

AN401 - How to Configure Two AX141150 Devices to Form a Bridge

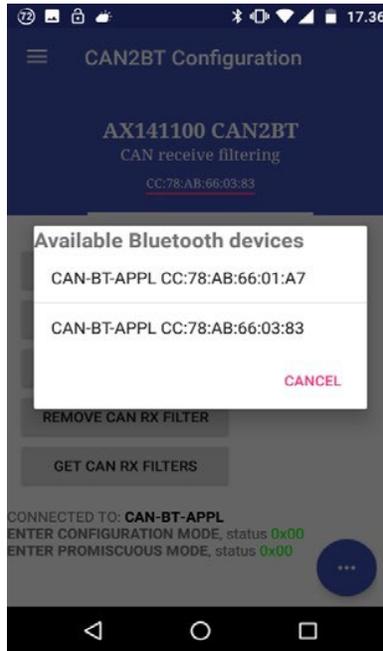
Introduction

Two AX141150 devices can be used to create a Bluetooth bridge between two CAN networks. In this configuration, one AX141150 unit works as a master, initiating the Bluetooth connection. The other unit works as a slave, accepting the incoming connection attempt from the master. Depending on which CAN messages need to be forwarded over the bridge, both devices can work in Bridge Mode (in which all messages pass) or else a more specialized filtering system can be configured.

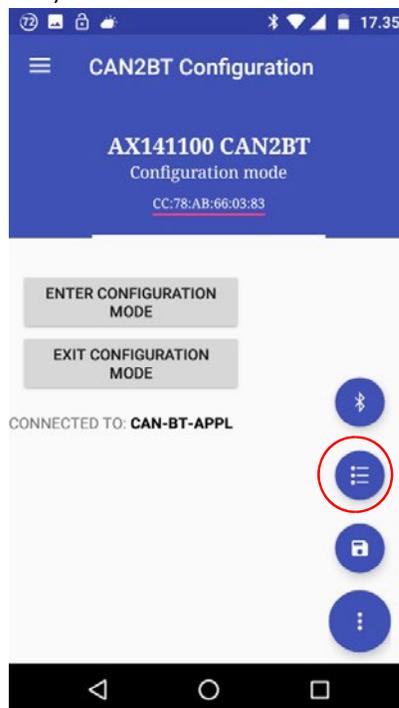


Configuring Master

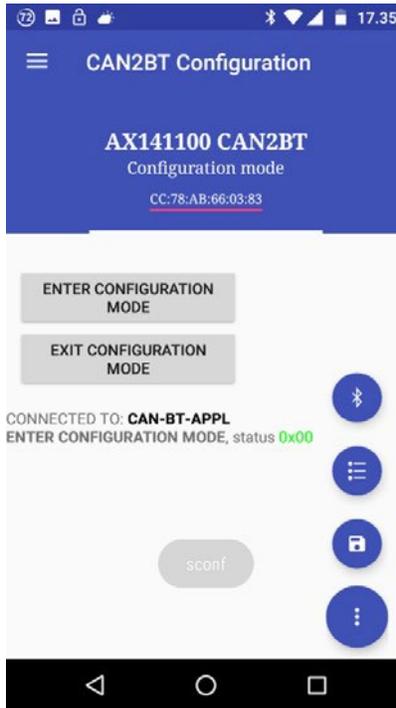
1. Use the CAN2BT Configuration app for scanning the available devices and connect to the one which will be used as the slave end of the bridge. The master AX141150 can be also powered down while the slave is being configured.



2. After connecting, the App reports "CONNECTED TO: CAN-BT-APPL". In case this text is not shown, please reconnect by selecting the node from the list of previous scan results (using the button highlighted by the red circle below).

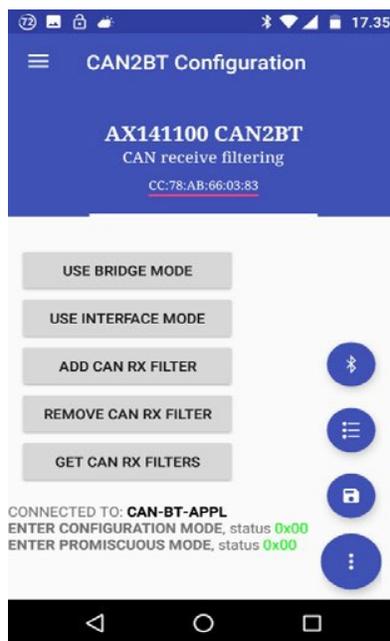


3. If the connection is okay, the App will prompt “ENTER CONFIGURATION MODE, status 0x00” after entering the configuration mode. If this text is not shown, please reconnect. Cycling AX141150 power is also known to help, especially after the very first connection and pairing process, the AX141150 automatically closes the SPP connection.

