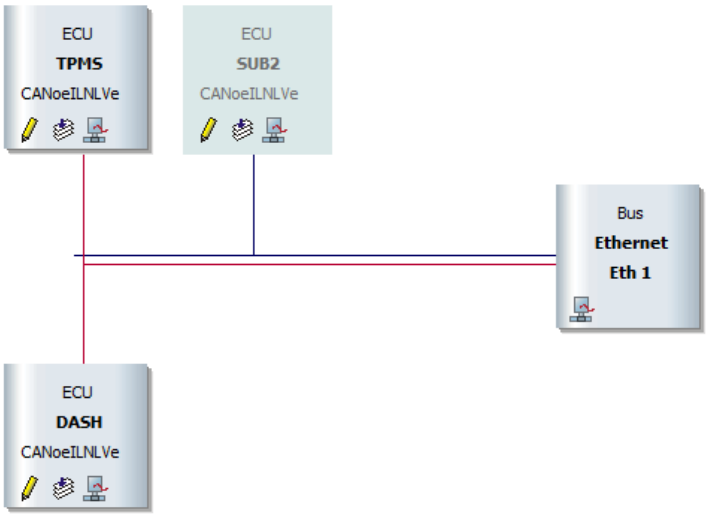
SOME/IP CANoe Simulator User Guide

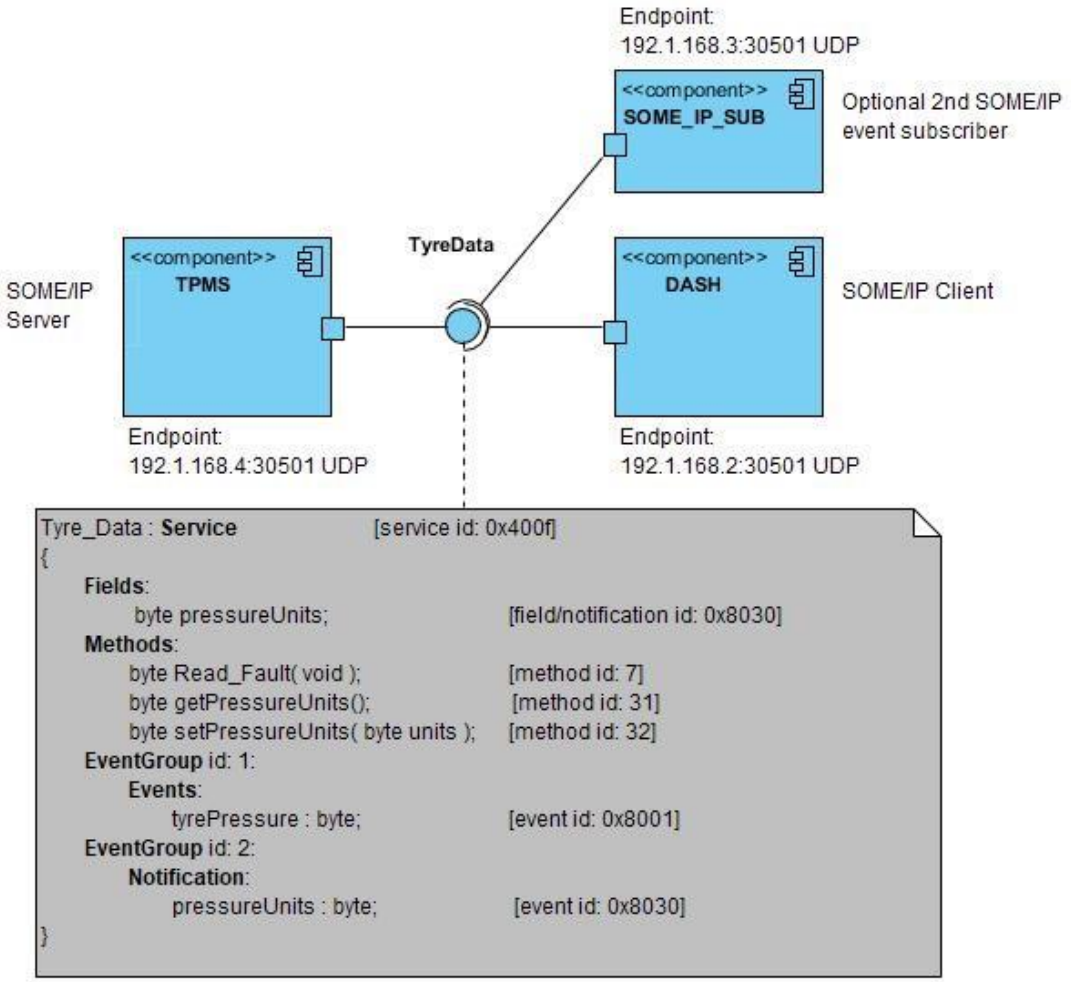
This CANoe configuration implements a simulated Tyre Pressure Monitoring System (TPMS) server which communicates with a Dashboard Display client using the SOME/IP protocol. The CANoe configuration can be used to experiment with different aspects of SOME/IP and its Service Discovery protocol.

There are three nodes in the simulation: the TPMS service provider, the DASH client and an additional client node, SUB2, which can be activated if required.



