

Node Sim Application User Manual



Introduction

NodeSim is a free application supplied along with CANMATE. This enables simulating a CAN network node using PC and CANMATE. It provides the basic functionality of a CAN node like sending time triggered messages and message triggered messages. It also provides the functionality to log all the incoming and outgoing messages as .csv files for further analysis.

Basic configuration of NodeSim

NodeSim is a very simple application where user interacts with the application through visible buttons. Basic configuration of NodeSim include the following.

- Configuring baud rate : One of the 12 baud rates can be selected using this dialog
- Enable/Disable message logging : Using the check box user can enable/disable the message logging functionality. Message logging takes place while the simulation is going on.
- Configuring time triggered and message triggered messages
- Saving the configuration
- Loading saved configuration
- Starting and Stopping simulation
- Adding and deleting trigger messages

Setting up messages for simulation

NodeSim has 2 modes of operation namely, Configuration mode and simulation mode. Application starts up in the configuration mode and all the configuration related buttons will be active in this mode. All the configuration activities should be carried out in the configuration mode.

Two types of messages can be setup in NodeSim. They are time triggered messages and message triggered messages. For setting up a time triggered message, Time Trigger checkbox should be checked and a value greater than 10 should be entered in the ms column. Please note that the values are entered in milli-seconds.



Session Configuration

Baud rate: ☐ Log Messages

Trigger configuration

Time Trigger: ☒ ms

Trigger Message:

Message to send: ID: DLC: D0: D1: D2: D3: D4: D5: D6: D7:

Fig1 – Setting up a time triggered message

By pressing Add button this message will be added to the list view and will be visible to the user.

For setting up a message triggered message, details of the trigger message needs to be entered into the “Trigger Message” field. Any field that needs to be ignored should be filled with the don’t care value ‘X’ including the data fields. Otherwise, the unfilled values would be taken as ‘0’. Please note that don’t cares are not required for the “Message to send” field.

Trigger configuration

Time Trigger: ☐ ms

Trigger Message: ID: DLC: D0: D1: D2: D3: D4: D5: D6: D7:

Message to send: ID: DLC: D0: D1: D2: D3: D4: D5: D6: D7:

Fig 2 – Setting up a message triggered message

User can opt to save the configuration at any time. The configuration will be saved in NodeSim.cfg file and any previous configurations will be overwritten. User needs to manually save the configuration file to a different name if they want to retain the previous configurations.



Doing the Simulation

Simulation is started by pressing the “Start Sim” button. The displayed configuration is saved and the application switches to Simulation mode. Message display changes to received and transmitted messages.

When simulation is started, CANMATE is opened and the Green LED lights up. The baud rate selected in the GUI (default is 500 Kbps) is used for the simulation session. All the buttons, except “Stop Sim” will be disabled. Once the simulation is stopped, the application closes CANMATE and comes back to configuration mode. But the display will still show the messages received and transmitted. By pressing the “Load Config” button, the configuration used for simulation can be reloaded to the display area and it can be edited.

