Testing the SAE J1939 to USB Gateway with the PCAN-USB Pro

The below image shows the hardware setup between our J1939-USB device and the PCAN module:



Both devices are terminated with a 120 Ohm termination resistor. $CAN_H = Yellow - Pin 2$ on the DB9 connector $CAN_L = Blue - Pin 6$ on the DB9 connector

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PCAN-View Setup

Make sure, the PCAN-View is set up to support 250 kbit/sec:

& Connect		×
PCAN-View		
Available PCAN <u>H</u> ardware:	T CAN Setup T Acceptance Filter D Options	
PCAN-USB Pro FD: Device ID FFFFFFFh, Channel 2	Mode: CAN Clock Frequency: 80 M Database Entry: 250 kbit/s	Hz 🗸
	Bit Rate [kbit/s]: 250 Sample Point [%]: 81.3	
	Prescaler: 20	
	OK Cancel	Help

Make sure, the PCAN-View is set up to support *Extended (29-bit ID)* mode:

S Connect	×
RCAN-View	
Available PCAN <u>H</u> ardware:	 CAN Setup Y Acceptance Filter Options Standard (11-bit ID) Extended (29-bit ID) Open Filter From ID: 0000000 (Hex) Jo: 1FFFFFF (Hex) Store Filter Settings Saves the currently selected filter settings when exiting the program and restores them when the program is restarted.
	OK Cancel 📀 Help

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In the *Transmit* section, we have set up three 29-bit CAN data frames (PGNs):

18FEF280h	8	01 02 03 04 05 06 07 08	200	93	Time	
18FEF580h	8	01 02 03 04 05 06 07 08	✓ 1000	19	Time	
18FF0888h	8	11 22 33 44 55 66 77 88	200	93	Time	Test

JCOM1939 Monitor Setup

In our setup, we use COM4. In the *Filter* section, click on *Pass All*:

		Gat	eway																			
19																						
1		CON	Port:	COM4		2	~	Start COI	4	Stop	COM	Hea	rtbeat: 🖊	COM	Errors:	0		CAN	Baud Rate	e: 250 k	~	
ECU Se	tup	Filter	Transm	nit Byt	e Data	Bit	Data	Recorder	Netwo	rk Ga	ateway	Setting	5									
PGN:		0			scription												Save	Del	lete			
Fun.		•		Dea	scription	· _									=		Save	Dei	lete			
PGN		Desc	riptio	n												Appl	y Filter PGN	5				
																O A	s Defined In	Table				
_																OP	ass Al					
																-						
															-							
c	lear		🖸 AL	to Scro	ling	Disp	lay Tx	Messages:	O Inc	dividual	0	Enable Al	O Disab	le All								
	RX	TX	PGN	SA	DA	P	Len	-					Dentis									-
								Data					Descrip	tion								
17	x		FEF2h	80h	255	6		Data 01h 02h	03h 04	h 05h	06h	07h 08h		tion								
and a lateral second	x		FEF2h FF08h		255 255		8							tion								
18							8 8	01h 02h	33h 44	h 55h	66h	77h 88h		uon								
18	x		FF08h FEF5h	88h 80h	255	6 6	8 8 8	01h 02h 11h 22h	33h 44 03h 04	h 55h h 05h	66h 06h	77h 88h 07h 08h		uon								
118 119 120	x		FF08h FEF5h FEF2h	88h 80h 80h	255 255	6 6	8 8 8 8	01h 02h 11h 22h 01h 02h	33h 44 03h 04 03h 04	h 55h h 05h h 05h	66h 06h 06h	77h 88h 07h 08h 07h 08h		oon								
18 19 20 21	x x x		FF08h FEF5h FEF2h FF08h	88h 80h 80h 88h	255 255 255	6 6 6	8 8 8 8	01h 02h 11h 22h 01h 02h 01h 02h	33h 44 03h 04 03h 04 33h 44	h 55h h 05h h 05h h 55h	66h 06h 06h 66h	77h 881 07h 081 07h 081 77h 881		Don								
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You should see the data traffic as shown above.

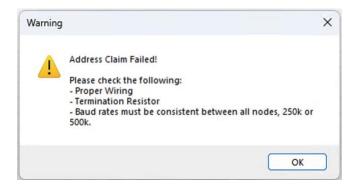
In the ECU Setup section click on *ECU Simulation Mode*, then click on the *Claim Address* command button:

ECU Setup	Filter	Transmit	Byte Data	Bit Data	Record
O Monito	ning Moo	de OEC	CU Simulation	n Mode	
ECU Ad	dress				
Prefen	red Addr	ess:	200		
Addres	ss Rang	e Low:	128		
Addres	ss Rang	e <mark>H</mark> igh:	247		
Claime	d Addre	SS:	200		
			Claim Ad	dress	

In our example, we chose node address 200. On the PCAN-View screen, you should see the received Address Claim message:



If the Address Claim fails, the JCOM1939 Monitor will post an error message:



In our setup, we just removed the CAN_H, CAN_L connection to simulate the error.

In our experience, most such problems are caused by faulty wiring or missing termination resistors.

Wiring

It may sound obvious, but please verify that CAN_H is connected to CAN_H and CAN_L is connected to CAN_L.

Also, for a first test, keep the wiring as simple as possible. For a setup like ours, regular wires will do, i.e., there is no requirement for shielded cables.

Termination Resistors

Please be aware that a CAN Bus network requires termination resistors at each end of the network:

