



*New Eagle*TM

MECHATRONIC CONTROL SOLUTIONS

Documentation

New Eagle Network Toolbox v0.0.30

User Guide

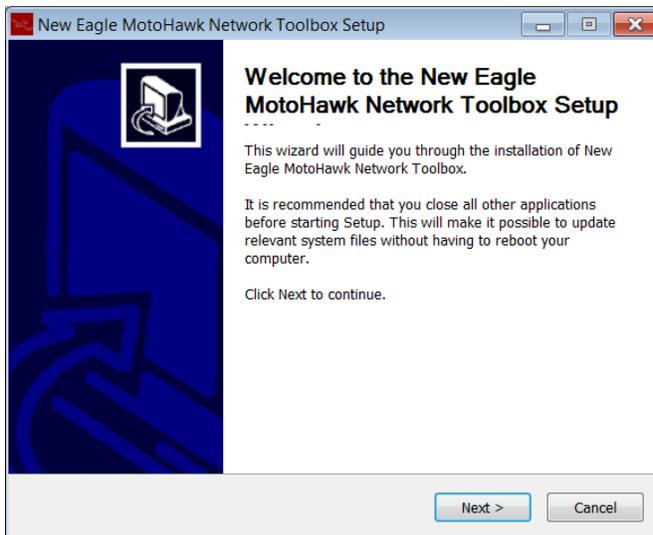
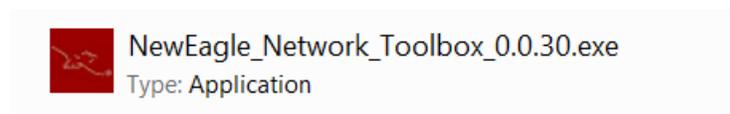


Introduction

New Eagle's Network Toolbox makes it easy to create CAN input and output blocks in MotoHawk. Instead of manually writing code in MATLAB to handle CAN messaging, Network Toolbox enables you to have useful CAN blocks starting from an industry-standard .dbc file to describe the CAN network. This saves development and debugging time and reduces complexity.

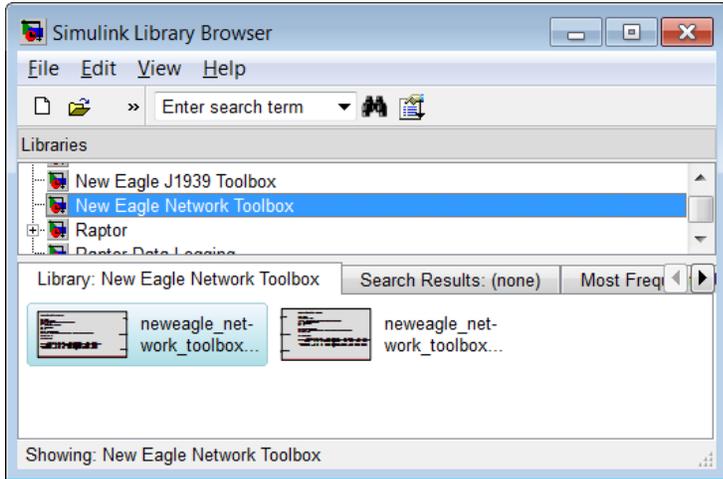
Installation

To use the Network Toolbox in your MotoHawk projects, run the installer.

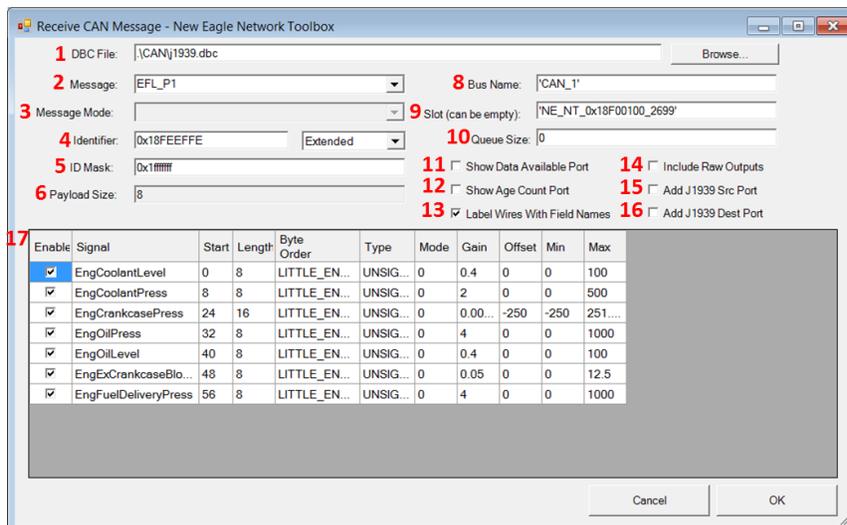


```
-----  
Initializing MotoHawk...  
For: MATLAB 7.14  
Version: 2012b_sp0.311  
Installed in: C:\Program Files (x86)\Woodward\MCS\MotoHawk\2012b_sp0.311  
Ready.  
-----  
#### New Eagle J1939 Initialized  
#### New Eagle NetworkToolbox Initialized  
fx >>
```

