How To - Know How

Quick Guide

How to use Intrepid Basic Setup to log GeneSys ADMA data

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INTREPID CONTROL SYSTEMS

Content

1 Contacts

Here you will find the contact details of the author, who is also available to answer the resulting questions:

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2 History

Date	Name	eMail	Description
2023-07-26	Andreas Kirsch	akirsch@intrepidcs.com	Initial description related to ADMA_ETH.vs3

3 Introduction

Intrepid Control Systems is specialized in logging, monitoring and accessing Vehicle networks. We provide Interfaces and Loggers for CAN/CAN-FD, LIN, FlexRay, Automotive and Standard Ethernet (100/1000-Base-T/T1, 10-Base-T1S), A2B audiobus. Also extensions for low speed analog or digital in and out, modules to connect thermo couples or for isolated power relays are available. Most devices support at least multiple CAN/CAN-FD, LIN and Ethernet together in one device.

Besides accessing and logging only Broadcast messages, Interpids Systems can be also transmit data. Requesting diagnostic information (such as OBD, UDS, KWP, or DoIP) or accessing the ECU directly (CCP/XCP) is easy to accomplish. All this can be done using the PC or standalone in Testbench environment or while test driving.

Using Intrepids wireless neoVI server solution, all acquired data may be uploaded and will be available to other users instantaneously.

Beside digital in-vehicle data in many use cases (see in later chapter) also external sensor- or precalculated data like acceleration, orientation or positioning is of big value to be stored in combination.

To access ADMA inertial platforms data, GeneSys provides CAN and Ethernet interface. In the following it will be described how access both of them in VehicleSpy and how to setup a logger for acquisition.

The full documentation of VehicleSpy could be found here:

https://docs.intrepidcs.com/vspy-3-documentation/v/3.9.12/

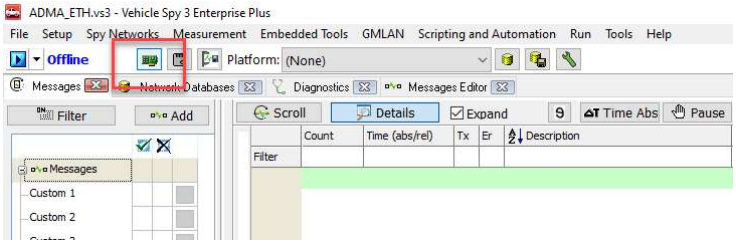
4 VehicleSpy Basics

In the following, some basics will be presented and how to set up the logger easily.

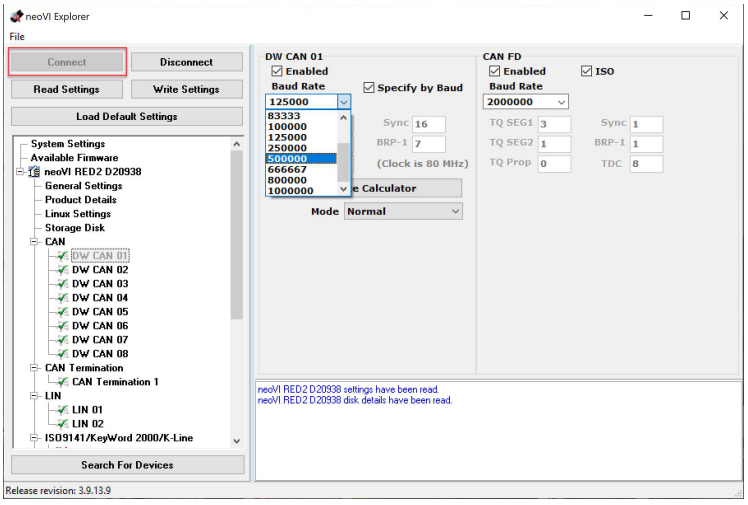
We will start with the Message Editor, the heart of the logger for decoding received messages and defining outgoing messages. In the next section we will have a look at how easy it can be to set up a logger for standalone logging.

4.1 Hardware setup

You can press the PCB button or select Setup/Hardware to open the Hardware Setup for basic configuration of your unit.

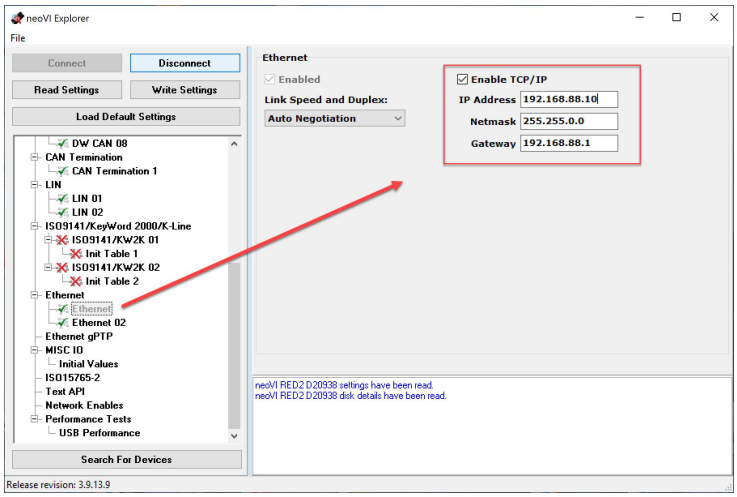


After connection to your device, you can change the CAN/CAN-FD and Ethernet settings to suit your needs.