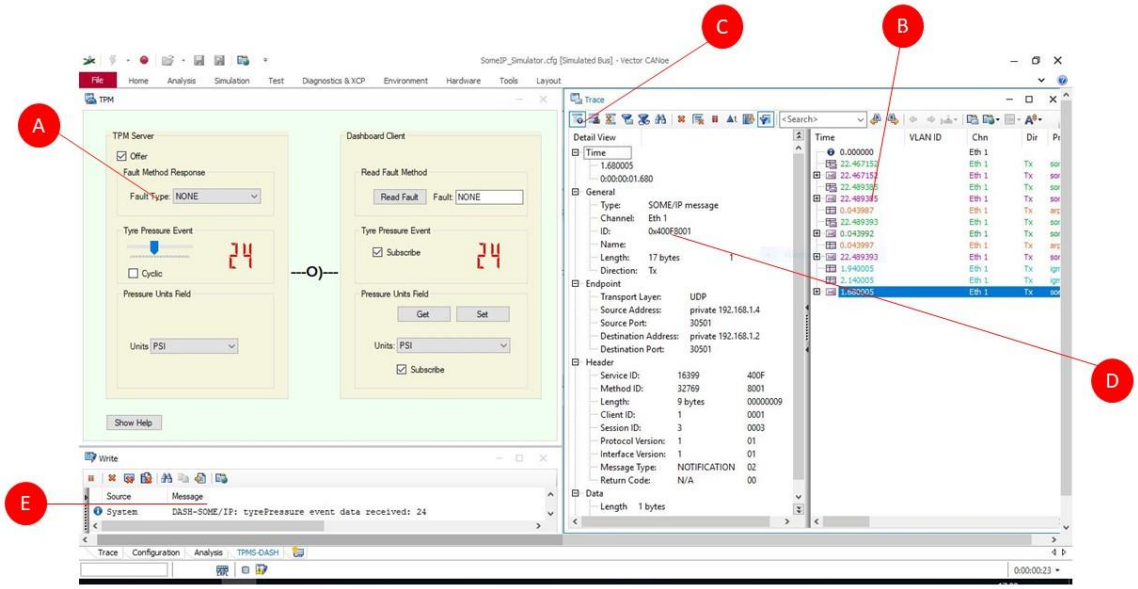
No FIBEX or ARXML file was used to define the SOME/IP services; they are defined programmatically in CAPL. A CANdb++ database was used purely to assign node names for informational purposes.

This TPMS node implements the following SOME/IP service:



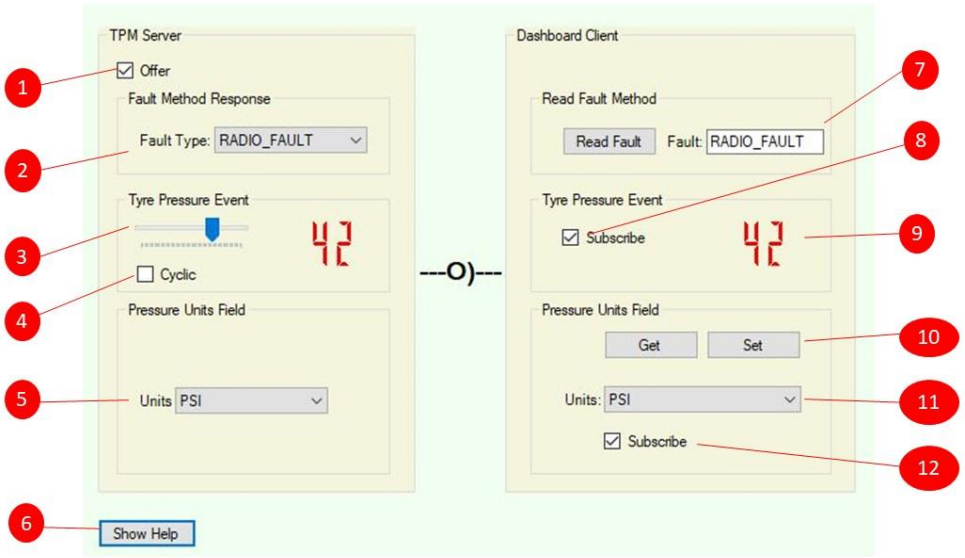
The DASH node subscribes to the TPMS service and reacts to event notifications received. If an additional subscriber is required to demonstrate multiple subscriber use cases then the SUB2 node can be activated in the Simulation setup. SUB2 only subscribes to the tyrePressure event and logs received event data to the Write window.

Users interact with the simulation using the following desktop.



A. Interaction with client and server functionality.
B. Trace window showing SOME/IP messages on the Ethernet network.
C. Press the **Detail View** button to see the header and payload of the selected message.
D. SOME/IP protocol details.
E. Write window for displaying information and error messages.

By using the Client-Server panel the behaviour of the two nodes can be configured, resulting in the transmission of appropriate SOME/IP and Service Discovery network messages.



1. Selecting this option results in the TPMS server offering its service with a SOME/IP Service Discovery Offer message. Clearing this option stops the service.
2. The current fault status of the TPMS can be selected here. The fault status is transferred to the DASH client as a result of a method call from the client.
3. Moving the slider sets the current tyre pressure which gets sent as an event whenever it's updated.
4. Selecting this option causes the tyre pressure event to be sent cyclically with the current tyre pressure value. Note that the SOME/IP Interaction Layer must have cyclic events enabled for this feature to work.
5. Select the desired pressure units. This is represented as a SOME/IP field. A notification is published whenever it's subscribed to or its value changes. Subscribers can access the field value using Getter and Setter methods.
6. Press to display a summary of the service.
7. Trigger the service method using the button, returning the current TPMS fault status.
8. Select to subscribe to the tyrePressure event. Deselect to stop the subscription.
9. Display of the tyre pressure data received via the tyrePressure event.
10. Use these buttons to Get the TPMS pressure units or Set the value as selected (see 11).
11. Displays the pressure units from the Get method or else use this value as a parameter to the Set method.
12. When selected the pressureUnits field notification event is subscribed to.

The initial behaviour of the client and server is configured using a set of system variables. Please refer to their descriptions in the Environment->System Variables menu.