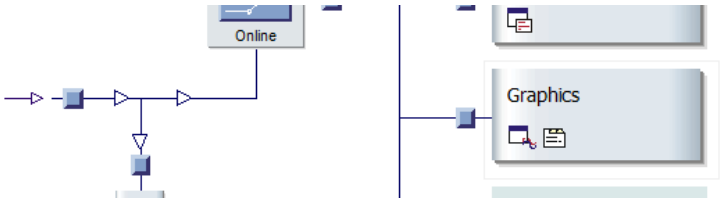
- Click the “Start” button to send out the message.



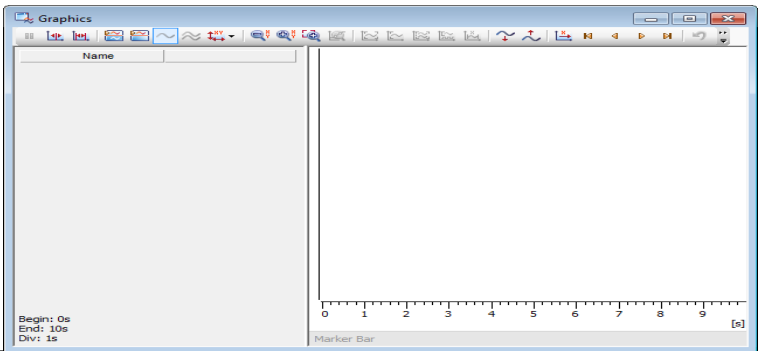
- If the message has checksum and rooling counter, a program node is nessary.

12 How to monitor a can signal as graphics


- Double click on the “Graphics” mode.



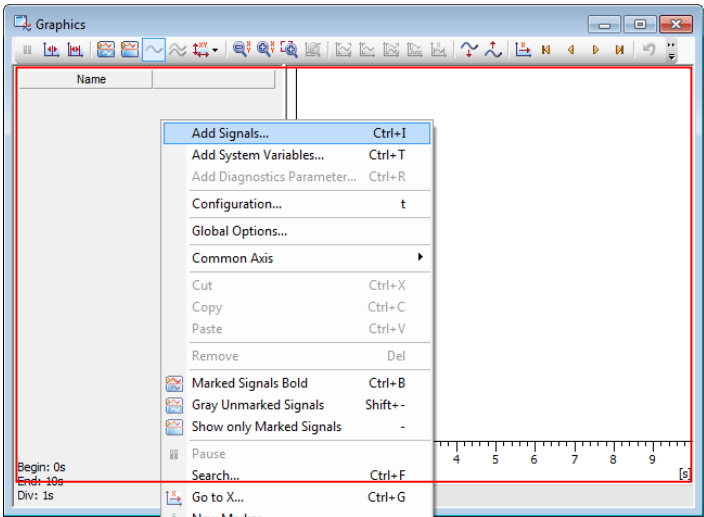
- The Graphics window will be popped up.



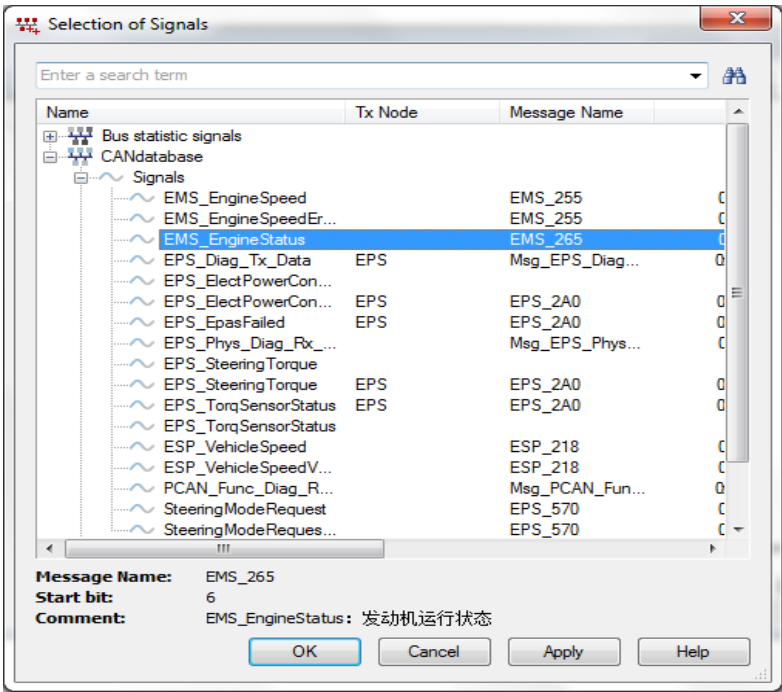
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- Right click at the red area, and click “Add Signals...”.




- Select the signal which you want to monitor and click “Apply” to add this signal to graphics window or click “OK” to finish signal insert.

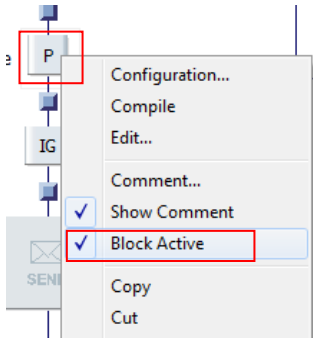


13 How to recorder can message from CAN bus

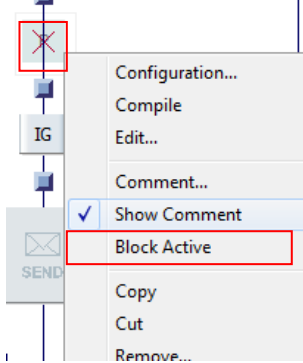
- Open a project whatever which one.
- If the project includes other CAN block, deactivate them first, do as follow:
- Right click on the block

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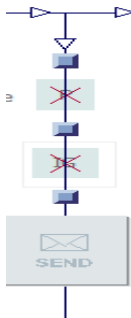
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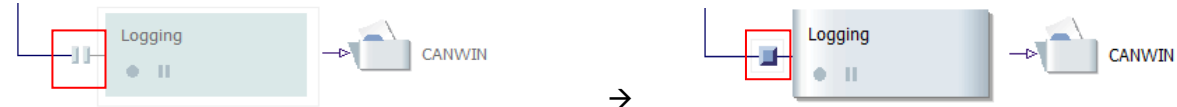
- Unselect “Block Active”



- The block will be unavailable.
- Other blocks also do like this.




