VECTOR

Getting started with Ethernet VN Devices

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Abstract Compared to serial bus systems such as CAN, FlexRay or LIN, Ethernet-based systems are typically based on a network topology. This often makes measurement as well as simulation and test tasks more complex than we know from serial bus systems. In addition, Ethernet-based systems often use much higher data rates. The freely configurable Vector Ethernet VN devices have been designed to meet the above-mentioned requirements. For example, complex hardware filters can be defined to provide tools such as CANoe or CANalyzer with only the data that is of interest in the current application. Depending on the measurement tasks, the Ethernet VN devices can be freely configured to meet the various measurement, simulation or test use cases. This free configurability brings a new level of complexity to the setup of Ethernet VN devices that we have never seen before. While the assignment of an Application Channel provided by the tool was sufficient for the setup of a CAN interface, several steps are necessary for the configuration of the Ethernet VN devices.

This document describes the procedures for configuring the Ethernet VN devices as well as the precautions required in the Vector tools to be able to operate the Ethernet VN devices. The focus is on the following use cases:

- Measurement
- Diagnostics / Calibration
- Simulation
- Media Conversion

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1 Acronyms

Term	Description
PHY	A PHY is the component that implements the physical layer portion of the Ethernet. A PHY connects a link layer device (often called **M**edium **A**ccess **C**ontrol) to a physical medium such as copper cables. Vector Ethernet VN devices offer different number of ports. Behind each port a PHY is installed.
TAP	A **T**est **A**ccess **P**oint: • is used to measure data on an Ethernet cable • connects two physical ports of the Ethernet VN device with each other. Packets received on one port are automatically forwarded to the other port. The latency is thereby vanishingly small. • also forwards all packets to the application (CANoe/CANalyzer)

2 Prerequisites

2.1 System design

When considering the various use cases, the following example network serves as a basis:

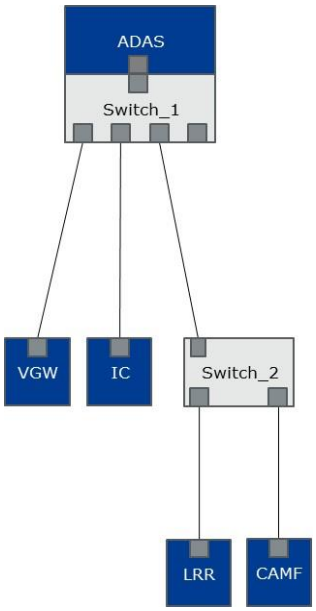

Figure 1: Network topology

Our example network consists of four simple control units (**VGW**, **IC**, **LRR** and **CAMF**) each connected to a switch. **Switch_1** is integrated in the **ADAS** control unit, while **Switch_2** is an external, independent switch. **Switch_1** provides a diagnostic port with the free port which will play a role in the further course of this document.

Note
In the automotive environment, switches are typically installed in the control units (see example **ADAS** control unit).

2.2 Components

For the consideration of our use cases, we will use a VN5640 VN device from Vector. Of course, the VN5640 can be replaced by any Vector Ethernet VN device if it provides a sufficient number of ports.

The following versions were used to create the screenshots listed in this document.

Tool	Version
Vector Ethernet Device Configuration	20.30.18.0
CANoe	15 SP1
CANalyzer	15 SP1

3 Measurement

The communication between **Switch_1** and **Switch_2** is to be measured with CANoe/CANalyzer. Setting up this measuring point enables measurement of all Ethernet packets communicated via this link. Ethernet packets that are communicated exclusively via other links (example: **VGW** sends to **IC**) are not measured. Further measuring points would have to be set up for this.

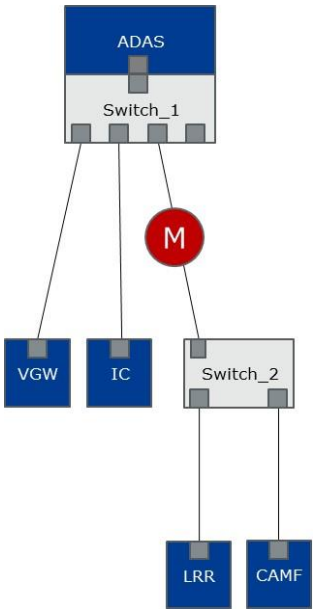

Figure 2: Use case “Measurement”

3.1 Cabling

Direct intervention using a Y-cable (as we know it from CAN) is not possible, since there is always a point-to-point connection between two Ethernet Physical Layer connections (PHYs). Furthermore, the connection between **Switch_1** and **Switch_2** must be broken, and the Vector VN device must be interposed.

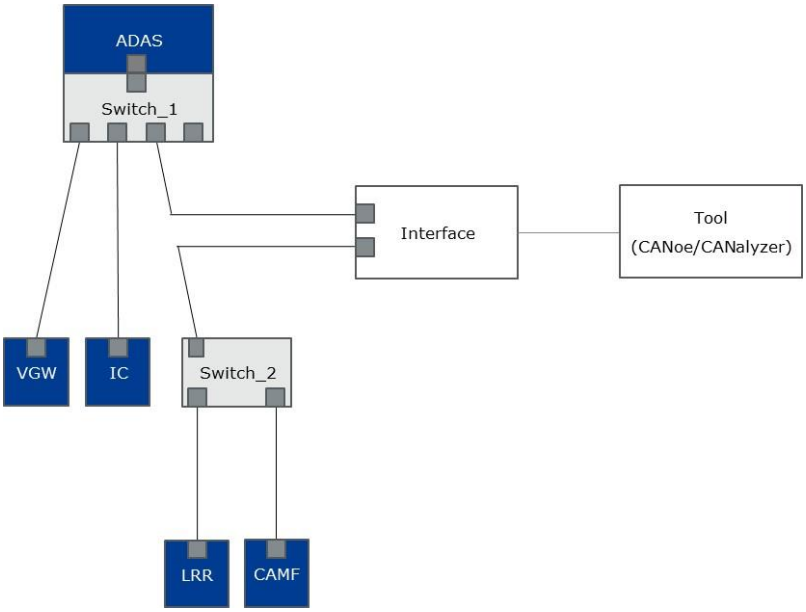

Figure 3: System setup and cabling

Note
Two ports on the Ethernet VN device are required for each link to be measured.

3.2 Hardware configuration

A **T**est **A**ccess **P**oint (TAP) must be configured in the Ethernet VN device. Please proceed as follows to set up a TAP:

1. Make sure that the Ethernet VN device is connected to the computer.
2. Open the **Vector Hardware Config** dialog from the Windows Start menu or **Control Panel**, **Hardware and Sound** group.
3. Select the desired Ethernet VN device with the right mouse button and activate the menu command **Ethernet device configuration**.

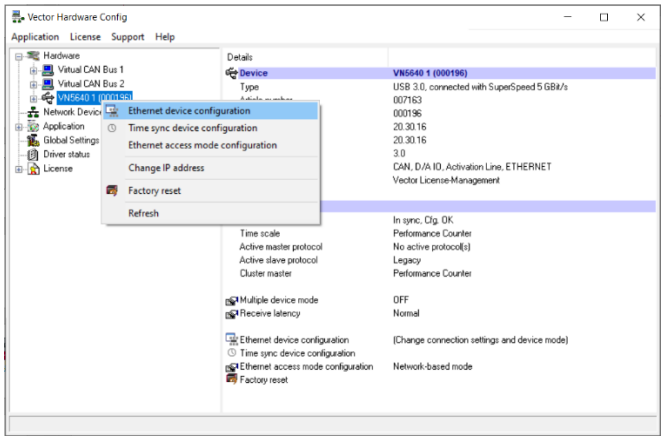

Figure 4: Dialog "Vector Hardware Config"

4. The dialog **Vector Ethernet Device Configuration** is opened. If there is already a hardware configuration stored in the device this configuration will be displayed in the middle part of the dialog.
5. Create a new configuration via the menu command **File** | **New**

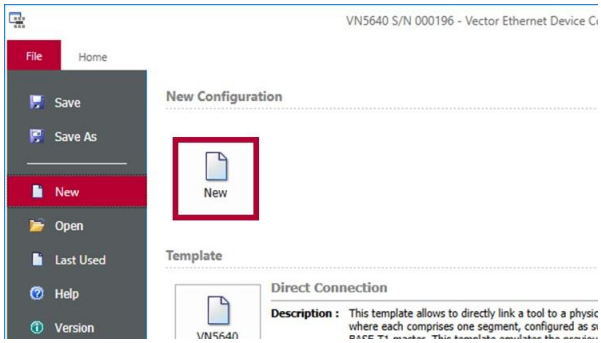

Figure 5: Creating a new hardware configuration

Note
This command will only create an empty configuration in the configuration dialog. The actual configuration stored in the Ethernet VN device will be overwritten later.

6. Select a **Link** segment in the **Segments** group and drag and drop it into the blue network placeholder in the middle **Layout** area of the dialog.

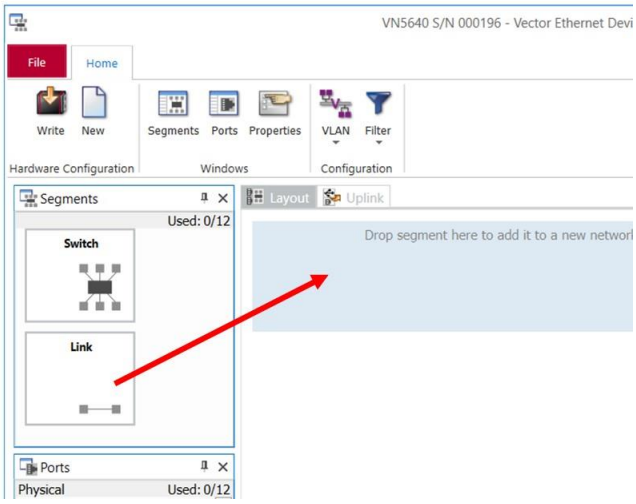

Figure 6: Link segment assignment

7. A network with the default name **Ethernet1** is created automatically. This name can be changed if necessary. In our use case we analyze the ADAS network. The network name can be changed in the **Properties** window on the right side of the dialog if the network is selected. Alternatively, you can also double-click on the name in the **Layout** area.

Figure 7: Network properties

For information on further link settings in the **Properties** area, please refer to the online help. To do this, simply press the **F1** key.

Note
The Vector Tools are connected to the Ethernet VN device via the network name. The network name must therefore be specified when creating the CANoe/CANalyzer configuration in the tool.

8. Assign the desired physical ports of the Ethernet VN device to the inserted link. Use the ports to which the desired network nodes (in our example **Switch_1** and **Switch_2**) are connected to the Ethernet VN device. Select the desired ports from the **Ports** group on the left side of the dialog and assign them to the inserted link segment via drag & drop.

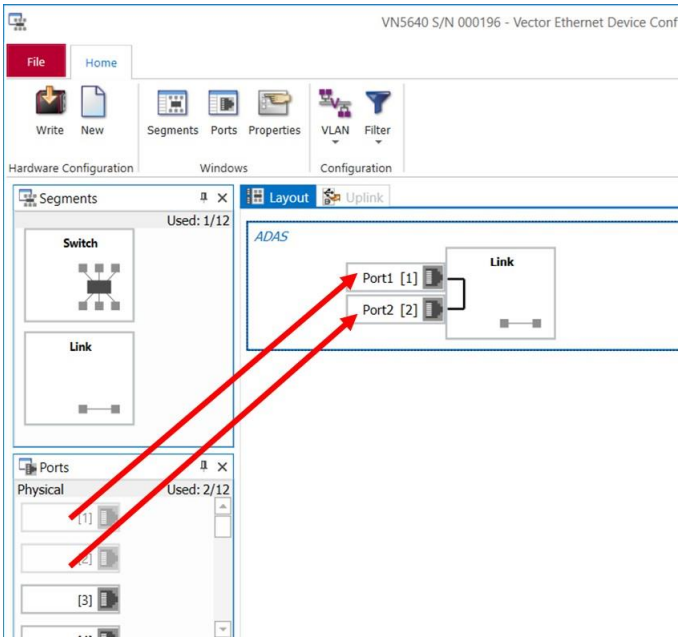

Figure 8: Port assignment

Assigning the two physical ports means that the inserted link segment will henceforth function as a **TAP** (cf. Direct connection). This is displayed in the **Properties** area on the right side of the dialog when the **Link** segment is selected.

Note
Additional Links must be added to the same network (**ADAS**) if further links of this network must be measured.

9. Assign the names of the connected network nodes to the assigned ports. The name can be changed in the **Properties** window on the right side of the dialog when the port is selected. Alternatively, double-click on the port in the **Layout** area.

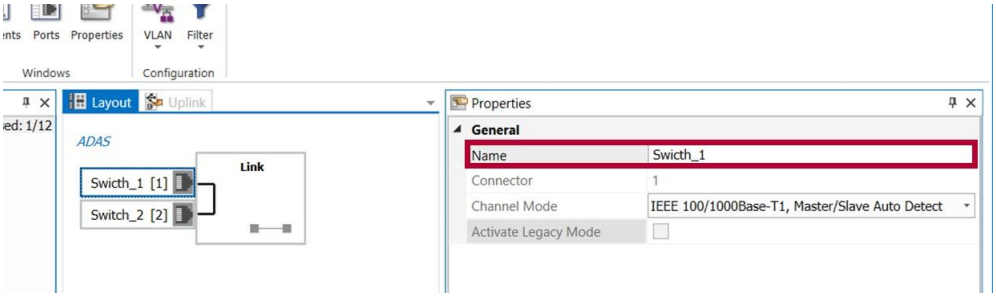

Figure 9: Port name configuration

The specified name is displayed in the **Layout** area of the dialog. The number displayed in square brackets corresponds to the number of the port you have selected from the port list before. You will find this numbering also on the Ethernet VN device itself. Changing the port number is only possible indirectly. If another port of the Ethernet VN device is to be used, the already assigned port must be deleted and a new port must be assigned.

For information on further port settings in the **Properties** area, please refer to the online help. Simply press the **F1** key.

10. Now select the ports one after the other in the **Layout** view and choose the corresponding **Channel Mode** in the **Properties** area on the right side of the dialog.

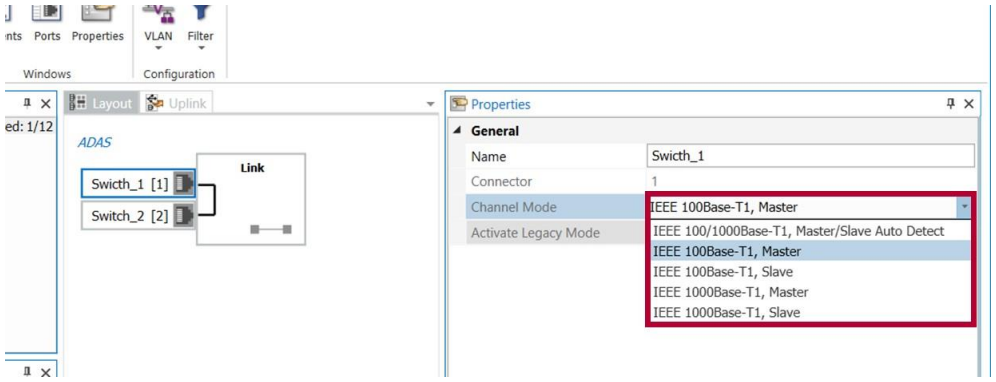

Figure 10: Port mode configuration

Note
If the port on the **ADAS** device on Switch_1 is operated as **IEEE 100BASE-T1, Slave**, for example, **IEEE 100BASE-T1, Master** must be set on the Ethernet VN device port used. Otherwise, no link can be established.

11. Save the current configuration via the menu command **Home | Write** in the connected Ethernet VN device. The configuration is then stored as default configuration in the Ethernet VN device, a corresponding message is displayed. Additionally, the configuration can be stored in a file via the menu command **File | Save**.
12. Close the dialog **Vector Ethernet Device Configuration**
13. The configuration of the Ethernet VN device is complete, the second step is now to create the CANoe/CANalyzer configuration.

3.3 CANoe configuration

Proceed as follows to create a CANoe configuration:

1. Start CANoe
2. Create a new CANoe configuration using the menu command **File | New**. Select the template **Ethernet (Simulation Setup)**. A new CANoe Ethernet configuration will be created. The configuration already contains all windows necessary for analysis.
3. Assign the network name to the CANoe configuration that you previously specified in the hardware configuration (in our example **ADAS**). To do this, select the **Ethernet1** entry in the **System View** of the **Simulation Setup** with the right mouse button and activate the **Rename** menu command

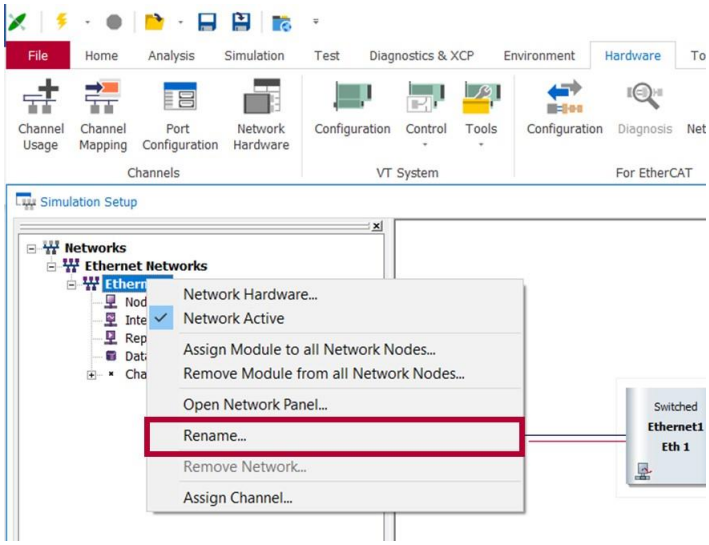

Figure 11: Changing network name in CANoe

4. The changed network name is then displayed in the **Simulation Setup**.

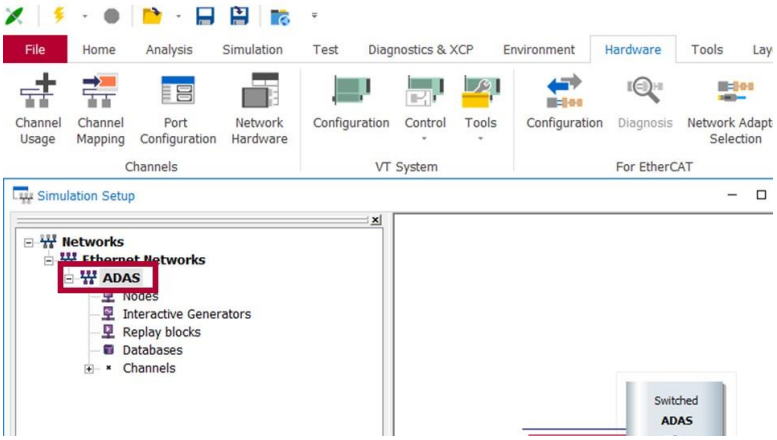

Figure 12: Network name display in CANoe

Hint: CANoe is now automatically connected to the Ethernet VN device *via the same network name when the measurement is started. If the names are not identical, the two network names must be mapped using the* ***Hardware | Channel Mapping*** *menu command.*

5. Open the **Port Configuration** dialog via the **Hardware | Port Configuration** menu command.

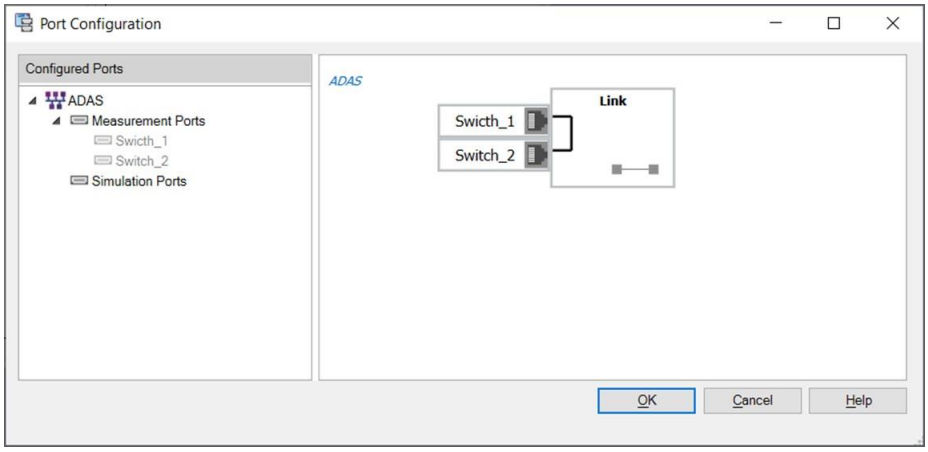

Figure 13: Dialog "Port Configuration"

With the hardware connected, CANoe recognizes the configured segments together with assigned ports. The ports previously configured in the hardware are displayed in gray in the left area of the dialog.

6. Packets received on a physical port or sent via a physical port are not displayed in CANoe until the port has been activated in CANoe. To do this, select the port in the **Measurement Ports** group with the right mouse button and activate the **Activate** menu command.
7. Close the **Port Configuration** dialog via the [**OK**] button after all desired ports have been activated.
8. Start the measurement via the menu command **Home | Start**.

Note
Packets received on a port are marked as RX packets. If a packet is sent from the Ethernet VN device via a port (in the TAP case this corresponds to forwarding a packet from one port to the other) this packet is marked as TX packet. Both the direction and the name of the port are displayed in the trace window.

3.4 CANalyzer Configuration

Proceed as follows to create a CANalyzer configuration:

1. Start CANalyzer
2. Create a new CANalyzer configuration via the **File | New** menu command. Select the **Ethernet** template here. A new CANalyzer Ethernet configuration is then created. The configuration already contains all the windows required for analysis.
3. Open the **Application Channel Mapping** dialog via the **Hardware | Channel Mapping** menu command and assign the network from your Ethernet VN device configuration to the CANalyzer application (in our example this is the **ADAS** network).

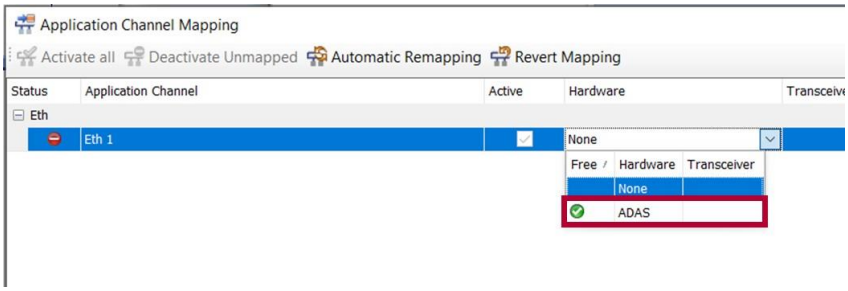

Figure 14: Application Channel mapping

4. Close the **Application Channel Mapping** dialog by clicking the [**OK**] button.
5. Open the **Port Configuration** dialog via the **Hardware | Port Configuration** menu command.

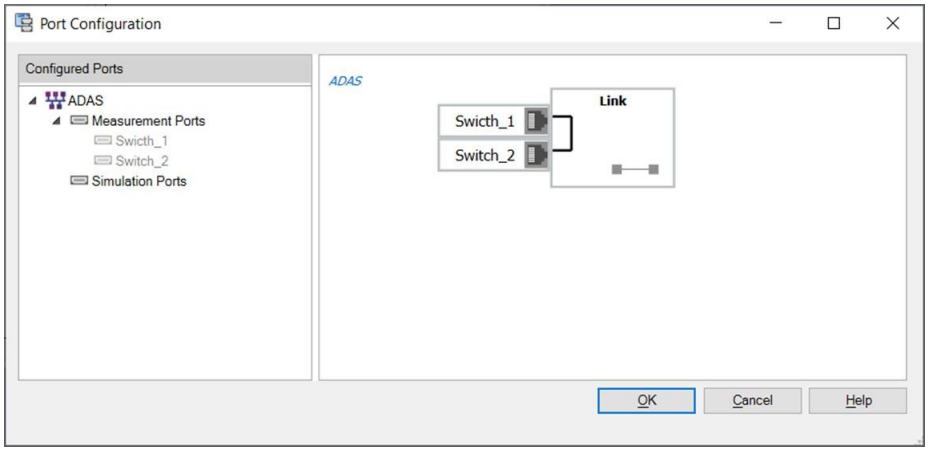

Figure 15: Dialog "Port Configuration"

With the hardware connected, CANoe recognizes the configured segments together with assigned ports. The ports previously configured in the hardware are displayed in gray in the left area of the dialog.

6. Packets received on a physical port or sent via a physical port are not displayed in CANalyzer until the port has been activated. To do this, select the port in the **Measurement Ports** group with the right mouse button and activate the **Activate** menu command.
7. Close the **Port Configuration** dialog via the [**OK**] button after all desired ports have been activated.
8. Start the measurement via the menu command **Home | Start**.

Note
Packets received on a port are marked as RX packets. If a packet is sent from the Ethernet VN device via a port (in the TAP case this corresponds to forwarding a packet from one port to the other) this packet is marked as TX packet. Both the direction and the name of the port are displayed in the trace window.

4 Simulation

The ECUs **LRR**, **CAMF**, **IC** and the **Switch_2** are not available and are to be simulated with the aid of CANoe. The network topology should be retained, so the ECUs **LRR** and **CAMF** should continue to be connected to the **ADAS** ECU (**Switch_1**) via **Switch_2**. With an abstracted network topology, the ECUs could also be connected directly to **Switch_1** if the number of ports is sufficient.

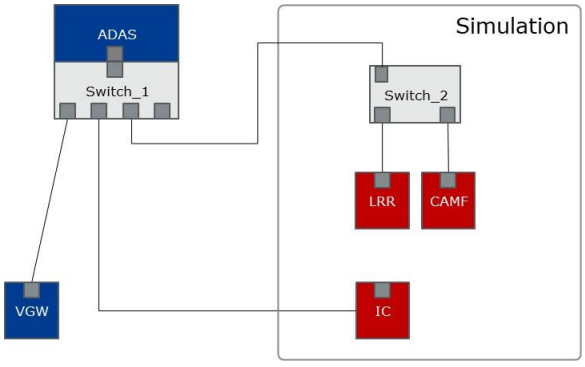

Figure 16: Use case "Simulation"

4.1 Cabling

Two ports are required on the Vector VN device. The simulation of **Switch_2** is realized directly on the Vector VN device.

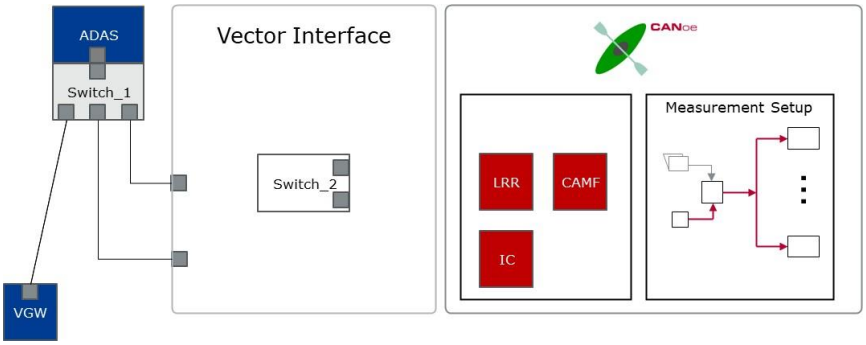

Figure 17: System setup and cabling (1)

4.2 Hardware configuration

LRR and **CAMF** are connected to **Switch_2** via so-called virtual ports. **IC** is connected to the real **ADAS** ECU via a direct connection. This results in the following schematic representation.

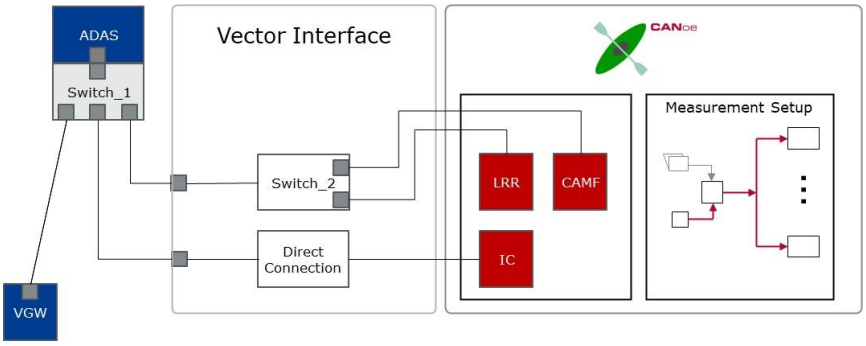

Figure 18: System setup and cabling (2)

In the Ethernet VN device, a switch and a direct connection with corresponding port assignments must be set up for this application. Please proceed as follows:

1. Make sure that the Ethernet VN device is connected to the computer.
2. Open the **Vector Hardware Config** dialog from the Windows Start menu or **Control Panel**, **Hardware and Sound** group.
3. Select the desired Ethernet VN device with the right mouse button and activate the menu command **Ethernet device configuration**.

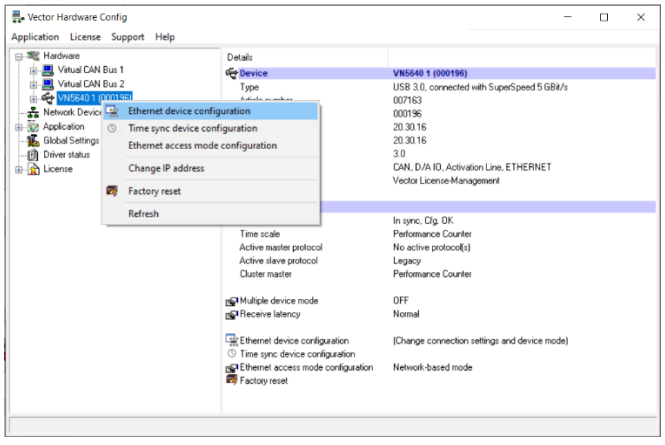

Figure 19: Dialog "Vector Hardware Config"

4. The dialog **Vector Ethernet Device Configuration** is opened. If there is already a hardware configuration stored in the device this configuration will be displayed in the middle part of the dialog.
5. Create a new configuration via the menu command **File** | **New**

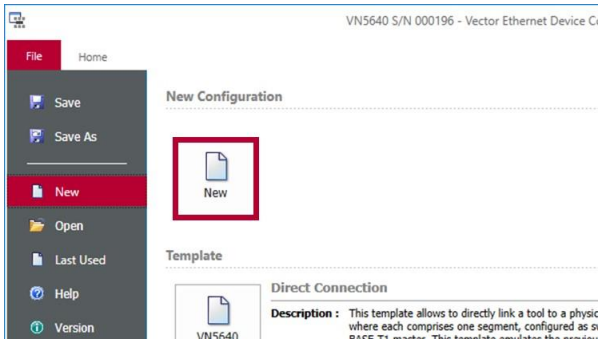

Figure 20: Creating a new hardware configuration

Note
This command will only create an empty configuration in the configuration dialog. The actual configuration stored in the Ethernet VN device will be overwritten later.

6. Select a **Switch** segment in the **Segments** group and drag and drop it into the blue network placeholder in the middle **Layout** area of the dialog.

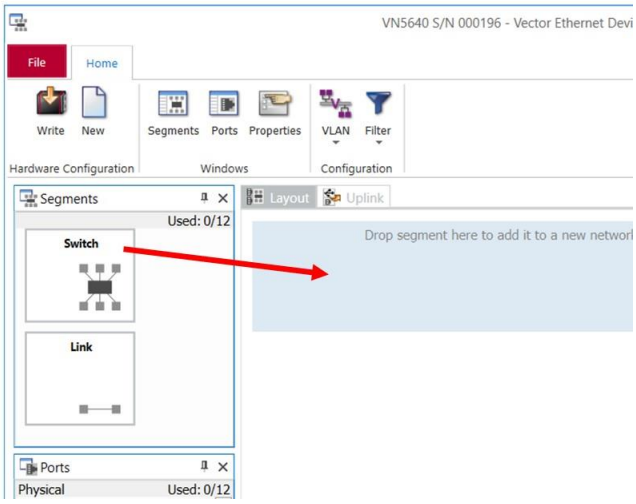

Figure 21: Switch segment assignment

7. A network with the default name **Ethernet1** is created automatically. This name can be changed if necessary. In our use case we analyze the ADAS network. The network name can be changed in the **Properties** window on the right side of the dialog if the network is selected. Alternatively, you can also double-click on the name in the **Layout** area.

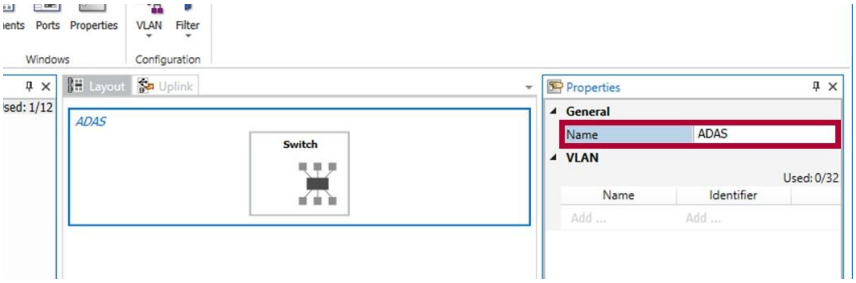

Figure 22: Network properties

For information on further link settings in the **Properties** area, please refer to the online help. To do this, simply press the **F1** key.

Note
The Vector Tools are connected to the VN devices via the network name. The network name must therefore be specified when creating the CANoe/CANalyzer configuration in the tool.

8. Select the switch segment in the layout view and change the name to **Switch_2**. The name can be changed in the **Properties** window on the right side of the dialog.

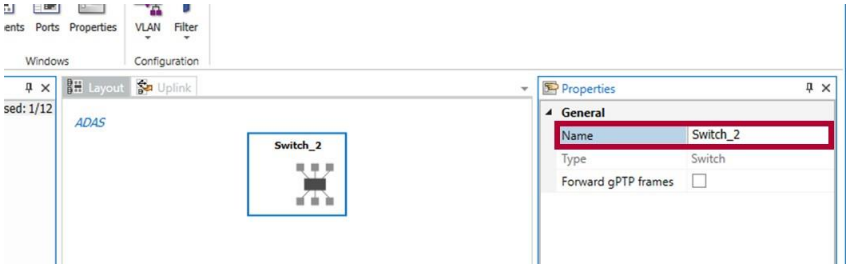

Figure 23: Switch segment properties

9. Assign **Switch_2** the physical port of the Ethernet VN device to which the ADAS control unit (**Switch_1**) is connected. Select the desired port from the **Ports** group on the left side of the dialog and assign it to **Switch_2** via drag & drop.

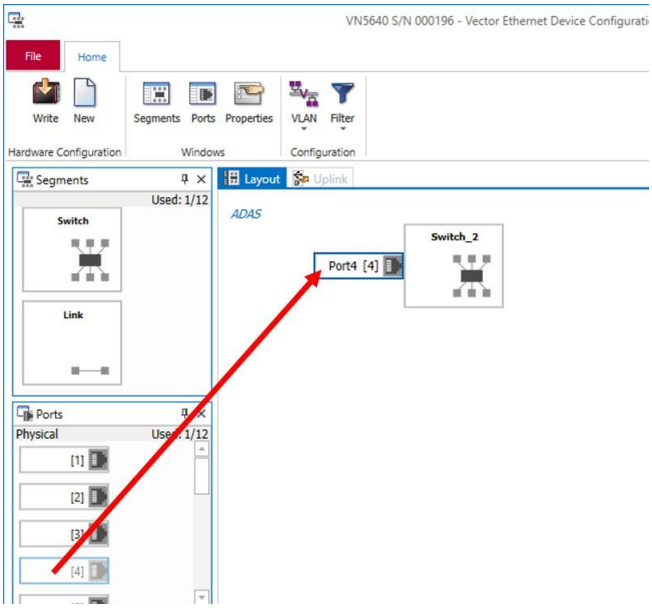

Figure 24: Port assignment

10. Assign the name of the connected network node (in our example this is port 3 of **Switch_1**) to the assigned port. The name can be changed in the **Properties** window on the right side of the dialog when the port is selected. Alternatively, you can double-click on the port in the layout area.

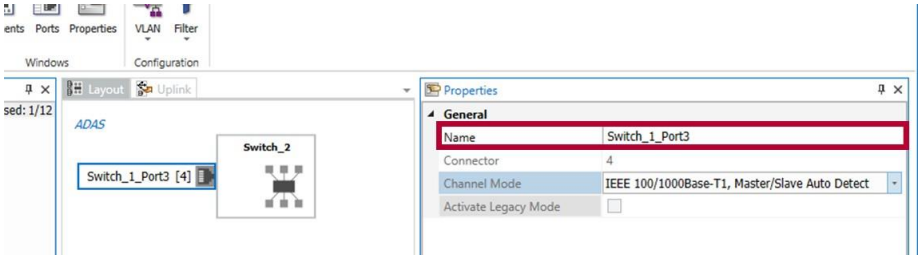

Figure 25: Port name configuration

The specified name is displayed in the **Layout** area of the dialog. The number displayed in square brackets corresponds to the number of the port you have selected from the port list before. You will find this numbering also on the Ethernet VN device itself. Changing the port number is only possible indirectly. If another port of the Ethernet VN device is to be used, the already assigned port must be deleted and a new port must be assigned.