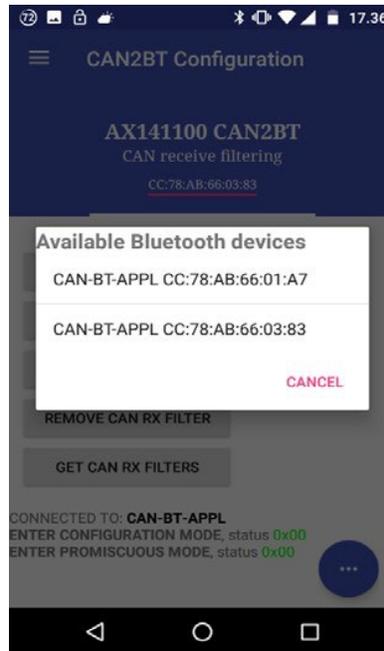


Configuring Slave

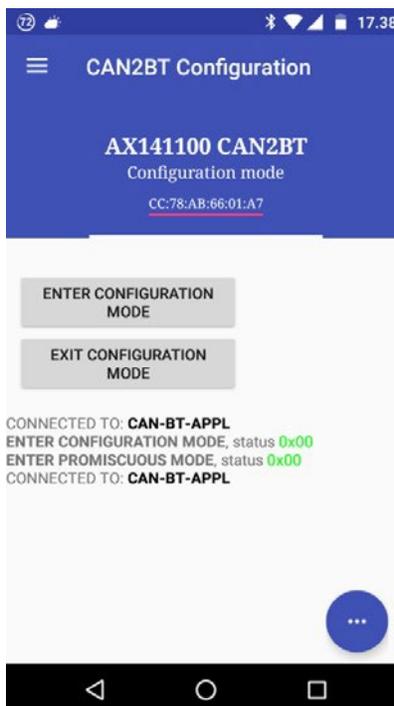
4. The slave device only needs the CAN RX filtering configuration. In case all CAN messages should pass from slave to master, please select “USE BRIDGE MODE”. If all messages should not pass, configure the required CAN RX filtering using the “ADD CAN RX FILTER” function.



5. After configuring the slave device's CAN RX filtering, it can be powered down.
6. Select the master device from the list of scan results. The current App itself might require a restart before a successful connection to another AX141150 device can be made.



7. Enter configuration mode. Again, please check that the "CONNECTED TO: CAN-BT-APPL" text is shown and the App reports "ENTER CONFIGURATION MODE, status 0x00". If not, please reconnect by selecting the AX141150 device from the list of scan results.

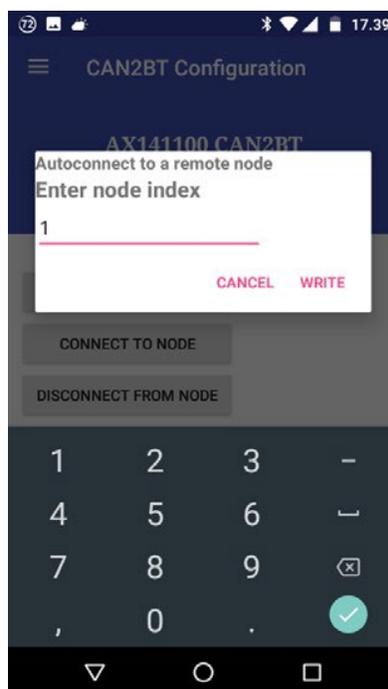


Testing

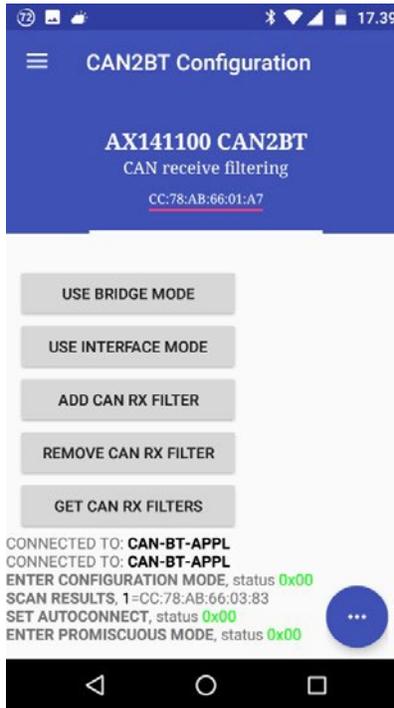
8. Run "SCAN" from the "CONNECTION OPTIONS" menu. After the AX141150 device has finished scanning the nearby Bluetooth nodes, it will report the scan results. Depending on how many lines of text are already being displayed in the App, it might be necessary to switch to the "CONFIGURATION MODE" menu to have all lines properly appearing on the screen.



9. From the scan results, please check which entry corresponds to the Bluetooth address of the slave unit. Then, in the "CONNECTION OPTIONS" menu, use the "SET AUTOCONNECT" function and specify the node number that corresponds to the slave AX141150 device from the scan results list.



10. After the autoconnect configuration, the Bridge Mode on the master AX141150 device can be enabled. The required custom CAN RX filtering may also be set. Please also make sure that the App reports “SET AUTOCONNECT, status 0x00” and optionally “ENTER PROMISCUOUS MODE, status 0x00” after the autoconnect and bridge mode configuration steps.



11. Cycle the power of both AX141150 devices. With the configuration detailed in this application note, the master AX141150 will automatically try to connect to the slave AX141150 device, and all CAN messages that pass the CAN RX filters will be forwarded over the Bluetooth link. If the connection is lost, the master device will try to automatically reconnect.

*In case the slave device needs further configuration, it is necessary to power down the master device (or disable the autoconnect function). The active bridge connection from master to slave will prevent the app from making a successful connection to the slave device.

Version	Date	Authors	Comments
1.00	December 18, 2018	Antti Keränen	Initial Release
1.01	July 6, 2023	Kiril Mojsov	Legacy Updates & Marketing Review