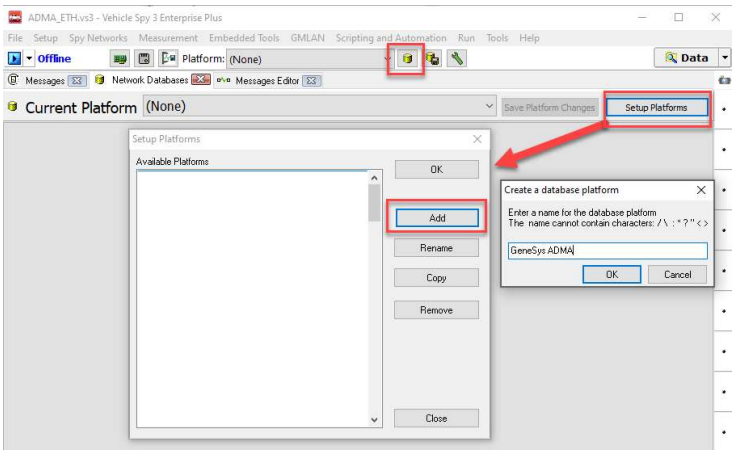
You can enable a programmable termination resistor when using CAN to connect ADMA.

If Ethernet connection is used, you can enable the TCP/IP and IP settings.



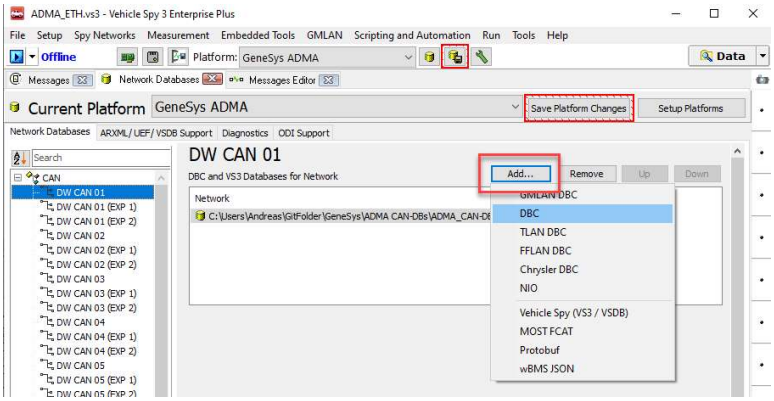
4.2 Including a database

If you already have a database file (DBC, LDIF, FIBEX, ARXML...), you can do the setup or modification of your database platform.



The platform contains all of the databases that belong together.

For ADMA over CAN, select the network on the left where you have connected the ADMA.



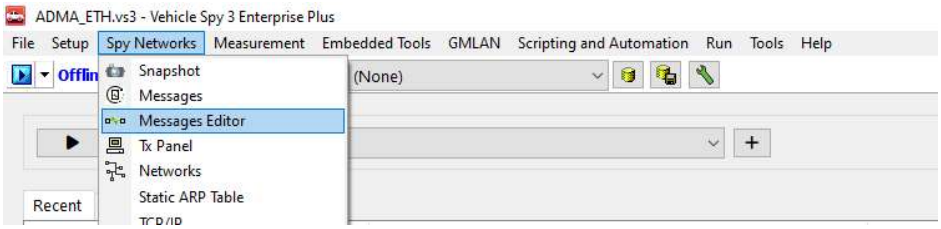
Press the Add button and select the DBC file associated with your ADMA.

Finally, press one of the flashing "Save platform changes" buttons.

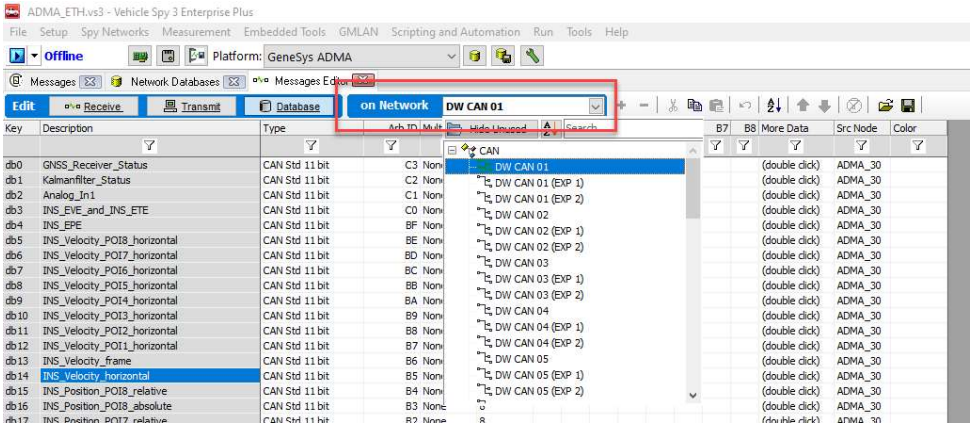
4.3 Using the manual Messages editor

If you do not have a database, you can also define and edit your messages and signals manually.