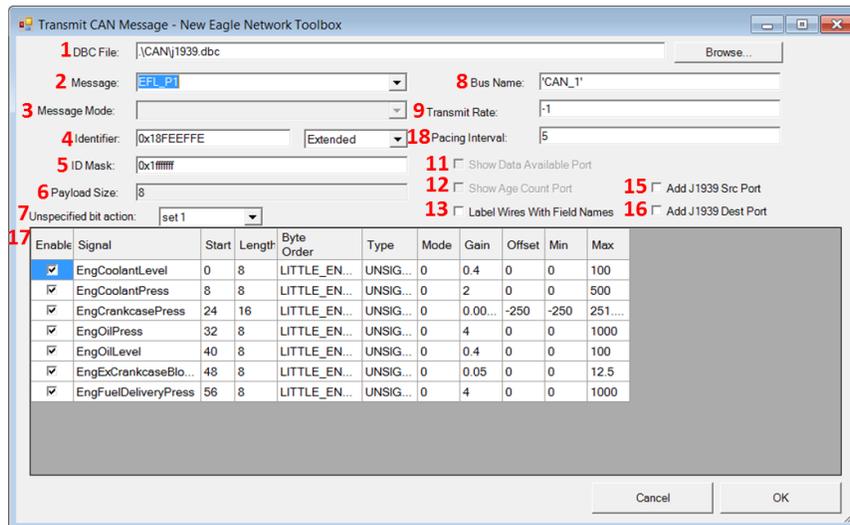
Usage



Network Toolbox block as it appears within a model.



Network Toolbox receive window.



Network Toolbox transmit window.

1. DBC File: You can browse to a .dbc file or enter a path to it. Relative paths will be used where possible to avoid breaking the model if it is copied to a different folder.
2. Message: Defined in the .dbc file. Selecting one message here loads its constituent signals in the signal browser.
3. Message mode: For multi-modal messages, selects the mode that the message will be sent in.
4. Identifier: The CAN bus ID that the message will be sent with.
5. ID Mask: Indicates which bits are relevant for a receive slot. Usually this is 0x1FFFFFFF for an extended CAN ID, or 0x7FF for a standard CAN ID.
6. Payload size: Size of the data to be sent, in bytes.
7. Unspecified bit action: Used to determine what the unused bits in a CAN message are set to for transmit. This is useful to set reserved or unused bits to 1 for j1939.
8. Bus name: CAN bus which the message will be sent or received on.
9. Slot: The slot name can be used to connect this block to a slot that can then be used to dynamically adjust the ID, ID Mask, Payload, and Payload Mask values.
In a Send CAN Message block, this text box is the transmit rate in milliseconds. A transmit rate of -1 means asynchronous: transmit whenever the block executes.
10. Queue size: Sets the size of the block's queue which will hold messages until it executes. A queue size of 0 or 1 will only make the most recent message available.
In a Send CAN Message block, this text box is the pacing interval in milliseconds, the time delay between sending messages that belong to a multiple message group.
11. Show data available port: If checked, shows the port on the block that sends the Data Available signal: 1 if a message is available and 0 otherwise. If the queue size is more than 1, then you can wire this port to a Simulink Do-While block and pop messages out of the queue. (valid only for Rx)

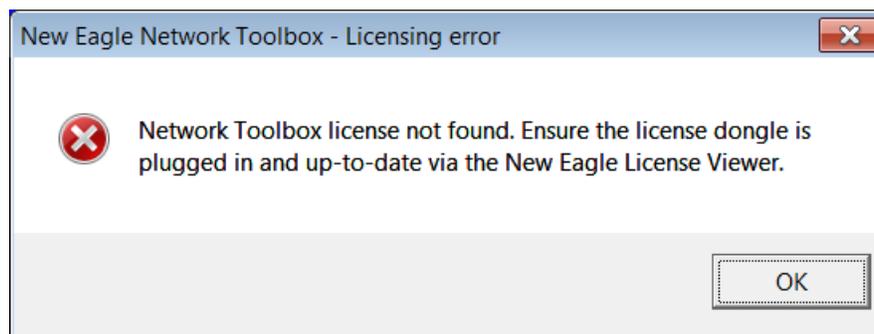
12. Show age count port: If checked, shows the port on the block that sends the age of the data. It will increment every time the block executes and no message is available; you can feed timeout logic from this port. (valid only for Rx)
13. Label wires with field names: If checked, labels wires entering or exiting the block with the names of the signals they carry.
14. Include Raw Outputs: If checked, the receive block will also include ports for the unscaled raw value of each signal.
15. Add J1939 Src Port: Adds an input/output port for the J1939 source address portion of the message id.
16. Add J1939 Des Port: Adds an input/output port for the J1939 destination address portion of the message id.
17. Signal explorer: Shows the signals made available by the .dbc file you have loaded and the message ID you have selected. If the checkbox at left is checked, the port on the block that makes the signal available to source or sink is shown.
18. Transmit Rate: Used to specify the periodic rate in milliseconds to transmit the message. Use -1 for asynchronous transmission.
19. Pacing Interval: Specifies the inter-frame spacing for a multi-frame message.

Helpful Hints

If a CAN block from Network Toolbox presents a "File not found" message when you double-click on it, that is just a warning that the can_example.dbc file is not in the project directory. You can just dismiss that warning and go on to select another .dbc file.

Licensing

To use a Network Toolbox block, you need a valid license. If you attempt to open a Network toolbox block without a valid license, you will see this dialog:



As of Network Toolbox v0.0.30, license dongles are used for authorization. If you have questions about licensing, or would like to upgrade from an earlier version of the toolbox with a node-locked license file, please contact New Eagle at support@neweagle.net.