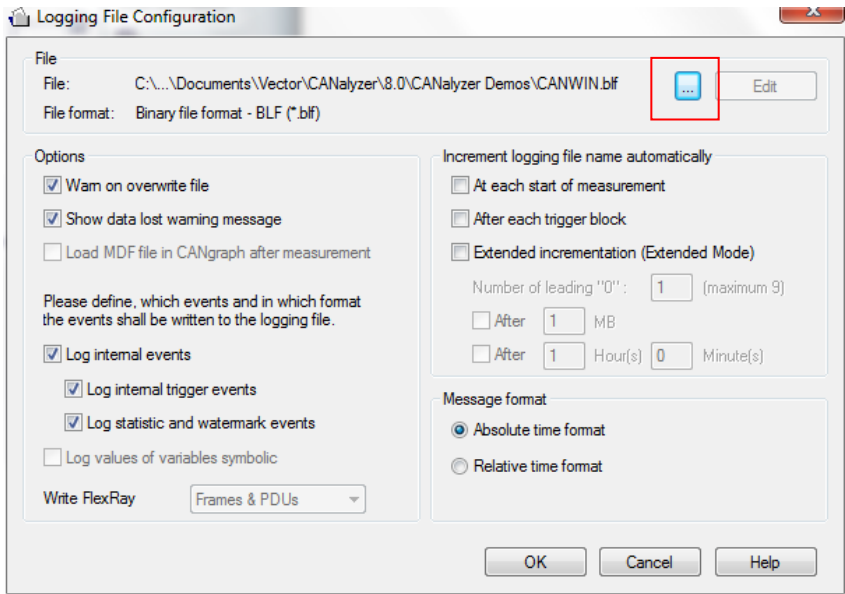
- Remove the break of Logging block, double click on the break.



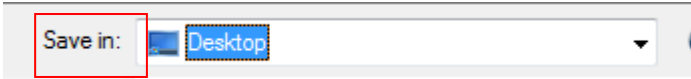
- Double click on the “CANWIN”.

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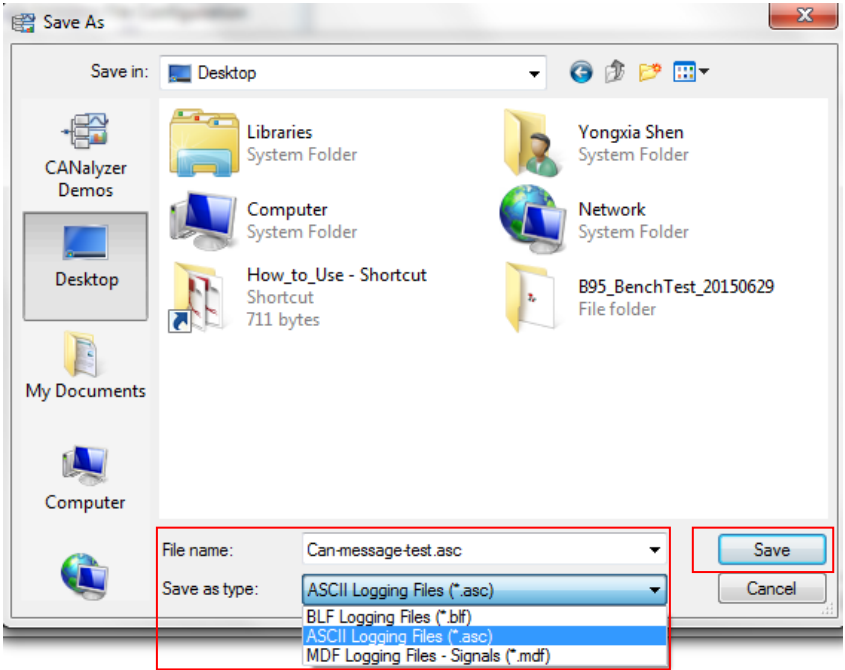
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Click the red area of above picture to change the record format and path.

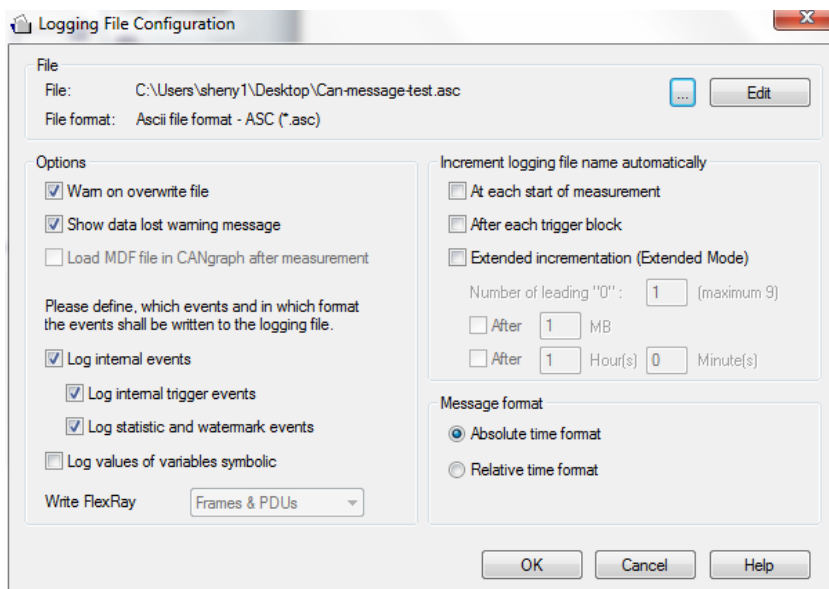


- Chose a file which you want to save the record.
- It's better to save the record as asc type,and name the record as you want, then click “Save”.



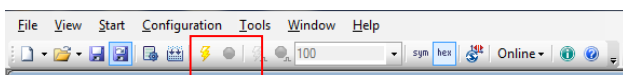
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- Click the button "OK".

- Click the start button



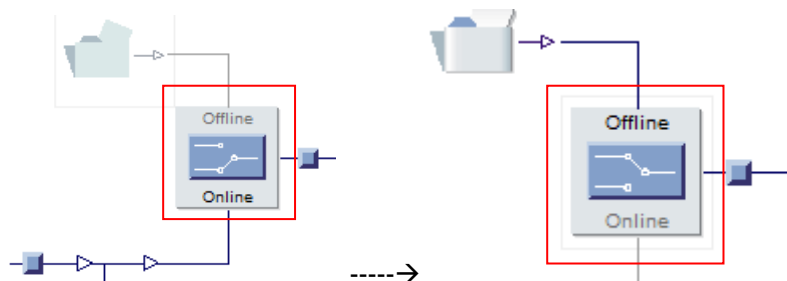
- The can message will save into the Can-message-test.asc file.