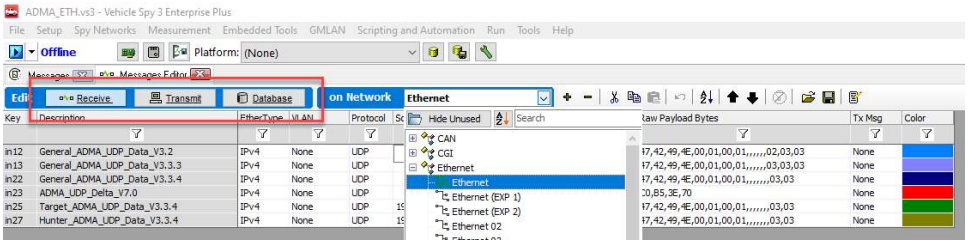
Open the message editor (Spy Networks/Message Editor),



you can select your network

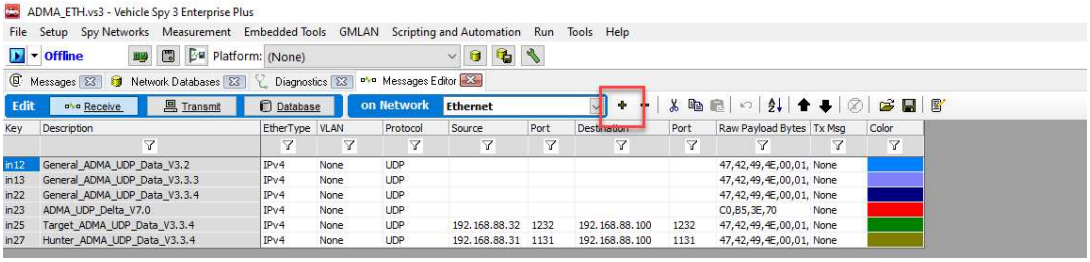


and view the database decoding or the manual definition of the transmit and receive messages.

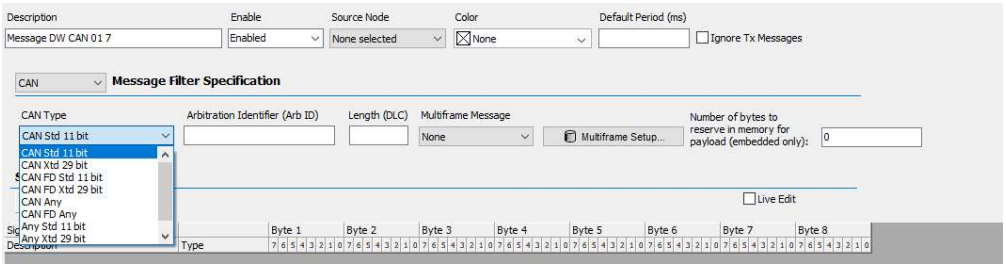


4.3.1 Adding a new message

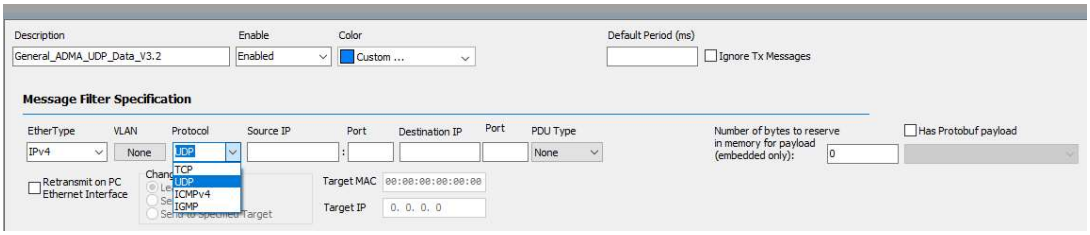
Select your network and press the "+" button to add a new message.



For CAN, define the CAN type, ArbID, length and frame type (CAN raw frames, ISO15765 or J1939 decoding).