For information on further port settings in the **Properties** area, please refer to the online help. Simply press the **F1** key.

11. Now select the port in the **Layout** view and choose the corresponding **Channel Mode** in the **Properties** area on the right side of the dialog.

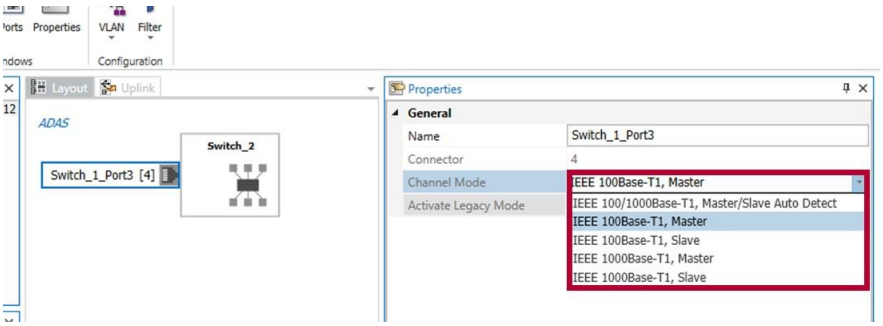

Figure 26: Port mode configuration

Note

If the port on the **ADAS** device on **Switch_1** is operated as **IEEE 100BASE-T1, Slave**, for example, **IEEE 100BASE-T1, Master** must be set on the Ethernet VN device port used. Otherwise, no link can be established.

Assigning virtual ports for the simulated nodes to the **Switch_2** segment is not necessary. CANoe will automatically create the virtual ports required for the connection of the simulated nodes at measurement start (see also section 4.3).

12. Select a **Link** segment in the **Segments** group and drag and drop it into the blue **ADAS** network in the middle layout area of the dialog.

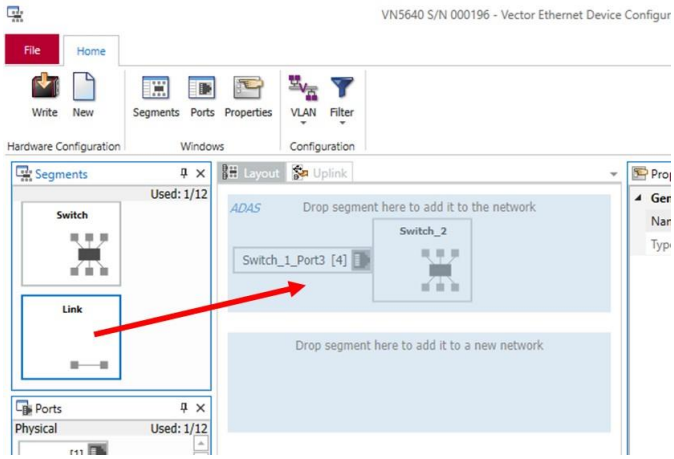

Figure 27: Link segment assignment

13. Assign a port to the **Link** segment, change its name, and set the appropriate channel mode (see steps 9 to 11).

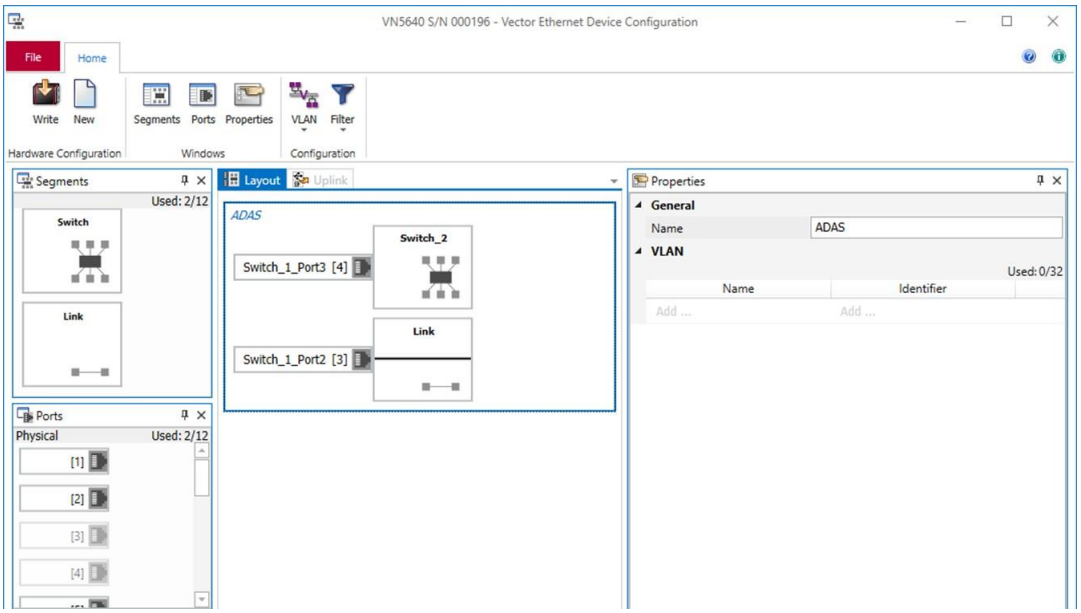

Figure 28: Hardware configuration

14. Save the current configuration via the menu command **Home | Write** in the connected Ethernet VN device. The configuration is then stored as default configuration in the Ethernet VN device, a corresponding message is displayed. Additionally, the configuration can be stored in a file via the menu command **File | Save**.
15. Close the dialog **Vector Ethernet Device Configuration**
16. The configuration of the Ethernet VN device is complete, the second step is now to create the CANoe configuration.

4.3 CANoe configuration

Proceed as follows to create a CANoe configuration:

1. Start CANoe
2. Create a new CANoe configuration using the menu command **File | New**. Select the template **Ethernet (Simulation Setup)**. A new CANoe Ethernet configuration will be created. The configuration already contains all windows necessary for analysis.

3. Assign the network name to the CANoe configuration that you previously specified in the hardware configuration (in our example **ADAS**). To do this, select the **Ethernet1** entry in the **System View** of the **Simulation Setup** with the right mouse button and activate the **Rename** menu command.

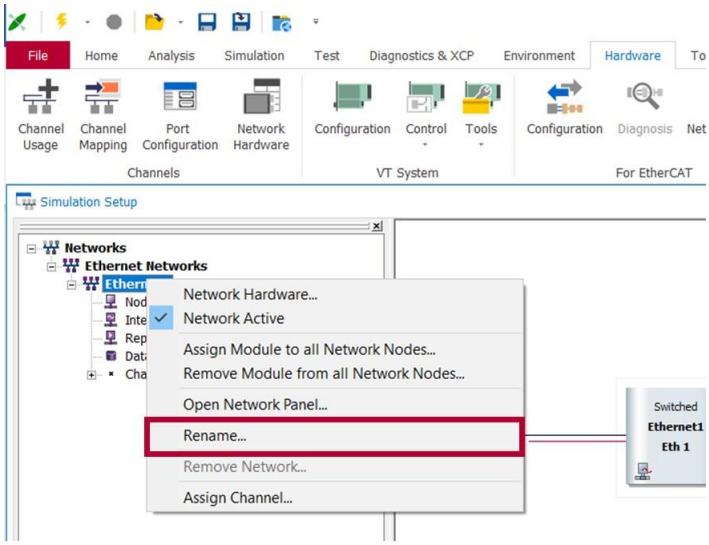

Figure 29: Changing network name in CANoe

4. The changed network name is then displayed in the **Simulation Setup**.

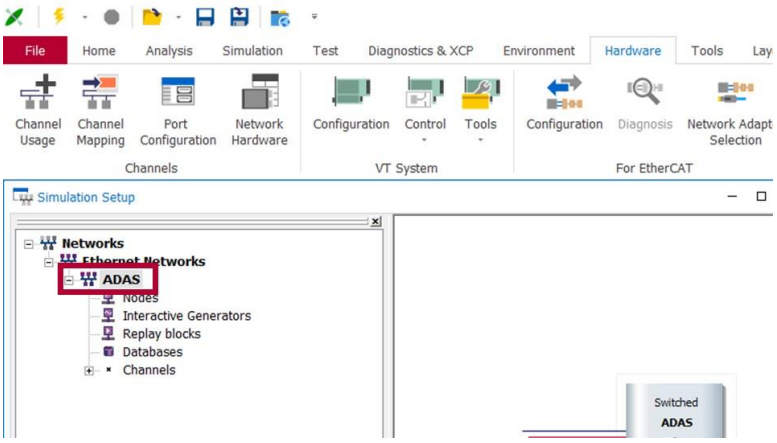

Figure 30: Network name display in CANoe

Hint: CANoe is now automatically connected to the Ethernet VN device via the same network name when the measurement is started. If the names are not identical, the two network names must be mapped using the ***Hardware | Channel Mapping*** *menu command.*

5. Add the three simulation nodes to the simulation setup and configure them.

Note
This document focuses on the configuration and connection of the Ethernet VN devices. It is assumed that you are familiar with the configuration of the simulation nodes - for example the assignment of the corresponding interaction layer DLLs.