- If you want to save another record, you should name another .asc file, or it will overwrite Can-message-test.asc

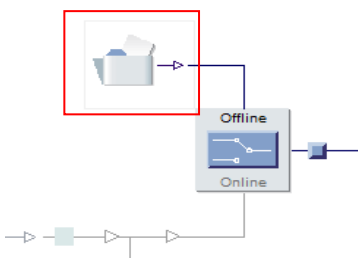
14 How to replay a .asc file

- Open a project whatever which one.


- Double click on the red area.



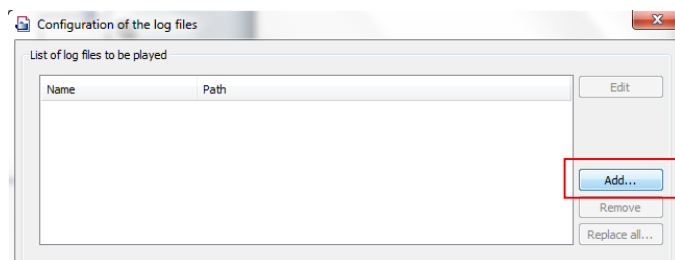
- Double click on the red area to load .asc file



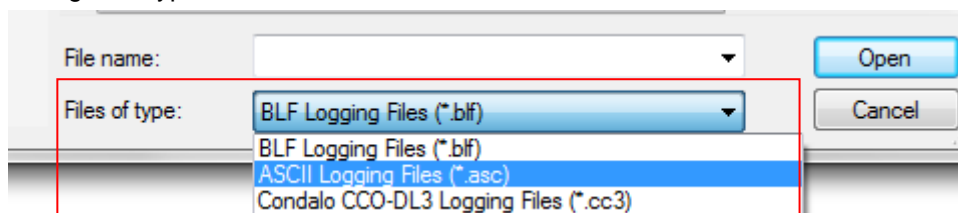
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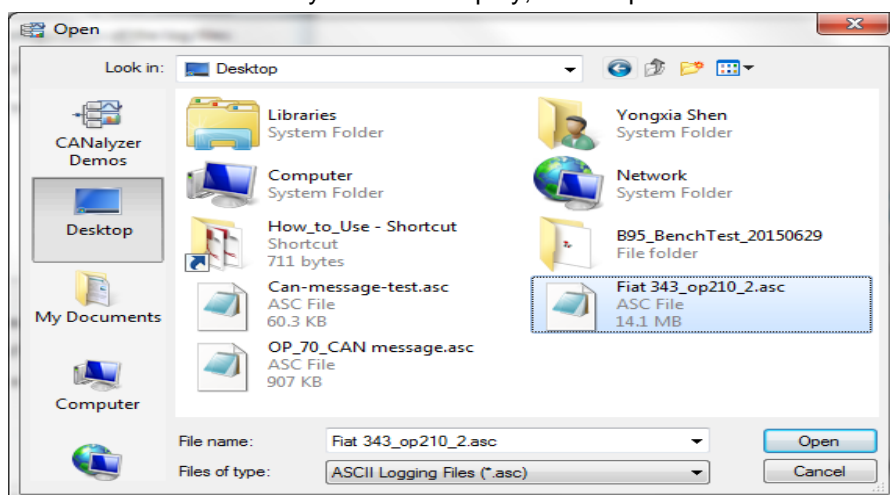
- Click the button “add”



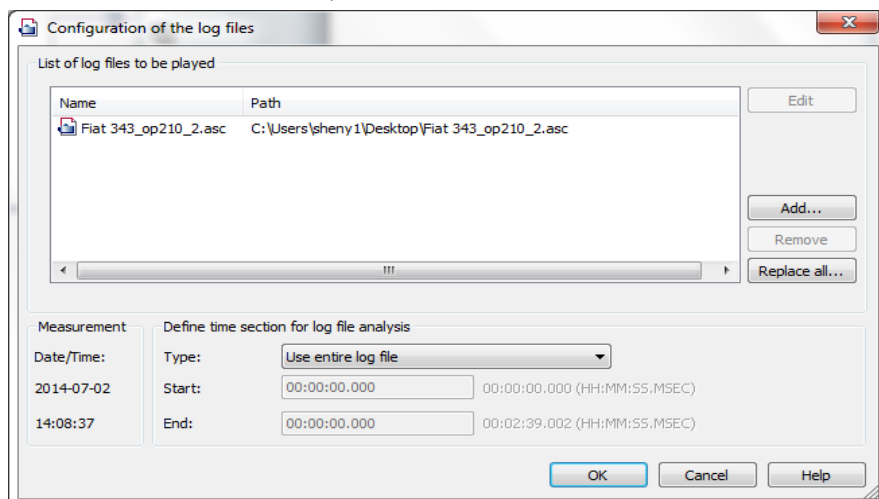
- Change the type to .asc file



- Select a record file which you want to replay, click “Open”.




- The file will load into the list, then click “OK”



- Click the button “Start”, CANalyzer will replay the record

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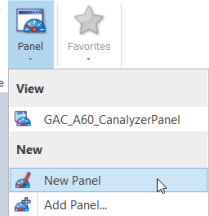


The message will be displayed at trcae window.

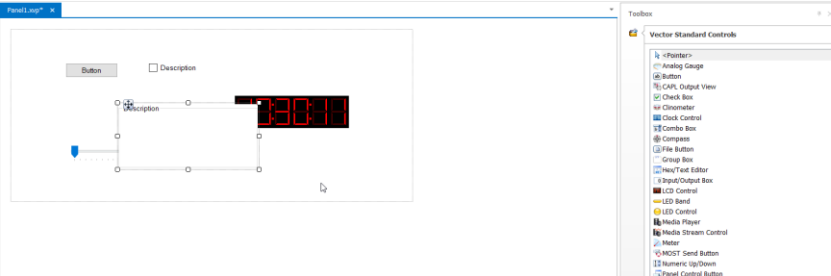
15 How to creat pannel and edit CPAL script

