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Symbol	Utilization
	This icon gives you step-by-step instructions.
	This icon indicates notes and tips that facilitate your work.

1 Overview

This Support Note describes how to set up diagnostics on LIN using CANoe and how to solve connection or trace window interpretation issues.

2 Setting up a LIN diagnostics configuration

This chapter explains the steps to be executed in order to set up diagnostics on LIN. The most important parameters are explained as well.

2.1 Requirements

In order to set up a LIN diagnostic configuration in CANoe, you will need a LIN database and a diagnostic description file:

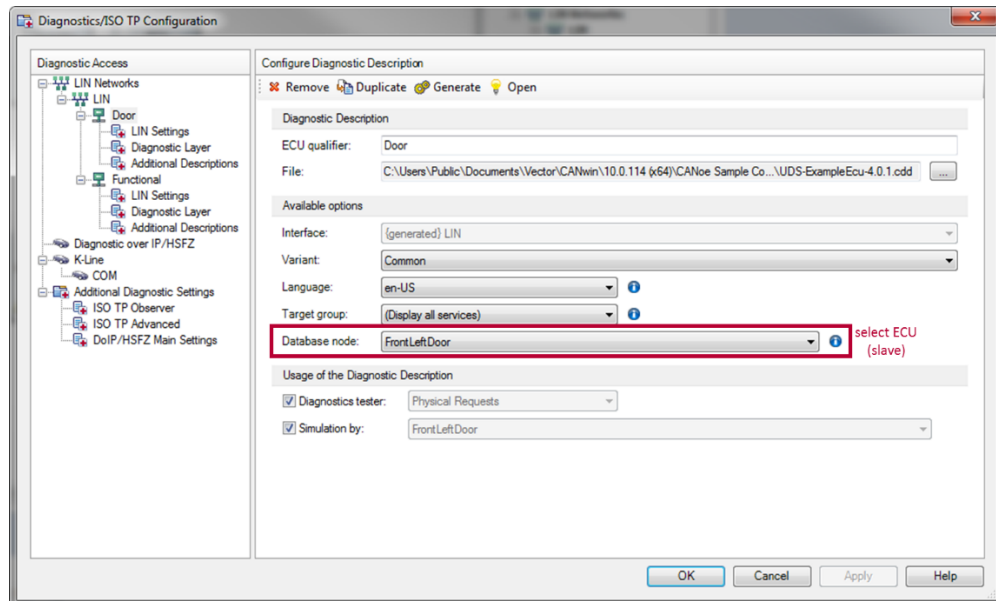
- > LIN Database (.LDF file)
- > Diagnostic description (CDD, MDX or PDX or Basic Diagnostic Description)

2.2 Setting up the configuration

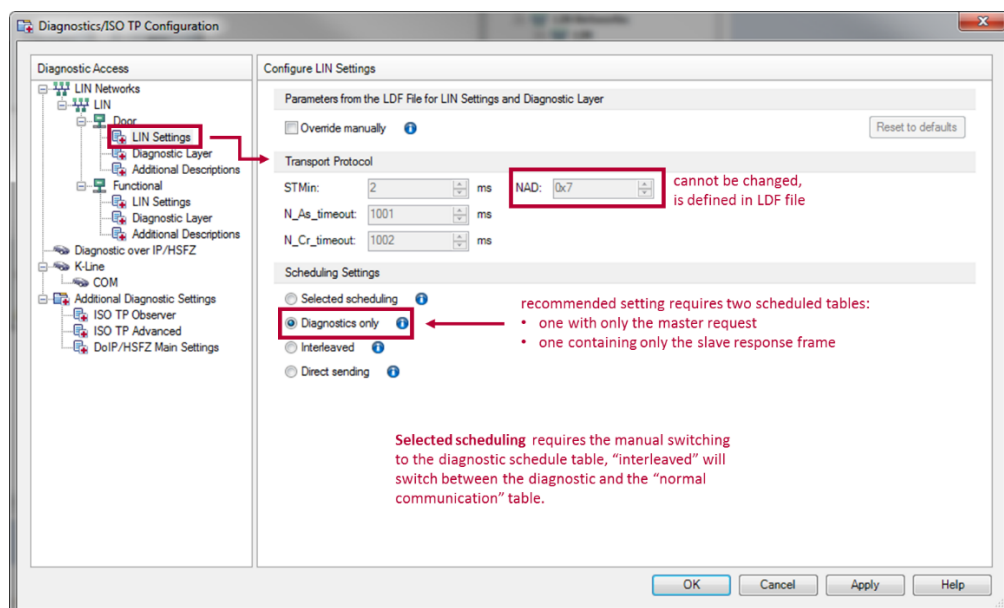


The following steps have to be done in order to set up a configuration for diagnostics on LIN:

- > In simulation setup, add database to LIN network (.LDF file)
- > Open **Diagnostics | Diagnostics/ISO TP...**
- > Add CDD, MDX or PDX or Basic Diagnostics to the LIN network
- > Select ECU from **Database node** list:



- > Make the required schedule settings and (the NAD=node address for diagnostics is defined in the LDF database and cannot be overwritten):



We recommend the **Diagnostics only** scheduling which switches first to the MasterRequest table and then to the SlaveResponse table. After receiving the response, CANoe switches to the schedule table active before using these 2 diagnostic tables.