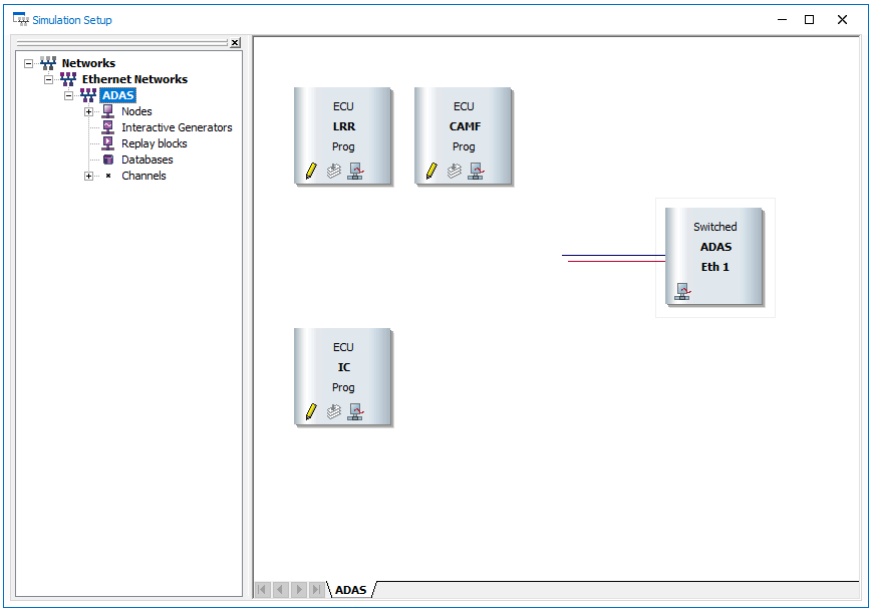

Figure 31: Simulation Setup

6. Open the **Port Configuration** dialog via the **Hardware | Port Configuration** menu command.

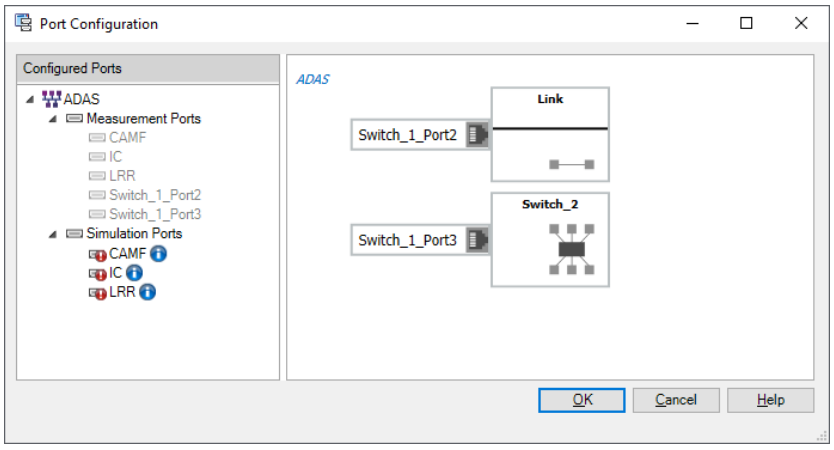

Figure 32: Dialog "Port Configuration"

When the hardware is connected, CANoe recognizes the configured segments together with the assigned ports. The ports previously configured in the hardware are displayed in gray in the left area of the dialog in the **Measurement Ports** group. In addition, the virtual ports of the simulation nodes are displayed there in the **Simulation Ports** group.

7. Since CANoe does not know the physical network topology, the virtual ports must now be assigned to the segments in the **ADAS** network. To do this, select the port in the **Simulation Ports** group with the right mouse button and choose the appropriate segment from the local popup menu. According to the task definition in section 4, the following assignment results:

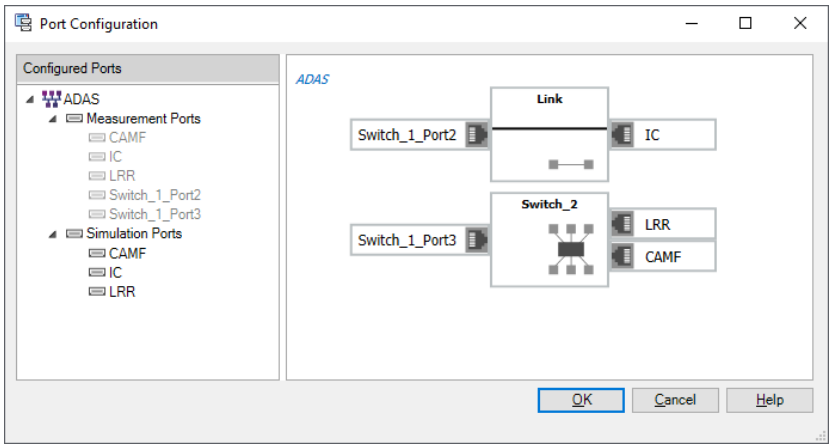

Figure 33: Virtual port assignment

8. Packets received on a physical port or sent via a physical port are not displayed in CANoe until the port has been activated in CANoe. To do this, select the port in the **Measurement Ports** group with the right mouse button and activate the **Activate** menu command. Packets received on a virtual port or sent via a virtual port are always displayed in CANoe.

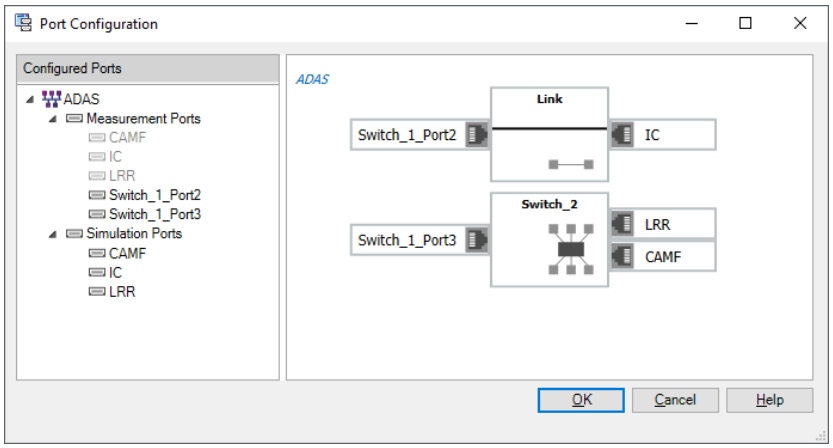

Figure 34: Port activation

9. Close the **Port Configuration** dialog via the [**OK**] button after all desired ports have been activated.
10. Start the measurement via the menu command **Home | Start**.

Note
Packets received on a port are marked as RX packets. If a packet is sent from the Ethernet VN device via a port, this packet is marked as TX packet. It is irrelevant whether this is a physical port or a virtual port. Both the direction and the name of the port are displayed in the trace window, for example.

5 Diagnostic / Calibration

A direct access to the diagnostic port at **Switch_1** is to take place. For this, a direct connection must be set up in the Ethernet VN device.

5.1 Cabling

Only one port on the Ethernet VN device is required for the direct connection of a tool. Diagnostic applications, for example, can be realized via a standard Ethernet cable (100Base-TX / 1000Base-T). Corresponding Physical Layer connections (PHYs) including RJ45 connectors are already provided on the Ethernet VN devices for this purpose.

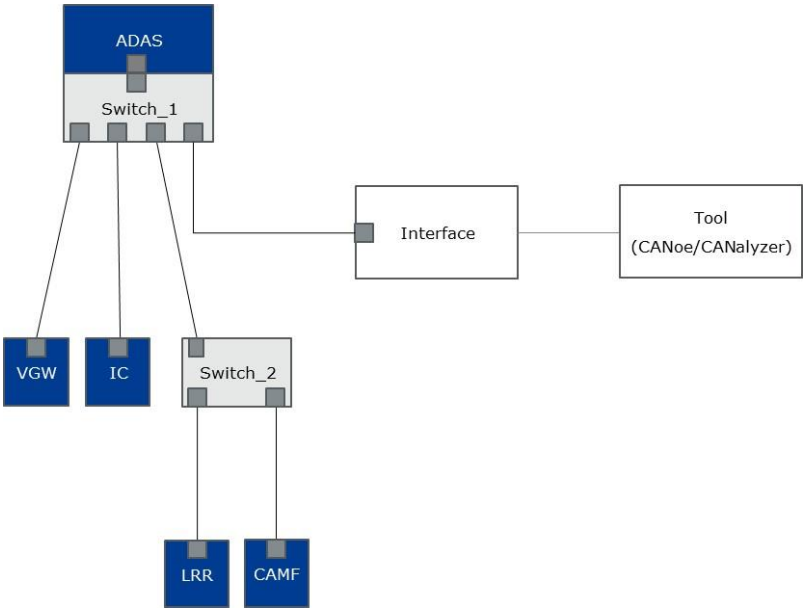

Figure 35: System setup and cabling

Note
The diagnostic application was selected here only representatively. Of course, any Ethernet control device can be connected directly to the Ethernet VN device and thus connected to the tool.

5.2 Hardware configuration

A direct connection must be configured in the Ethernet VN device. A direct connection

- comprises a physical port of the Ethernet VN device. The packets received on this port are forwarded to the application (CANoe/CANalyzer).
- allows to send Ethernet packets to the connected ECU. For this purpose, a virtual port is created by the application.

To set up a direct connection, please proceed as follows:

1. Make sure that the Ethernet VN device is connected to the computer.
2. Open the **Vector Hardware Config** dialog from the Windows Start menu or **Control Panel**, **Hardware and Sound** group.
3. Select the desired Ethernet VN device with the right mouse button and activate the menu command **Ethernet device configuration**.