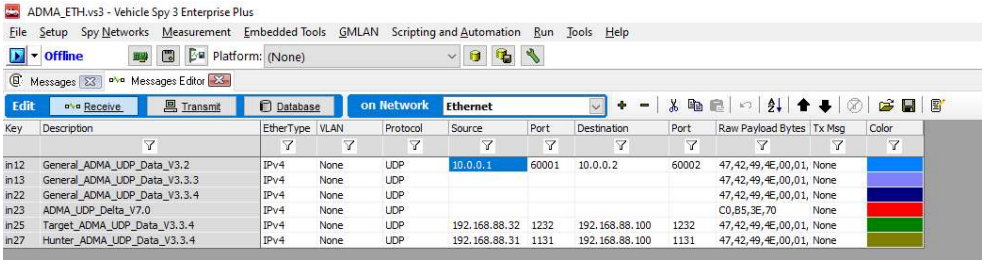


For Ethernet, you can set a default (filter) for the Ethertype, IP, and Port..



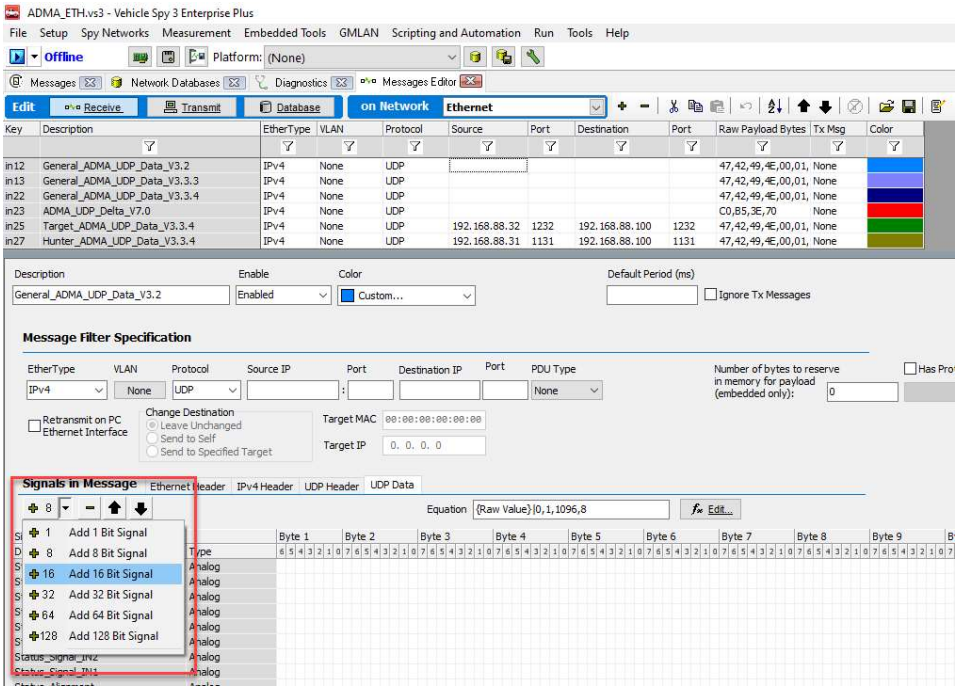
Each entry can be considered a filter. If some property (e.g. port or ArbID) is not set, this message will be received for e.g. all ports of the set IP.

In the sample setup "ADMA.ETH.vs3", Intrepid Control Systems GmbH has already set up some general Ethernet messages to receive the GeneSys ADMA Ethernet stream.



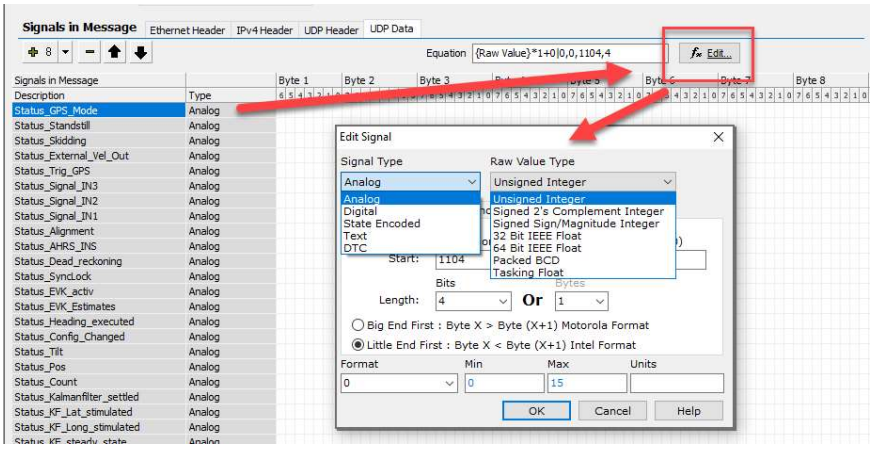
4.3.2 Adding signals

To add a signal to a message, select the size of the signal and press the "+" button.