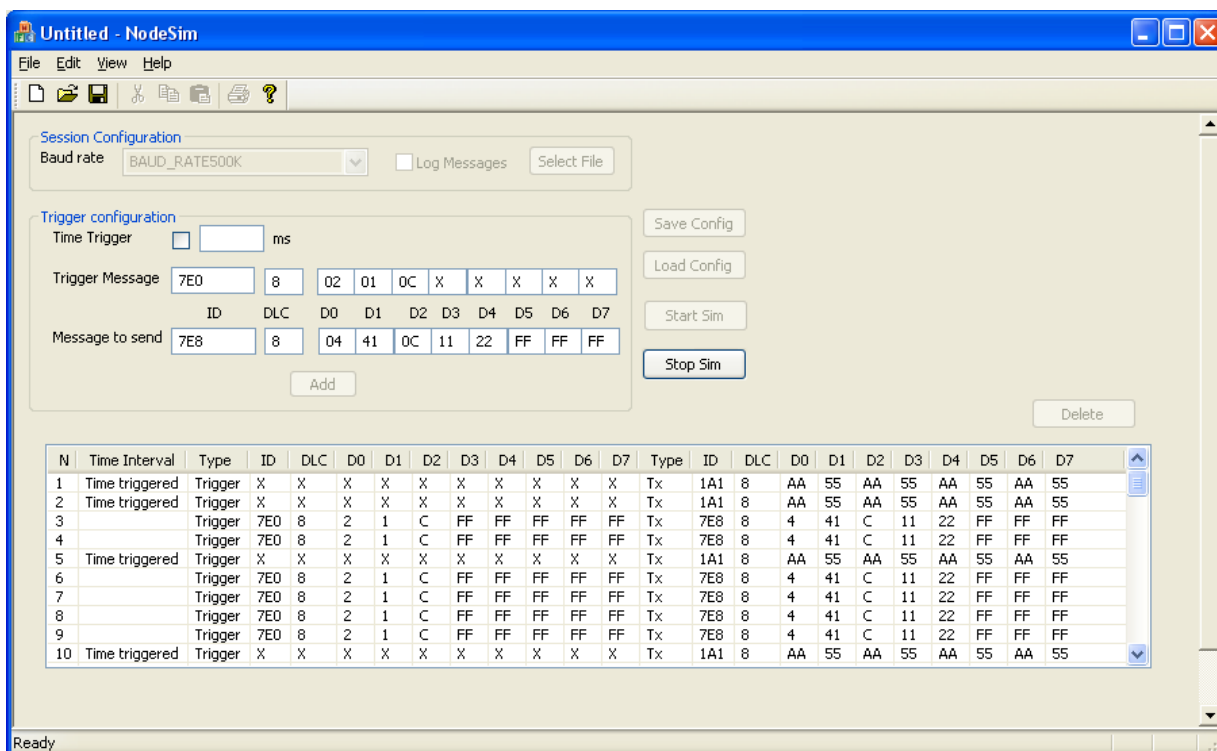


Fig 3 – Simulation Mode



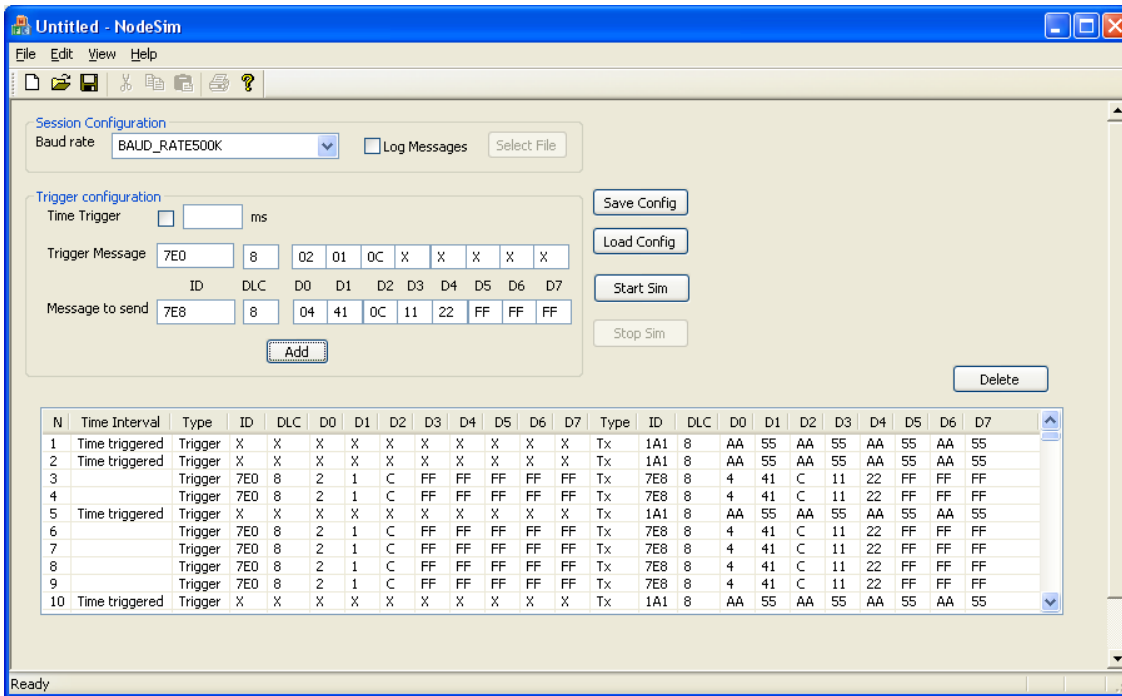


Fig 4 – GUI immediately after stopping the simulation

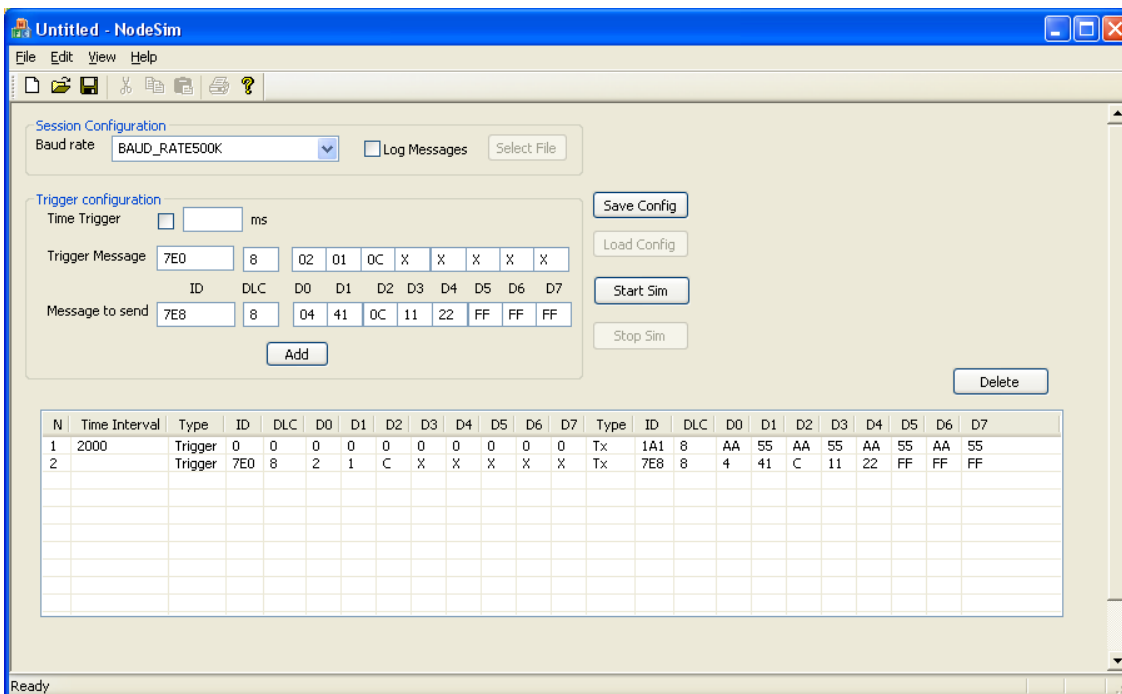


Fig 5 – GUI after loading the configuration



Message logging

By enabling the “Log Messages”, all the received and transmitted messages can be logged. This is saved in NodeSimLog.csv. Any previously saved logs will be overwritten and the user should manually save the log to a different name if the file needs to be retained. The log file will be saved in the Application installation directory.