15.1 How creat panel

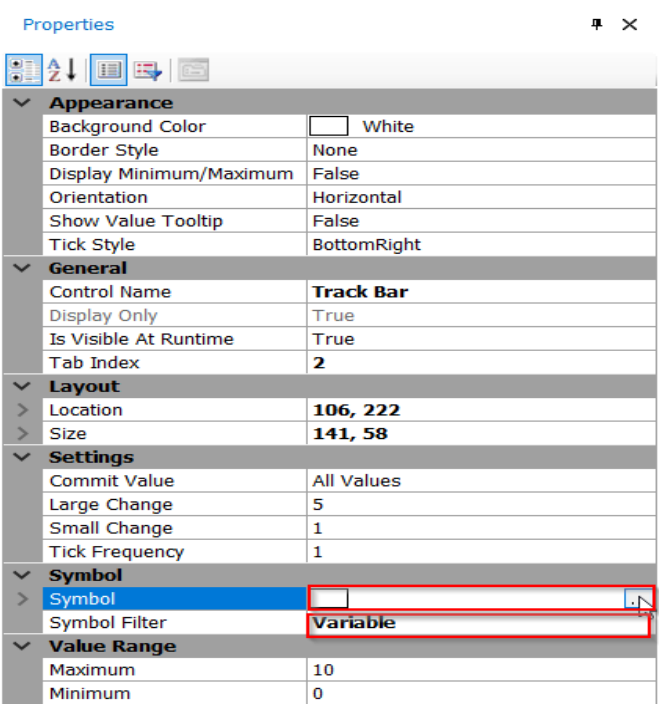
In panel window, select 'New Panel'



Add panel tools which you need

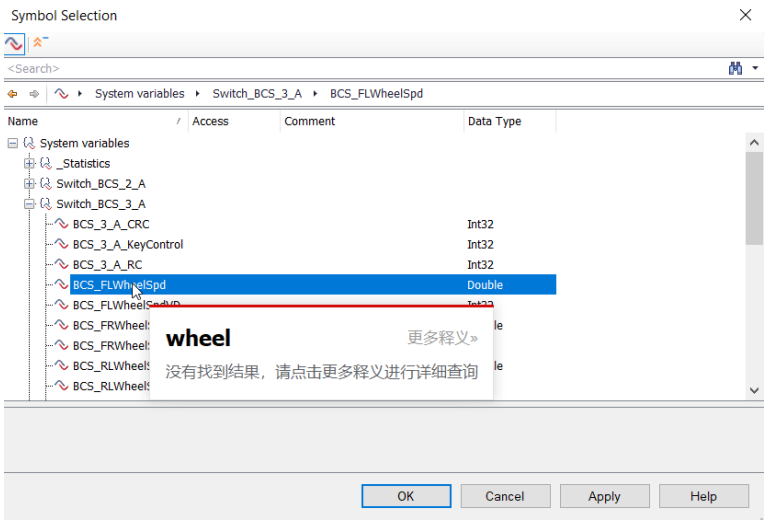


Setting properties and connect system variable.



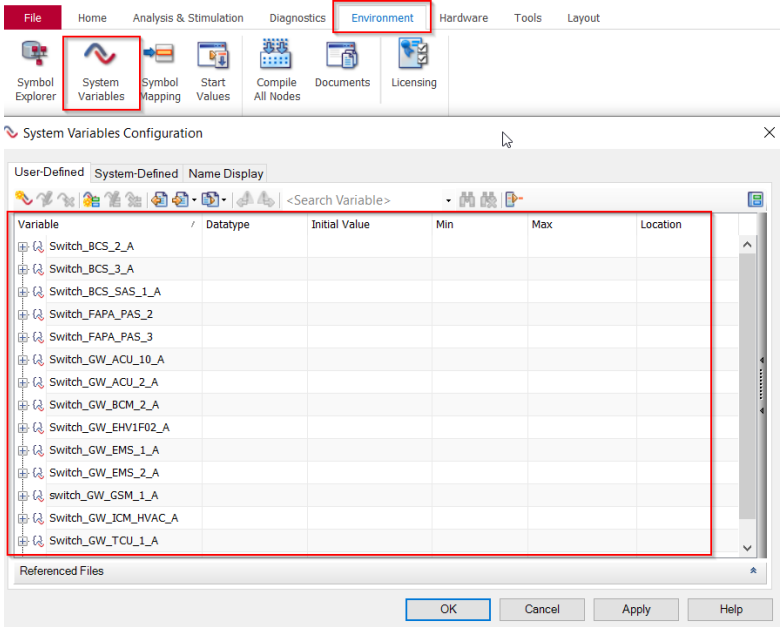
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- Select correct variable.

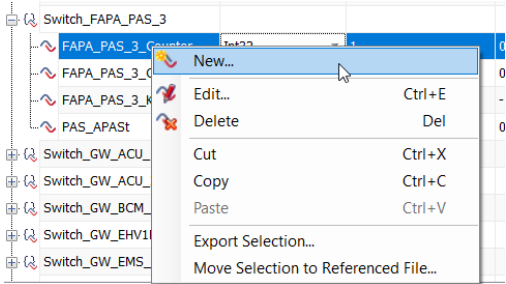


15.2 How to add system variable


- Open System Variables window



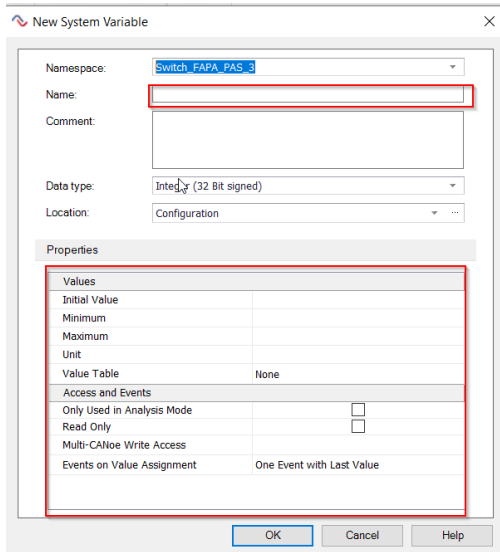
- Select CAN point then right click, choose New