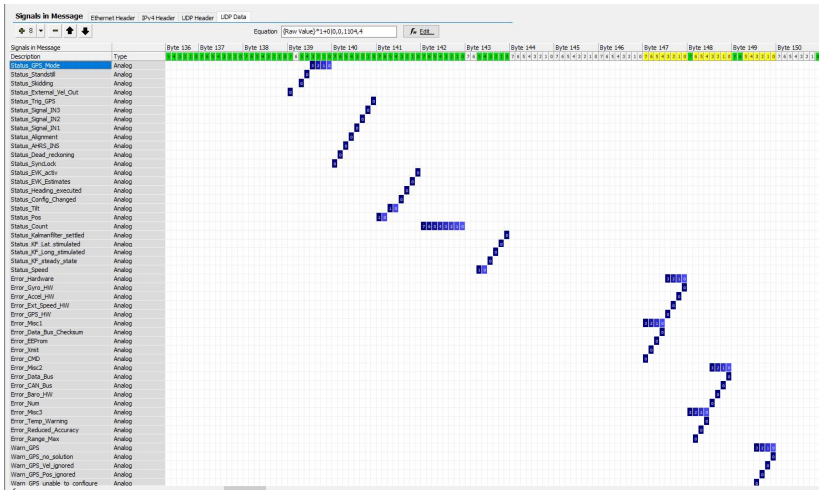
The signal size is not fixed to the selected length. It can be adjusted individually.

By opening the properties of the signals by pressing the "fx Edit" button, you can completely define the scaling and representation of the new signals.



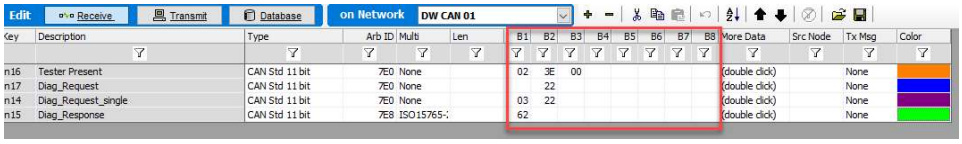
"ADMA_ETH.vs" already includes all signals defined in GeneSys

- *ADMA_UDP-DataStream_ADMAnet_v3.2_v30.2.0.0.xml*
- *ADMA_UDP-DataStream_ADMAnet_v3.3.3_v30.8.0.1.xml and*
- *ADMA_UDP-DataStream_ADMAnet_v3.3.4_v30.10.0.40.xml*

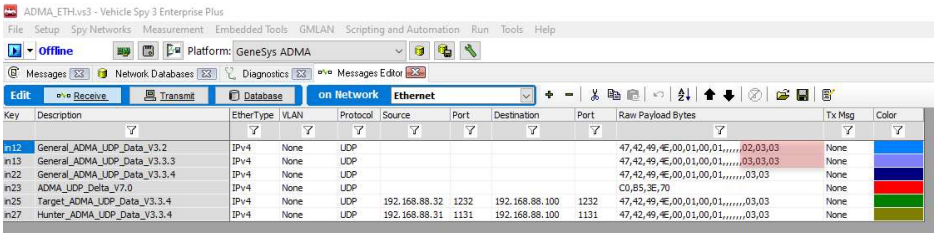


4.3.3 Adding additional message filters

In contrast to standard DBC or other decoding databases, VehicleSpy can handle multiple messages with, e.g. the same Arbitration ID or Ethernet IP and Port, and additionally map to individual payload content.



In the case of ADMA Ethernet decoding, some header values are predefined as an additional filter in the "ADMA_ETH.vs3" setup. So the messages are mapped to the different sub-versions.