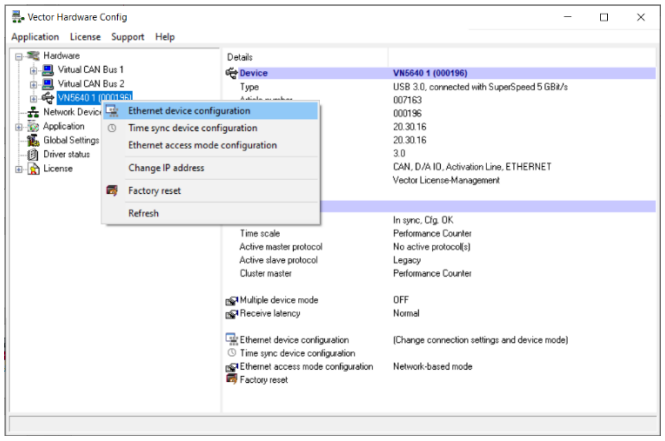

Figure 36: Dialog "Vector Hardware Config"

4. The dialog **Vector Ethernet Device Configuration** is opened. If there is already a hardware configuration stored in the device this configuration will be displayed in the middle part of the dialog.
5. Create a new configuration via the menu command **File** | **New**

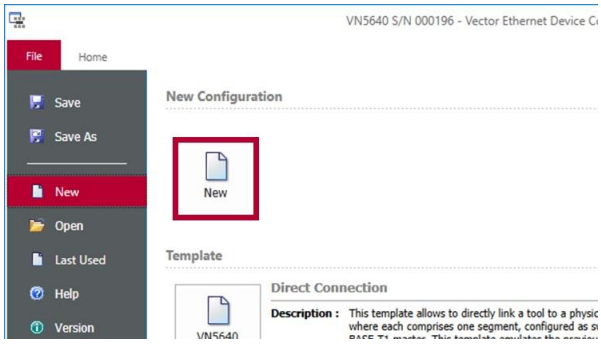

Figure 37: Creating a new hardware configuration

Note
This command will only create an empty configuration in the configuration dialog. The actual configuration stored in the Ethernet VN device will be overwritten later.

6. Select a **Link** segment in the **Segments** group and drag and drop it into the blue network placeholder in the middle **Layout** area of the dialog.

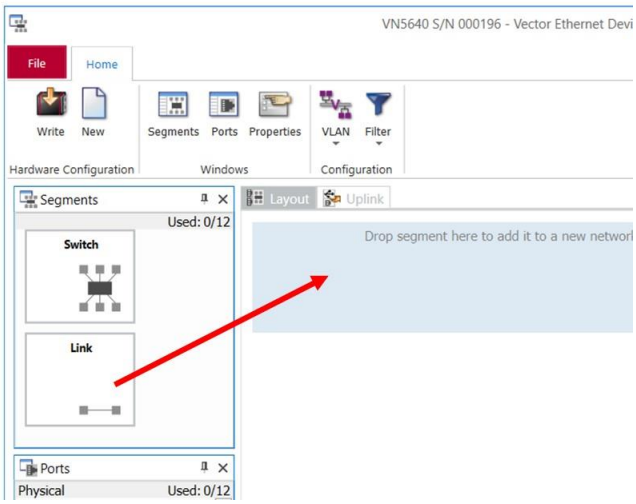

Figure 38: Link segment assignment

7. A network with the default name **Ethernet1** is created automatically. This name can be changed if necessary. In our use case we analyze the ADAS network. The network name can be changed in the **Properties** window on the right side of the dialog if the network is selected. Alternatively, you can also double-click on the name in the **Layout** area.

Figure 39: Network properties

For information on further link settings in the **Properties** area, please refer to the online help. To do this, simply press the **F1** key.

Note
The Vector Tools are connected to the Ethernet VN devices via the network name. The network name must therefore be specified when creating the CANoe/CANalyzer configuration in the tool.

8. Assign the desired physical port of the Ethernet VN device to the inserted **Link**. Use the ports to which the **CAMF** control unit is connected to the Ethernet VN device. Select the desired port from the **Ports** group on the left side of the dialog and assign it to the inserted Link segment using drag & drop.

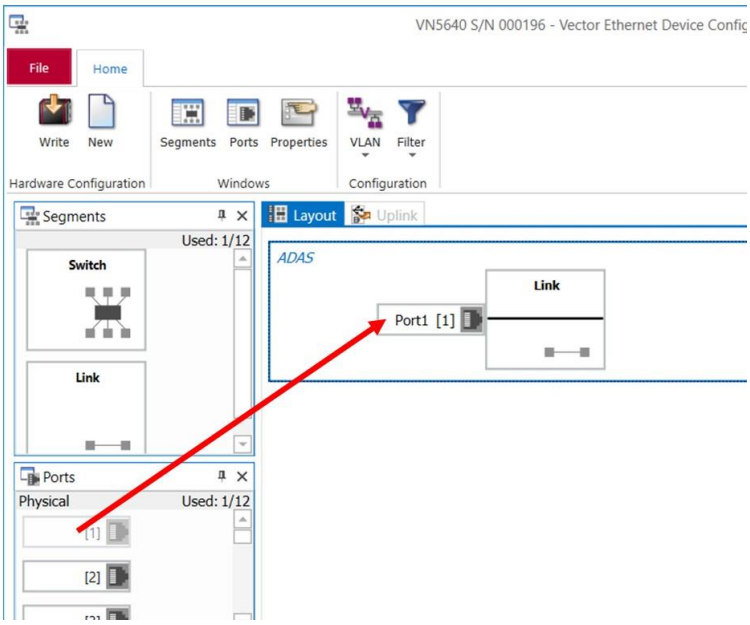

Figure 40: Port assignment

Assigning the physical port means that the inserted link segment now functions as a direct connection (see **TAP** in the Measuring chapter). This is displayed in the **Properties** area on the right side of the dialog when the link segment is selected.

9. Assign the name of the connected network device to the assigned port. The name can be changed in the **Properties** window on the right side of the dialog when the port is selected. Alternatively, double-click on the port in the **Layout** area.

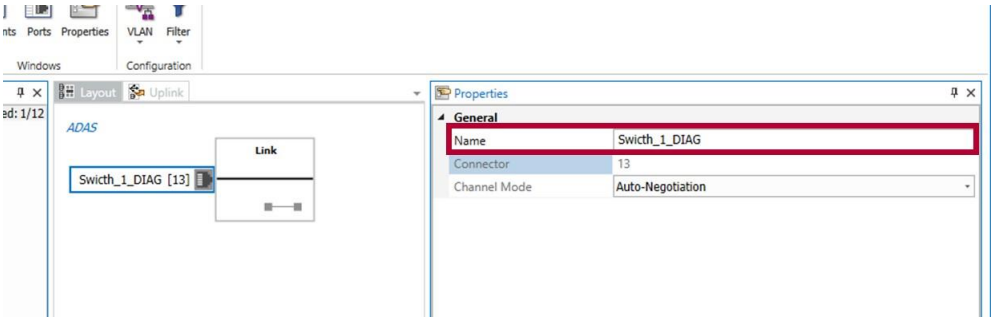

Figure 41: Port name configuration

The specified name is displayed in the **Layout** area of the dialog. The number displayed in square brackets corresponds to the number of the port you have selected from the port list before. You will find this numbering also on the Ethernet VN device itself. Changing the port number is only possible indirectly. If another port of the Ethernet VN device is to be used, the already assigned port must be deleted and a new port must be assigned.

For information on further port settings in the **Properties** area, please refer to the online help. Simply press the **F1** key.

Note
In this chapter we consider a trivial use case in which CANoe/CANalyzer acts as a diagnostic tester. Accordingly, CANoe/CANalyzer requires only a virtual port that the application automatically creates at the configured link segment on measurement start. No further configuration step is required. However, if additional transmit instances are configured in CANoe/CANalyzer (for example, an additional Ethernet IG), the Link segment can no longer be used. A Switch segment must then be inserted instead.

10. Now select the port in the **Layout** view and choose the corresponding **Channel Mode** in the **Properties** area on the right side of the dialog.

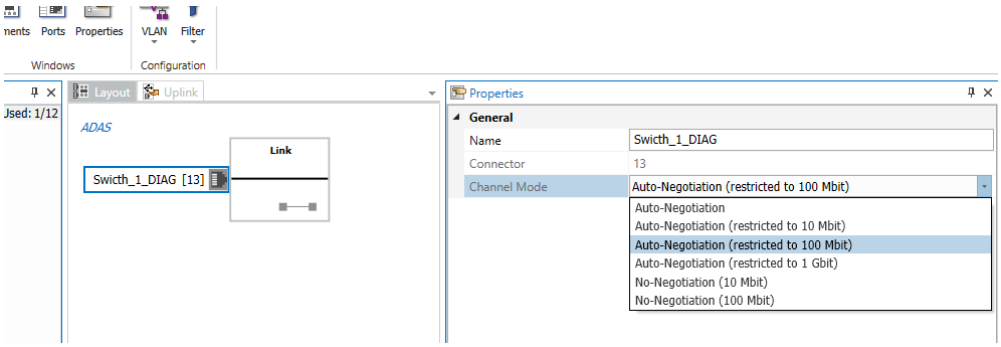

Figure 42: Port mode configuration

11. Save the current configuration via the menu command **Home | Write** in the connected Ethernet VN device. The configuration is then stored as default configuration in the Ethernet VN device, a corresponding message is displayed. Additionally, the configuration can be stored in a file via the menu command **File | Save**.
12. Close the dialog **Vector Ethernet Device Configuration**
13. The configuration of the Ethernet VN device is complete, the second step is now to create the CANoe/CANalyzer configuration.