3 Troubleshooting

3.1 No diagnostic communication visible in trace window

If no requests can be seen in trace window, check that the required schedule tables are available in the LDF file (containing the 0x3C and 0x3D frames). If **Selected scheduling** has been activated, manual switching (or with the use of CAPL) has to be used, e.g. with the LIN interactive master or (since version 11.0) the LIN interactive scheduler.

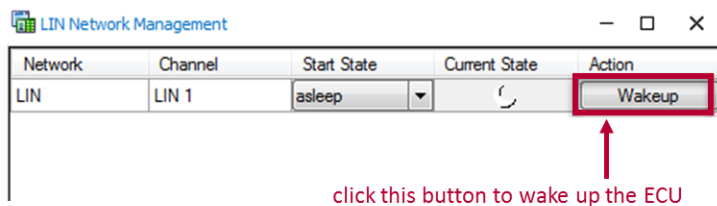
For LIN 2.1 and higher compatible slaves, 2 diagnostic schedules are required:

1. A MasterRequest schedule containing only the master request frame (PID 0x3C)
2. A SlaveResponse schedule containing only the slave response frame (PID 0x3D)

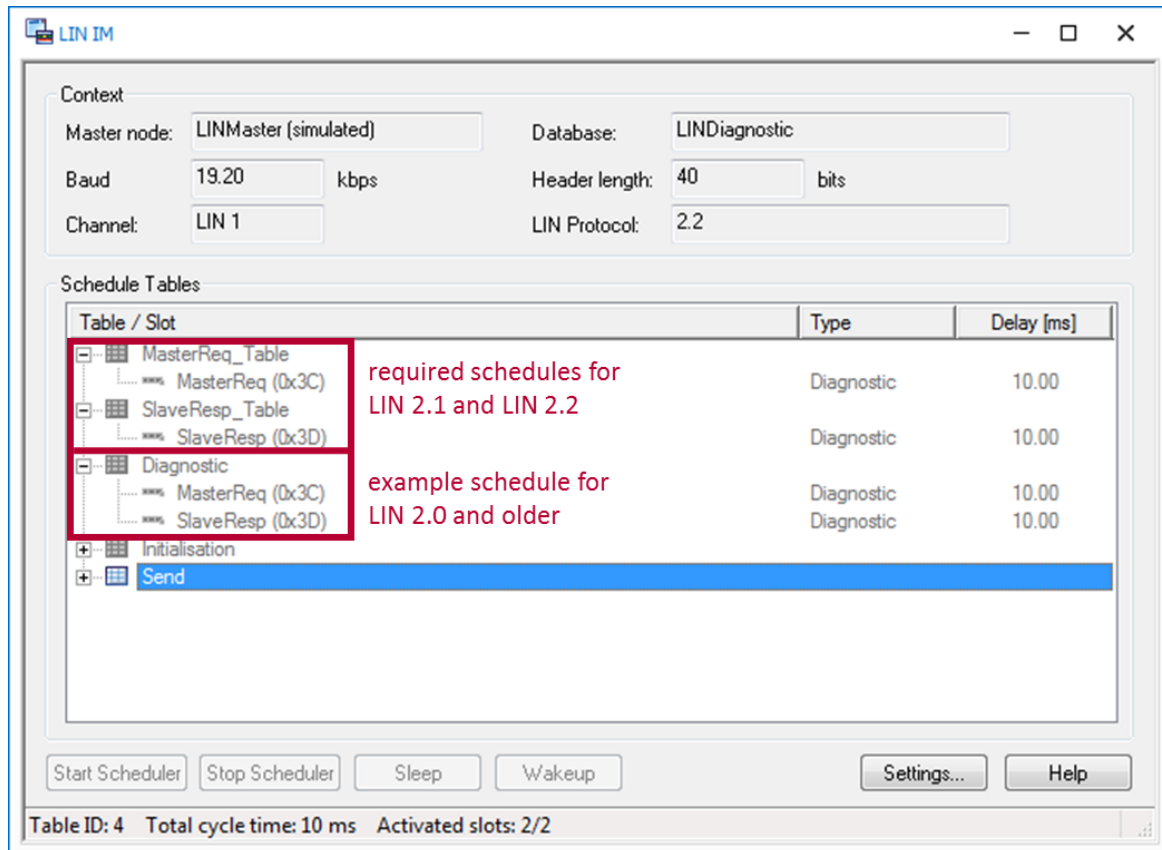
The **Diagnostics only** schedule setting requires these 2 tables. Otherwise this option is greyed out.

Check trace window whether the slave has fallen into sleep mode or for the occurrence of diagnostic frames. LIN has basically the same transport layer as CAN (ISO 15765-2), but there are no flow control frames due to the master-slave architecture. The first byte of a LIN frame contains the NAD (used both for the request and the response).

To check the state of the LIN network and the slaves and to wake up the slaves use the **LIN Network Management** Window:



Available schedule tables might be analyzed by opening the LIN interactive master block in simulation setup:



This block can also be used to switch between schedule tables (required for the **Selected scheduling** mode).

Transmission errors in trace window during an active slave response table are no real errors, they indicate simply that there has been no response during the sending of the 0x3D header. As long as the P2 timeout has not been violated, this is normal behavior and no error.

Make sure that there is either a node selected as LIN master in simulation setup (**Database node** assignment) and the LIN interactive master is used or at least one node is selected as master and this node switches between the schedules using CAPL.

4 Contacts

Please find the contacts of Vector Informatik GmbH and all subsidiaries worldwide via:
http://www.vector.com/vi_addresses_en.html