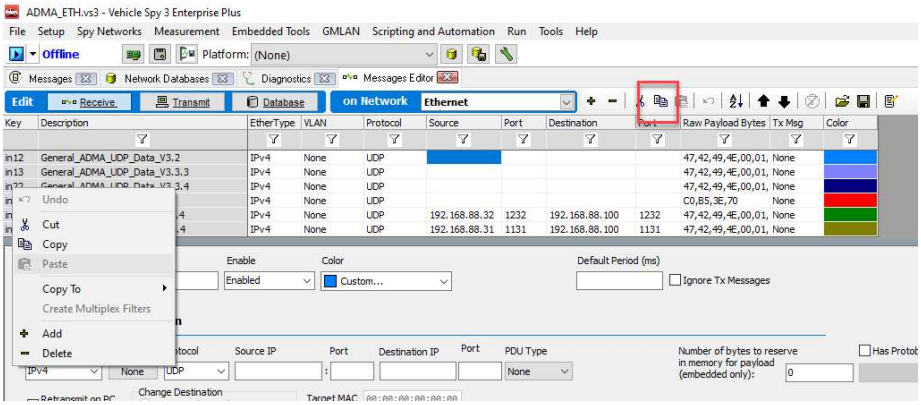


4.3.4 Copy-pasting messages to another setup

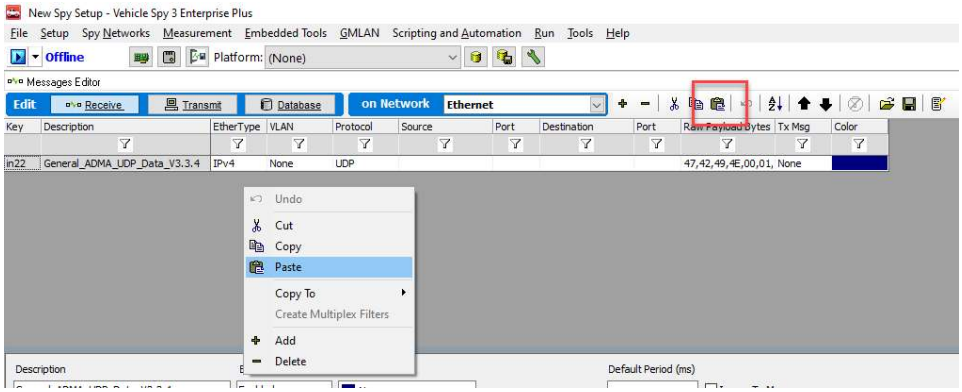
You can setup your hardware and use the "ADMA_ETH.vs3" setup directly if you are starting a new setup that should also decode the GeneSys ADMA Ethernet stream.

If you want to extend an existing setup and want to add the ADMA stream, you can use this basic setup and just copy and paste the needed messages into your own setup.

Just right click on the message you want to copy and choose copy or press the copy button.



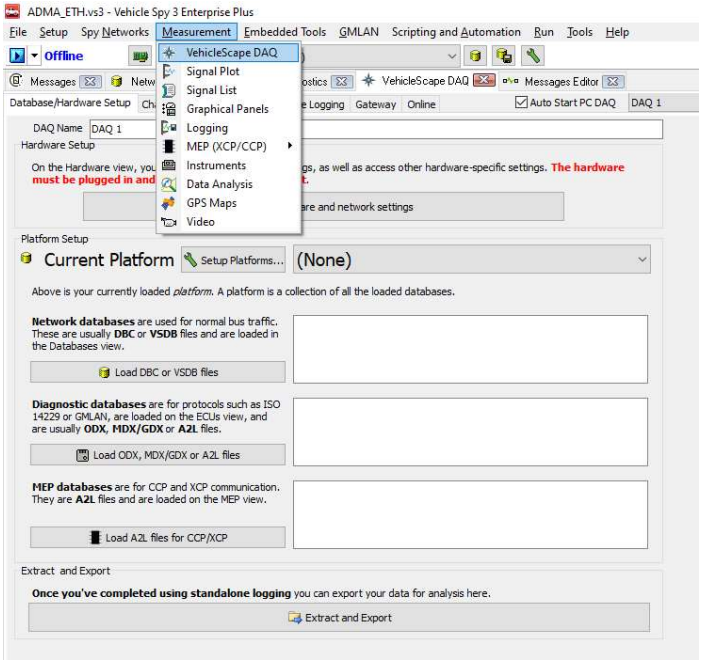
In your Destination Setup, select your Ethernet network, select Receive and press the Past button or right-click in the message area and select Past.



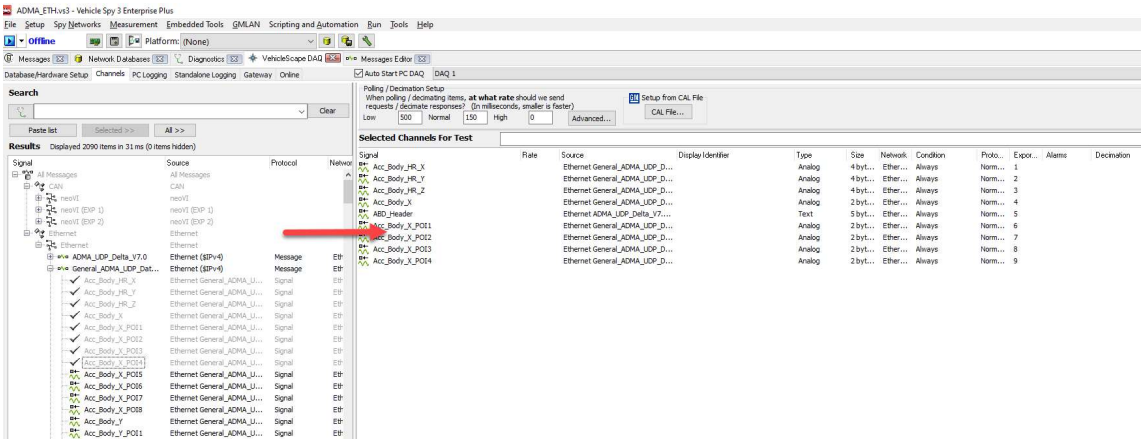
5 Data Logger Configuration

Vehiclescape DAQ is the easiest way to configure your hardware to work as a stand-alone data logger.