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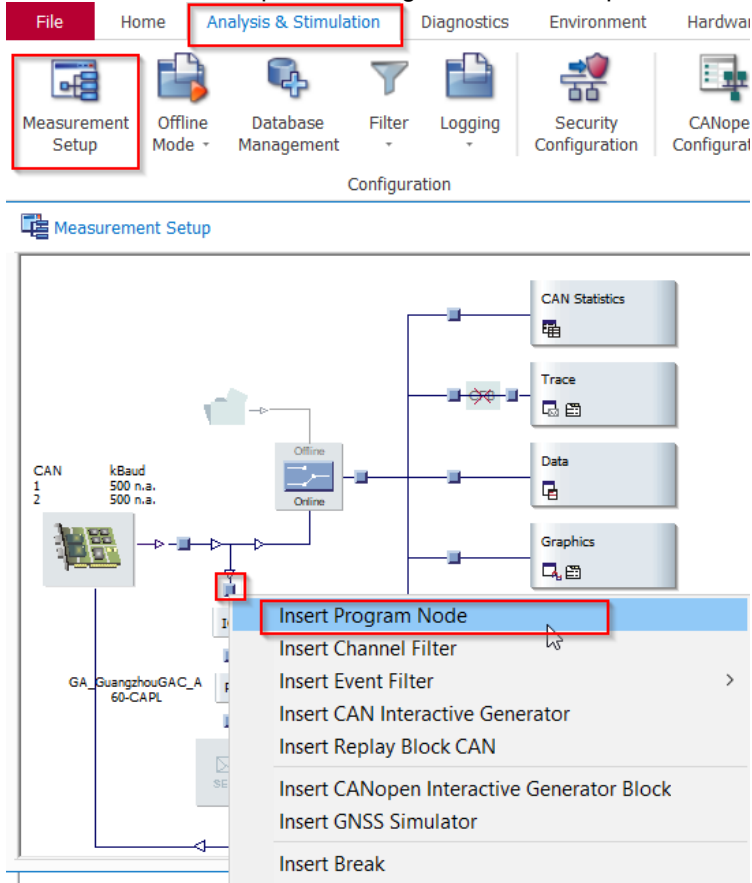
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- Set variable properties




15.3 How to add CAPL script

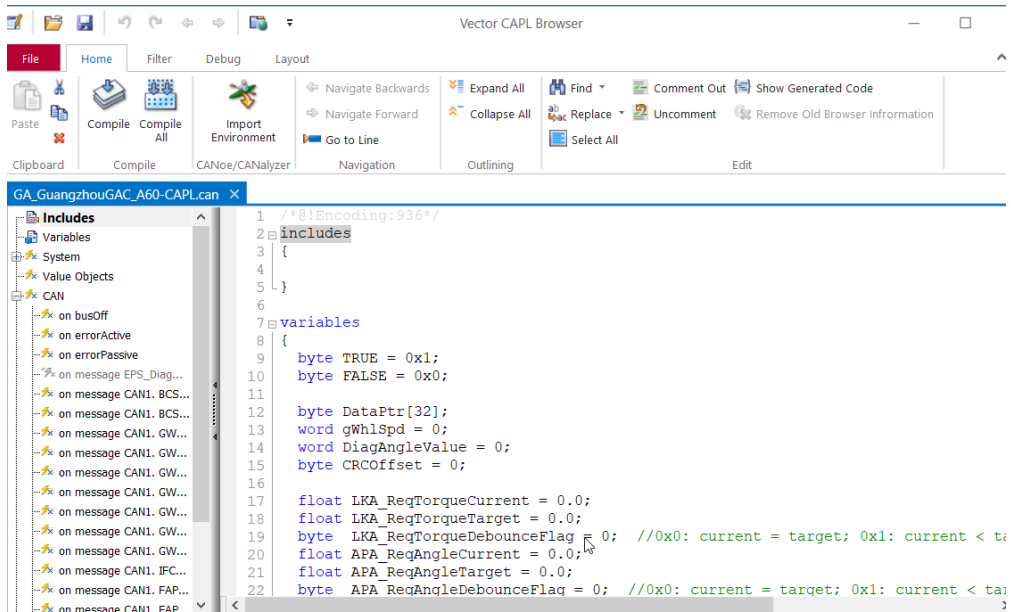
- In Measurement Setup window, right click connect point, select 'insert Program Node'



- Double click P mode to open CAPL Browser, then edit script.

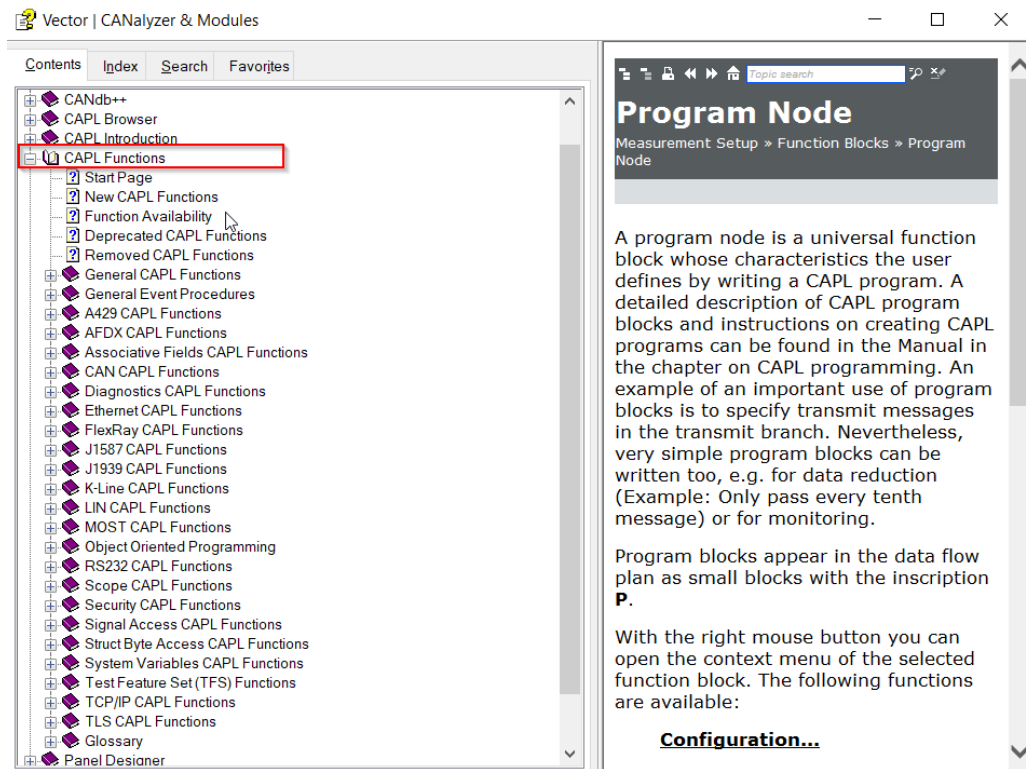
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15.4 How to get help

- Click 'question mark', open help window
- In help window, can find CAPL script edit method.



