

Product Information

CANalyzer.Ethernet

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Documentation Note

Valid for CANalyzer.Ethernet from Version 8.2.

This document presents application areas and functions of Option .Ethernet for CANalyzer.

CANalyzer.Ethernet expands standard CANalyzer functionality. You will find **product information** and **technical data** on basic CANalyzer functions in separate documents.

Please consider the environment before printing this document.

V1.1 May/2016

1 Introduction

Ethernet-based networks and the protocols built upon them continue to grow in importance in the embedded environment. In contrast to IT networks in the office area, the main focus is on transmission of most periodic signals. Furthermore, real-time Ethernet systems generally react sensitively to disturbances of connected analysis tools. Option .Ethernet lets you extend CANalyzer by adding support of Ethernet systems. Exclusive use of Ethernet interfaces on the PC prevents Windows and other applications from affecting the real-time Ethernet system. When using the VN5610 interface hardware, it is also possible to spy on point-to-point connections.

1.1 Overview of Advantages

- > Linking of a database enables access to signal and RPC parameters.
- > Perfect interaction with the VN5610 interface hardware enables spying on point-to-point connections.
- > Data traffic can be analyzed without disturbing effects of the operating system.
- > Send out user-configured (even faulty) Ethernet packets configured with Ethernet Packet Builder
- > Representation of all vehicle networks referenced to a common time base
- > Analyze gateway communication on different bus systems

1.2 Application Areas

In supporting Ethernet-based networks, in vehicle development the same use cases generally occur as in CAN bus systems, especially in such areas as video data transmission, Ethernet as a broadband backbone network, Diagnostics over IP (DoIP) and communication between electric vehicles and charging stations. A special advantage of CANalyzer.Ethernet is that it can be used to measure delay times when gateways convert signals for other vehicle networks. For example, this makes it possible to track diagnostic information throughout the entire vehicle and check it for consistency.

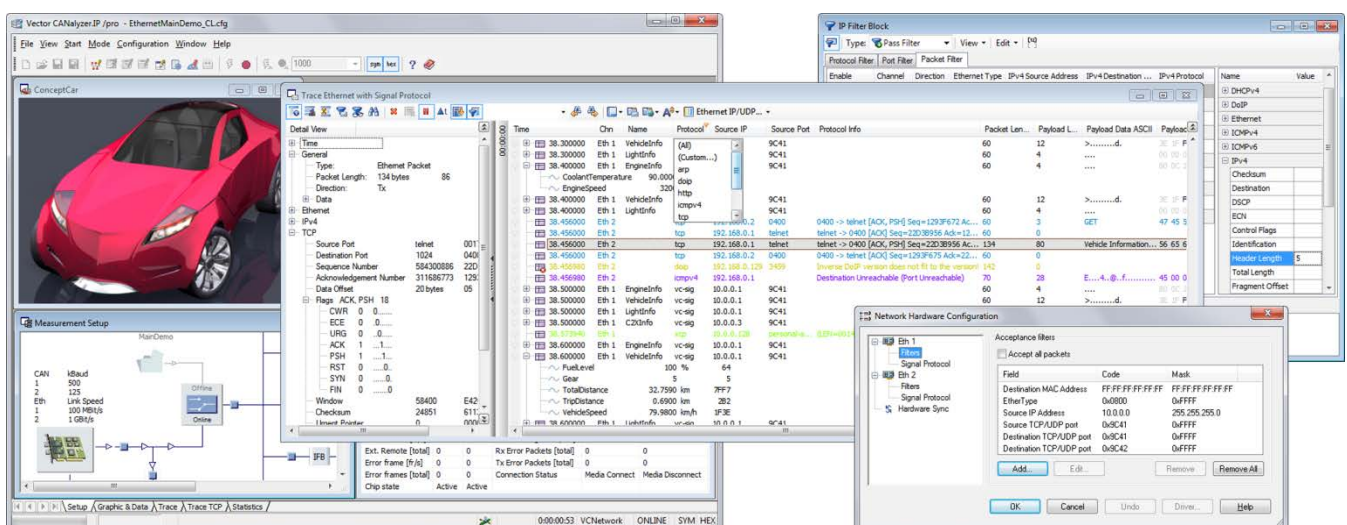


Figure 1: CANalyzer.Ethernet configuration for displaying signals. The Ethernet protocol and signal decoding are analyzed in the Trace window. Filter for reducing the number of packets.

1.3 Further Information

- > [Vector Download-Center](#)
Various documents related to CANalyzer are available on the Internet. In the Demo version, for example, you get sample configurations for the various use areas and detailed online Help texts, in which all CANalyzer functions are described. In addition, you benefit from our valuable know-how in the form of technical articles and application notes.
- > [CANalyzer Feature Matrix](#)
More information on variants, channels and bus system support is presented in the feature matrix.

2 Functions

Option .Ethernet extends the functional range of CANalyzer by adding Ethernet-specific functions.

- > Configuration of up to 32 Ethernet channels
- > Supports the Vector VN5610 Ethernet interface and PC Ethernet interfaces
- > No effects on network communication by the Windows operating system or other applications thanks to the isolated Ethernet interface. This may be a necessary requirement especially in real-time systems.
- > Linking to a FIBEX-4.x based database enables use of signal and RPC parameters.
- > Supports Ethernet and Ethernet-based protocols such as VLAN, AVB, IP, UDP, TCP, SOME/IP and DoIP
- > Various filter options (Hardware/Measurement Setup/View)
- > Display of protocol header information in the Trace window
- > Use of your own signal protocol decoder DLLs
- > Ethernet Packet Builder for configuring and sending Ethernet packets
- > Logging of data traffic, including Rx/Tx direction and channel

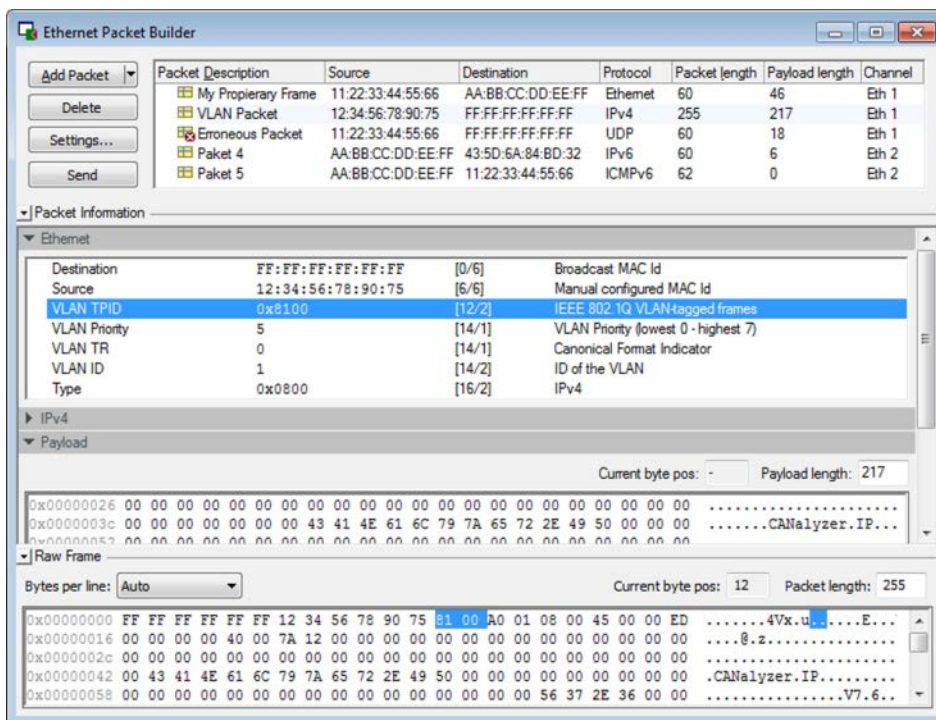


Figure 2: Ethernet Packet Builder is used to create and send out Ethernet frames conveniently. Correct as well as faulty packets can be easily created using the configurable checksum and length calculation.

3 Hardware

At least one Ethernet interface is required to analyze Ethernet communication. The interface that is used may be the Vector VN5610 Ethernet interface or the Ethernet interfaces available at the PC. The VN5610 is an Ethernet interface that was specially designed for measurement purposes, and it offers specific advantages such as high resolution of time stamps, synchronization with other Vector bus interfaces, spying on point-to-point connections and support of automotive-specific physical layers such as BroadR-Reach. You will find more detailed information online at: www.vector.com/vi_vn5610_en.html

4 Trainings

In the framework of our training program, we offer various training courses and workshops on IP/Ethernet and CANalyzer at our classrooms as well as at your business site.

For more information on individual training events and a schedule, please go to: www.vector-academy.com

5 Hint

CANalyzer.Ethernet includes software developed by the University of California, Berkeley and its contributors.

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