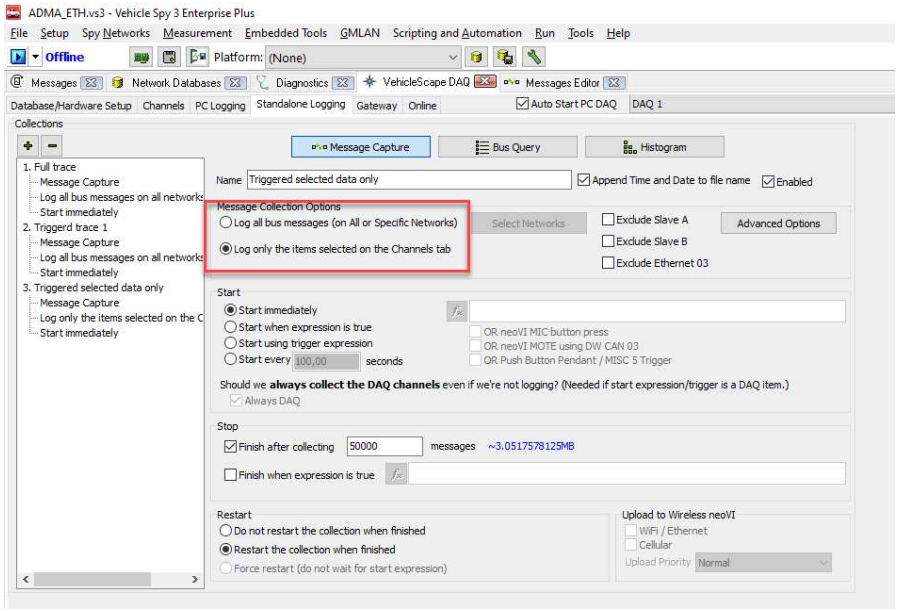
1. Open your existing or new setup and select Measurement/Vehiclescape DAQ and
2. Add your DBC, LIDIF, A2L, ... databases as needed.



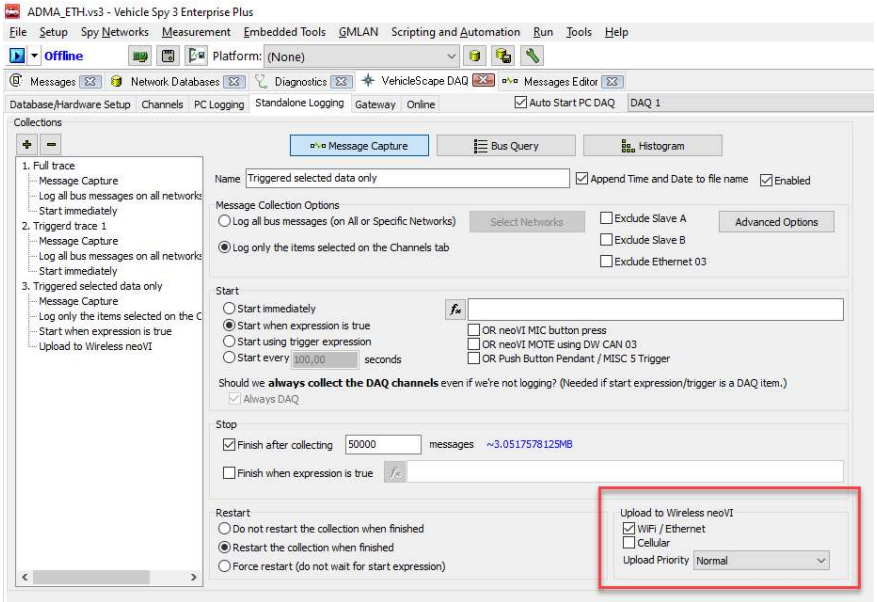
3. If you want to log only selected signals and messages, go to the Channels tab and select the desired signals.



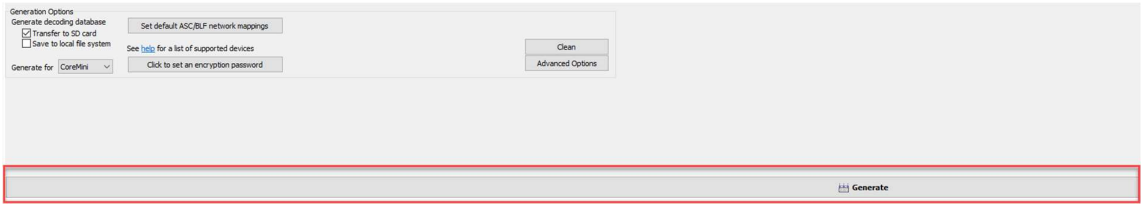
4. Finally, in the Standalone Logging tab, you can define a number of different collections that will store data under certain conditions. You can use pre-post triggering, save the complete full trace or only selected signals with or without reduced rate.