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16 Capl language example

Capl language : All requests are triggered base on the event, just like ' if condition met , then excute request' .

16.1 How to define variable

```
variables
{
    timer cycle;
    message 0x10 msg10;

    double res;
    diagRequest SAIC_AS28_EPS.F183_ECU_Bootloader_Software_Reference_Number F183;
    diagRequest SAIC_AS28_EPS.FaultMemory_Clear F14;
}
```

16.2 How to send a message

Triger:

```
on key 's'
{
    message 0x3B msg;
    output(msg);
    write(" send 0x3B msg successfully");
}
```

Cycle:

```
on timer cycle
{
    setTimer(cycle,1);

    @sysvar::niuzhentian::abc++;
    output(msg10);
}
```

16.3 How to send diagnostic service

Send 14 service:

```
on diagResponse FaultMemory_Clear
{
    if(this.IsPositiveResponse())
    {
        write(" 14 service successfull");
    }
}
```

Send F183:

```
on key 'm'
{
    diagSendRequest(F183);


    write (" F183 service successfull");
}
```

16.4 How to get DID

After sending F183, get Boot_SW_Reference_Number information:

```
on diagResponse F183_ECU_Bootloader_Software_Reference_Number
{
    if(this.IsPositiveResponse())
    {
```

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```

char B[20];
write("F183 get a positive response");
diagGetParameter(this, "Boot_SW_Reference_Number", B, 20);
write("The EPS version is: %s", B);
}
}

```

16.5 How to set Timer

Timer also need to be trigger by event 'start', or timer will be not work.

```

on timer cycle
{
    setTimer(cycle, 1);

    @sysvar::niuzhentian::abc++;
    output(msg10);
}
on start
{
    @sysvar::niuzhentian::abc=0;
    setTimer(cycle, 1);
    msg10.dlc=8;
    msg10.byte(1)=0x22;
}

```

16.6 How to connect variable

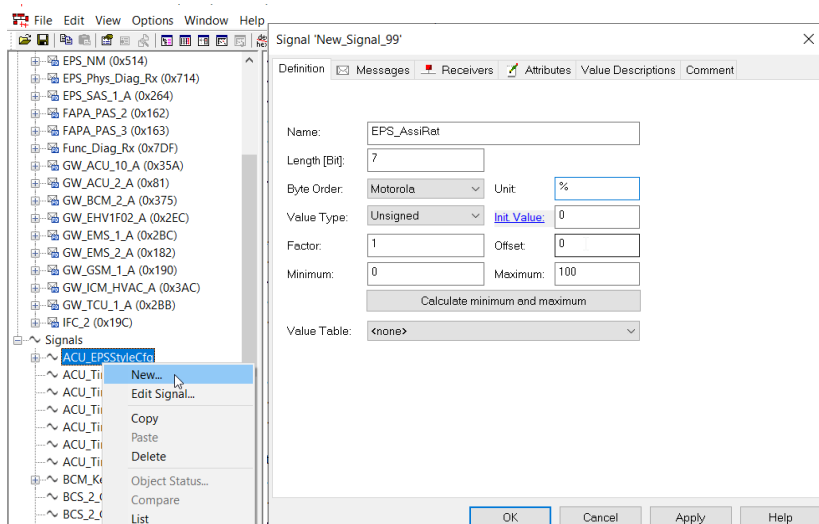
```