5.3 CANoe configuration

Proceed as follows to create a CANoe configuration:

1. Start CANoe
2. Create a new CANoe configuration using the menu command **File | New**. Select the template **Ethernet (Simulation Setup)**. A new CANoe Ethernet configuration will be created. The configuration already contains all windows necessary for analysis.
3. Assign the network name to the CANoe configuration that you previously specified in the hardware configuration (in our example **ADAS**). To do this, select the **Ethernet1** entry in the **System View** of the **Simulation Setup** with the right mouse button and activate the **Rename** menu command.

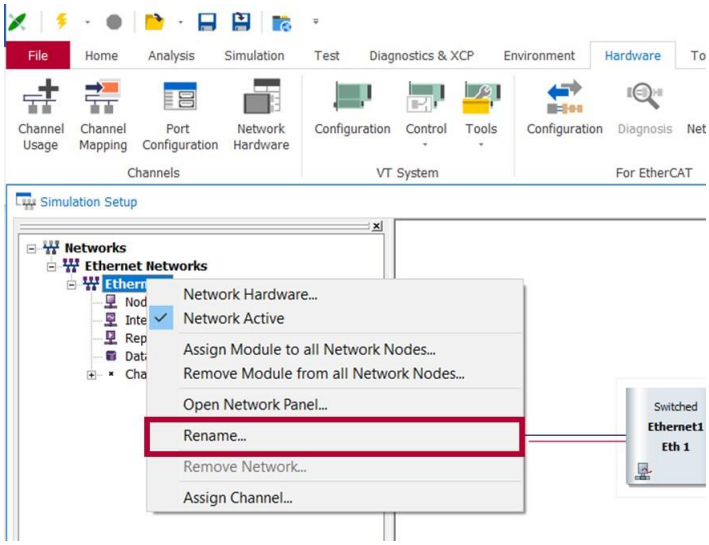

Figure 43: Changing network name in CANoe

4. The changed network name is then displayed in the **Simulation Setup**.

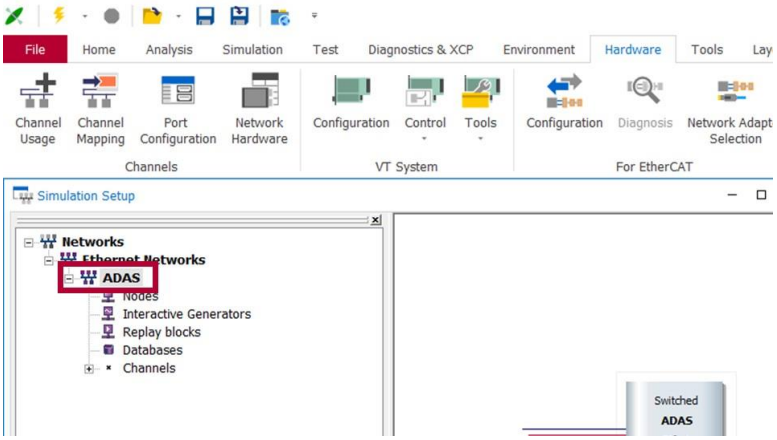

Figure 44: Network name display in CANoe

*Hint: CANoe is now automatically connected to the Ethernet VN device via the same network name when the measurement is started. If the names are not identical, the two network names must be mapped using the **Hardware | Channel Mapping** menu command.*

5. Open the **Port Configuration** dialog via the **Hardware | Port Configuration** menu command.

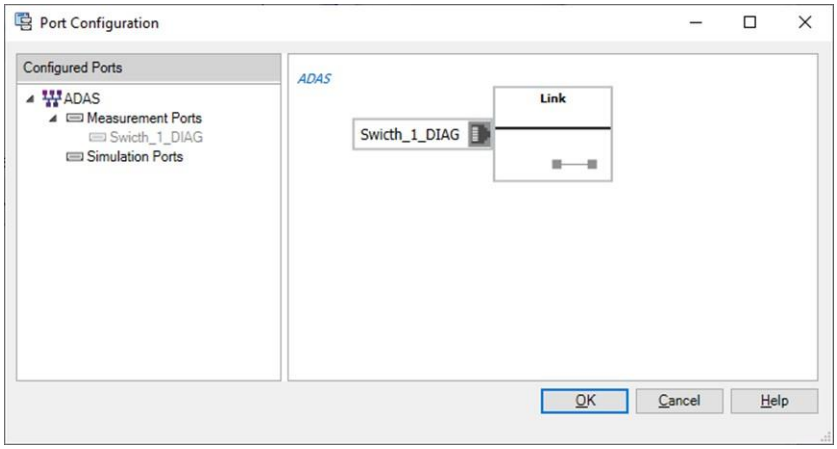

Figure 45: Dialog "Port Configuration"

With the hardware connected, CANoe recognizes the configured segments together with assigned ports. The port previously configured in the hardware is displayed in gray in the left area of the dialog.

6. Packets received on a physical port or sent via a physical port are not displayed in CANoe until the port has been activated in CANoe. To do this, select the port in the **Measurement Ports** group with the right mouse button and activate the **Activate** menu command.
7. Close the **Port Configuration** dialog via the [**OK**] button after all desired ports have been activated.
8. Start the measurement via the menu command **Home | Start**.

Note
Packets received on a port are marked as RX packets. If a packet is sent from the Ethernet VN device via a port this packet is marked as TX packet. Both the direction and the name of the port are displayed in the trace window.

5.4 CANalyzer configuration

Proceed as follows to create a CANalyzer configuration:

1. Start CANalyzer

   Create a new CANalyzer configuration via the **File | New** menu command. Select the **Ethernet** template here. A new CANalyzer Ethernet configuration is then created. The configuration already contains all the windows required for analysis.
2. Open the **Application Channel Mapping** dialog via the **Hardware | Channel Mapping** menu command and assign the network from your Ethernet VN device configuration to the CANalyzer application (in our example this is the **ADAS** network).

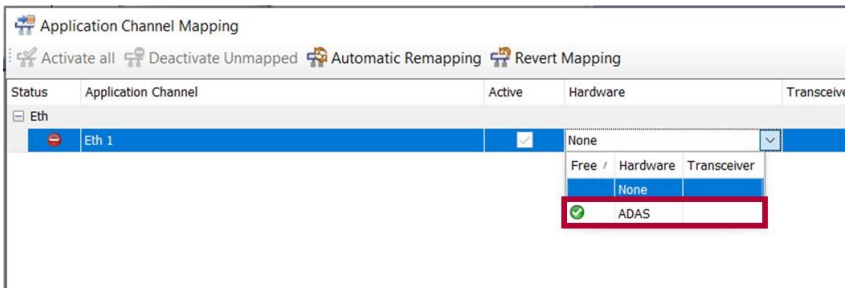

Figure 46: Application Channel mapping

3. Close the **Application Channel Mapping** dialog by clicking the [**OK**] button.
4. Open the **Port Configuration** dialog via the **Hardware | Port Configuration** menu command.

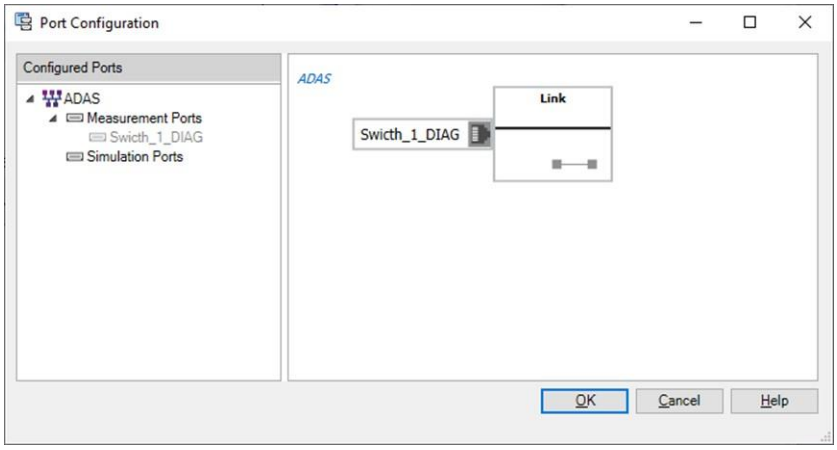

Figure 47: Dialog "Port Configuration"

With the hardware connected, CANoe recognizes the configured segments together with assigned ports. The ports previously configured in the hardware are displayed in gray in the left area of the dialog.

5. Packets received on a physical port or sent via a physical port are not displayed in CANalyzer until the port has been activated. To do this, select the port in the **Measurement Ports** group with the right mouse button and activate the **Activate** menu command.
6. Close the **Port Configuration** dialog via the [**OK**] button after all desired ports have been activated.
7. Start the measurement via the menu command **Home | Start**.

Note
Packets received on a port are marked as RX packets. If a packet is sent from the Ethernet VN device via a port this packet is marked as TX packet. Both the direction and the name of the port are displayed in the trace window.

6 Media Conversion

The configuration of a Media Converter is analogous to the configuration of the measurement use case (see chapter 3). Only when assigning the physical ports to the segment (see step 10), the corresponding physical ports, for example **IEEE 100BASE-T1** (Automotive Ethernet), Master and **IEEE 100BASE-TX** (Standard Ethernet), must be selected.

7 Additional Resources

AN-IND-1-023 Ethernet VN Family From Firmware Version 11.1

8 Contacts

For a full list with all Vector locations and addresses worldwide, please visit http://vector.com/contact/.