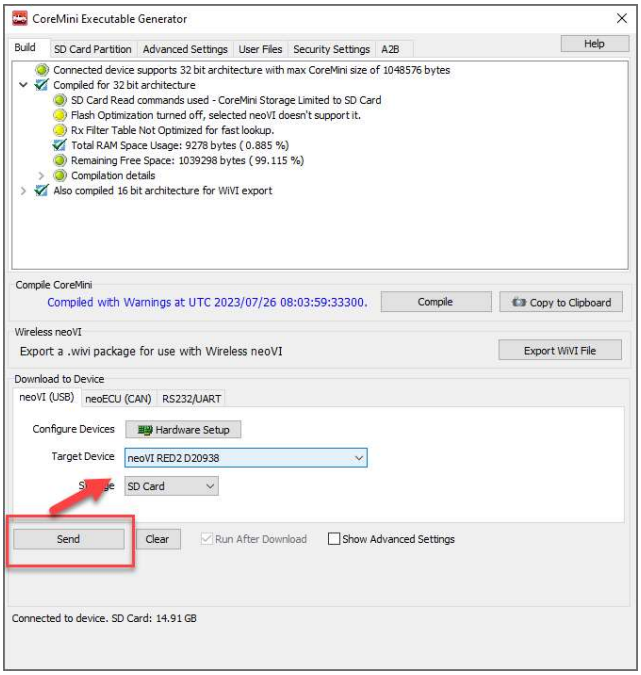
In addition, devices such as the neoVI-RED2 or neoVI-Fire3 are able to upload the data directly to the Wireless neoVI Server.



To program the logger, simply press the Generate button at the bottom.



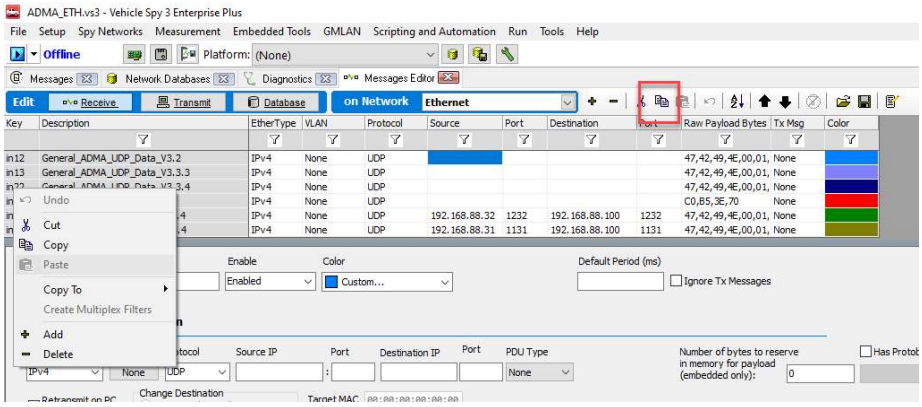
The CoreMini console opens. You can send the script to the device.

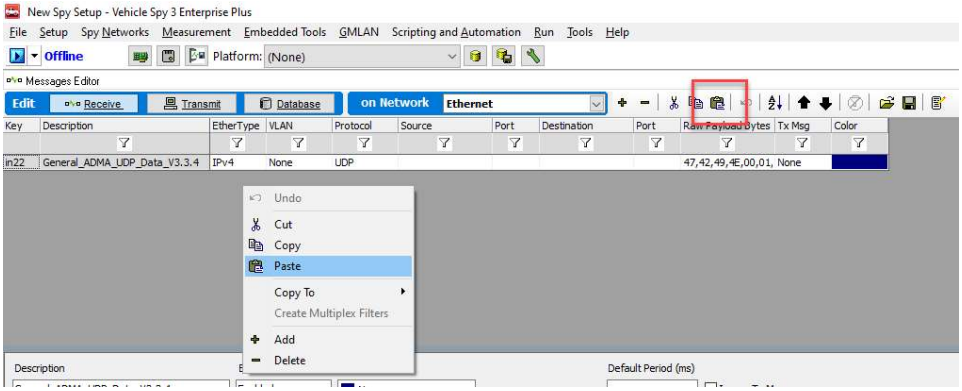


6 Summary

To access and decode the GeneSys ADMA Ethernet data stream, you can use the Intrepid Control Systems VehicleSpy setup "ADMA_ETH.vs3".

You can either start from scratch with this basic example. Or you can copy/paste the messages defined in the Ethernet network.





7 Additional applications

In addition to data logging, there is a wide variety of applications that can be used with the ADMA platform.

The following is an incomplete list of possible applications.

- Remote data logging of in-vehicle, position and orientation data on the proving ground, while engineers evaluate the last set of data back in the office.
- Benchmark testing: Compare in-vehicle data (accelerations, speed, rpm ...) with external, high-precision sensor data. In-vehicle data can be obtained from databases, diagnostics or reverse engineering.
- Simulation output: Playback of acquired data from all sources
- Gateway application: Gateway signals from one source to another network to connect e.g. test bench
- Fault injection: Transmission of manipulated signals or use of RAD-IO2 series (e.g. RAD-IO2-PWRLY for shortcut)