on sysvar niuzhentian::abc
{
    msg10.byte(2) = @this;
}

```

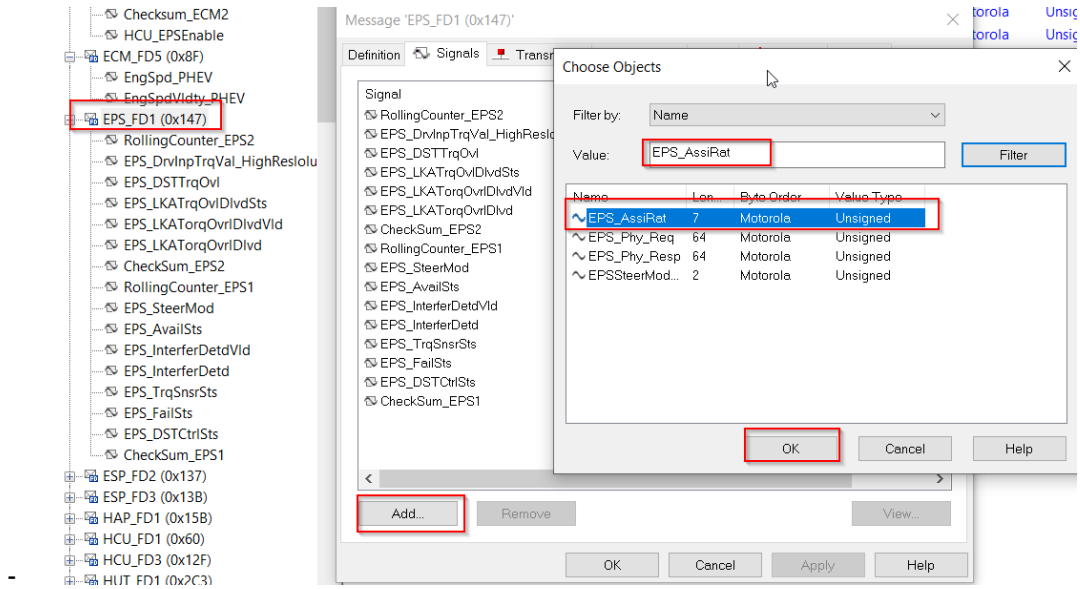
17 How to add CAN message in CAN.dbc

- Open .dbc file, then new signal



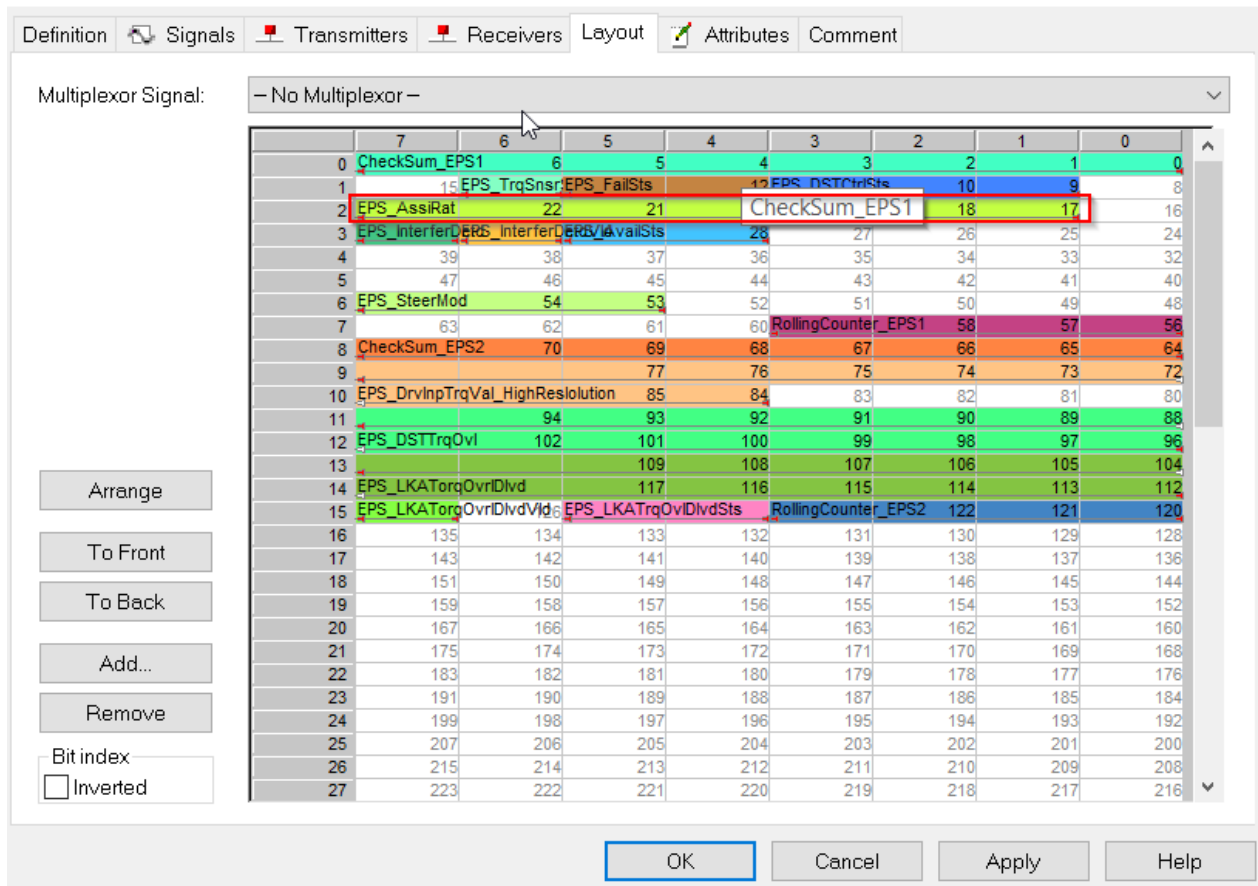
- Set 'Name', and other properties
- On correct CAN point, add message

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- Double click message point, then click Add, select just now added signal.
- In CAN matrix, set signal position

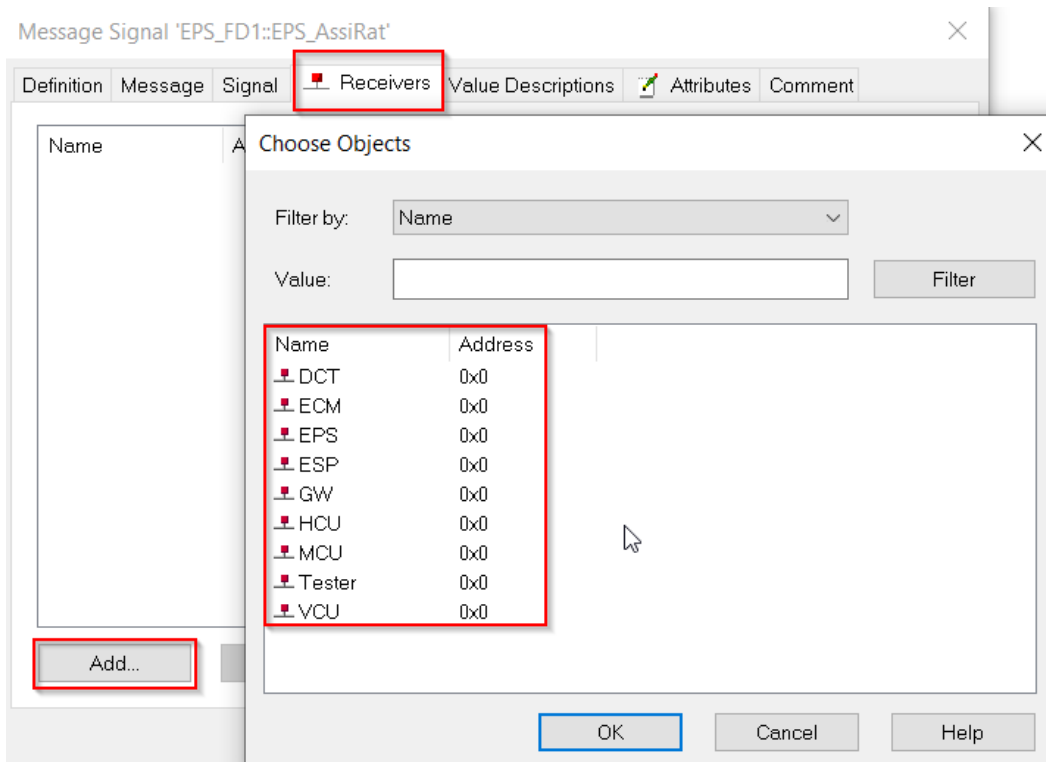
Message 'EPS_FD1 (0x147)'



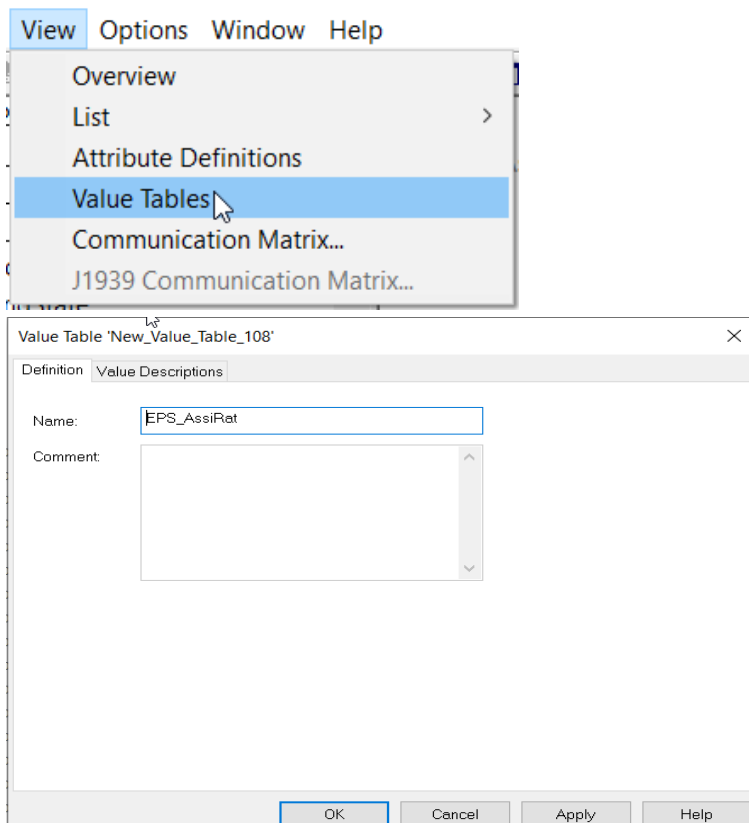
- Set Receiver

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- Set value table



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Set description

Value Table 'New_Value_Table_108'

Definition

Value Descriptions

Value	Description
0x0	Description for the value '0x0'
0x1	Description for the value '0x1'
0x2	Description for the value '0x2'

Add

Remove

OK

Cancel

Apply

Help

- Let message signal connect value table

Message Signal 'EPS_FD1::EPS_AssiRat'

Definition

Message

Signal

Receivers

Value Descriptions

Attributes

Comment

Name:

EPS_AssiRat

Length [Bit]:

7

Byte Order:

Motorola

Unit:

%

Value Type:

Unsigned

Init Value:

0

Factor:

1

Offset:

0

Minimum:

0

Maximum:

100

Calculate minimum and maximum

Value Table:

<none>

OK

Cancel

Apply

Help

<none>

CURRENT_GEAR

CurrentGearValid

EPS_AssiRat

EngState_PHEV

FF

HCU_GearSts

MCU_ActRotSpd

MCU_ActTrq

NetEngTrq

P2M_ActSpd

P4M_ActRotSpd

RC

TGS_LEVER

TotWheelTrq

VCU_GearSts

VCU_GearStsVld

VCU_RdyLEDSts

VtSig_APS_ReqCtrlEPS (HAP_FD1:APS_ReqCtrl

VtSig_APS_ReqEPStgtAng (HAP_FD1:APS_Rec

VtSig_APS_ReqEPStgtAngValid (HAP_FD1:APS

VtSig_CURRENT_GEAR (DCT_FD3:CURRENT_

VtSig_CheckSum_ABM2 (ABM2::Checksum_ABM2

VtSig_CheckSum_ABS1 (ESP_FD3::Checksum_Af

VtSig_CheckSum_ABS2 (ESP_FD3::Checksum_Af

VtSig_CheckSum_ABS3 (ESP_FD3::Checksum_Af

VtSig_CheckSum_EPB1 (ESP_FD3::Checksum_Ef


VtSig_CheckSum_EPS1 (EPS_FD1::Checksum_Ef

VtSig_CheckSum_EPS2 (EPS_FD1::Checksum_Ef

VtSig_Checksum_APS1 (HAP_FD1::Checksum AF

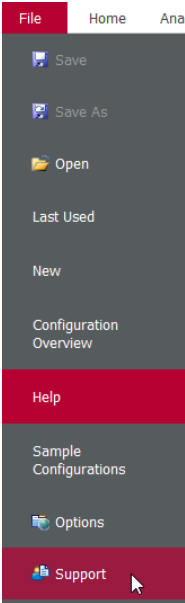
Message added finished.

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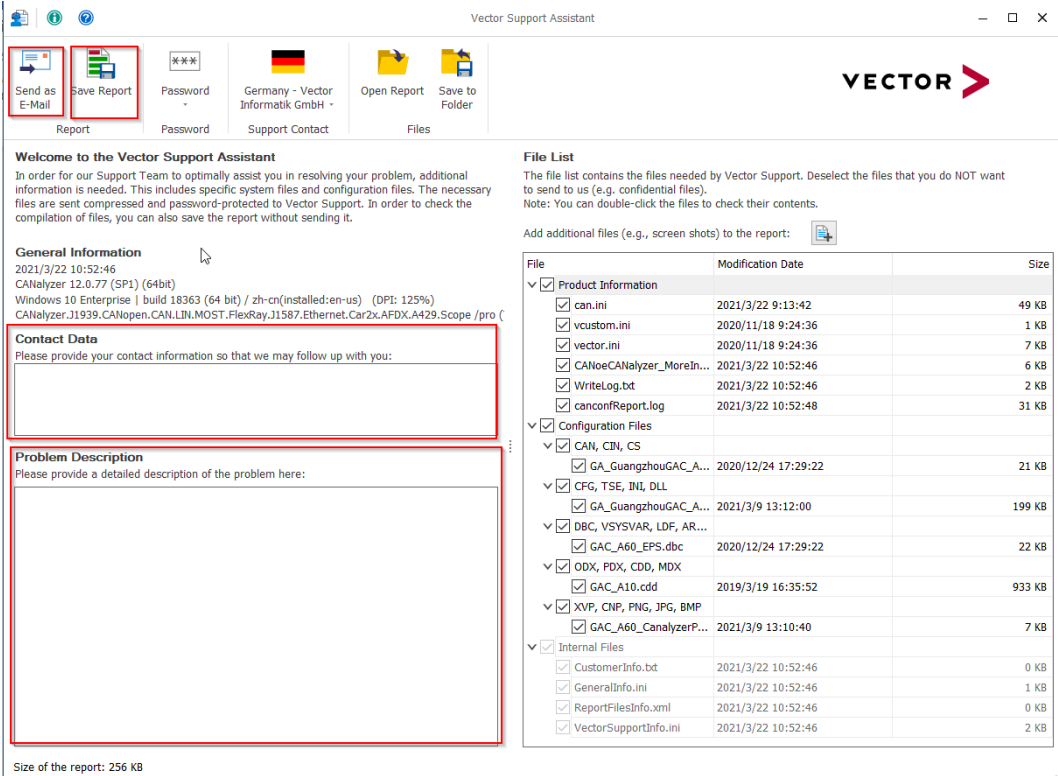
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18 How to get support for difficult problem

- Open 'support' window



- In support window, describe your problem, then send email, later you can get the help.



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