

Changing NMEA2000 instances

1. Introduction

Instances are used in an NMEA2000 network to identify multiple similar products connected on the same network.

As an example, take a system with two battery monitors (one for the main battery bank, and another for the hydraulic-thruster bank) and also a Quattro inverter/charger. All three of those devices will send their battery voltage measurements out on the canbus.

For the displays to show these values at the right place, they need to know which voltage belongs to what battery.

How can I change the instances?

This document describes three options:

1. Use [Actisense](#) software & hardware. Can change both the device- and data-instances
2. Use [Maretron](#) software & hardware.
3. From the commandline of a [Venus-device](#). Note that this is a software developer trick. Not for any day use.

Device instance vs the data instances

There are two types of instances: device instances and data instances. And depending on the make and model of the displays being used (Garmin, Maretron, Raymarine, etcetera), you need to change one of them or both.

Both the device instance and the data instance of a product can easily be changed with both Maretron N2Kview as well as and Actisense PC software.

Required hardware

Changing the device instance requires an usb-canbus adapter to link the CAN-bus network to your computer:

- For Actisense, see the [Actisense NGT-1](#)
- For Maretron, see their [USB100](#)

Related information

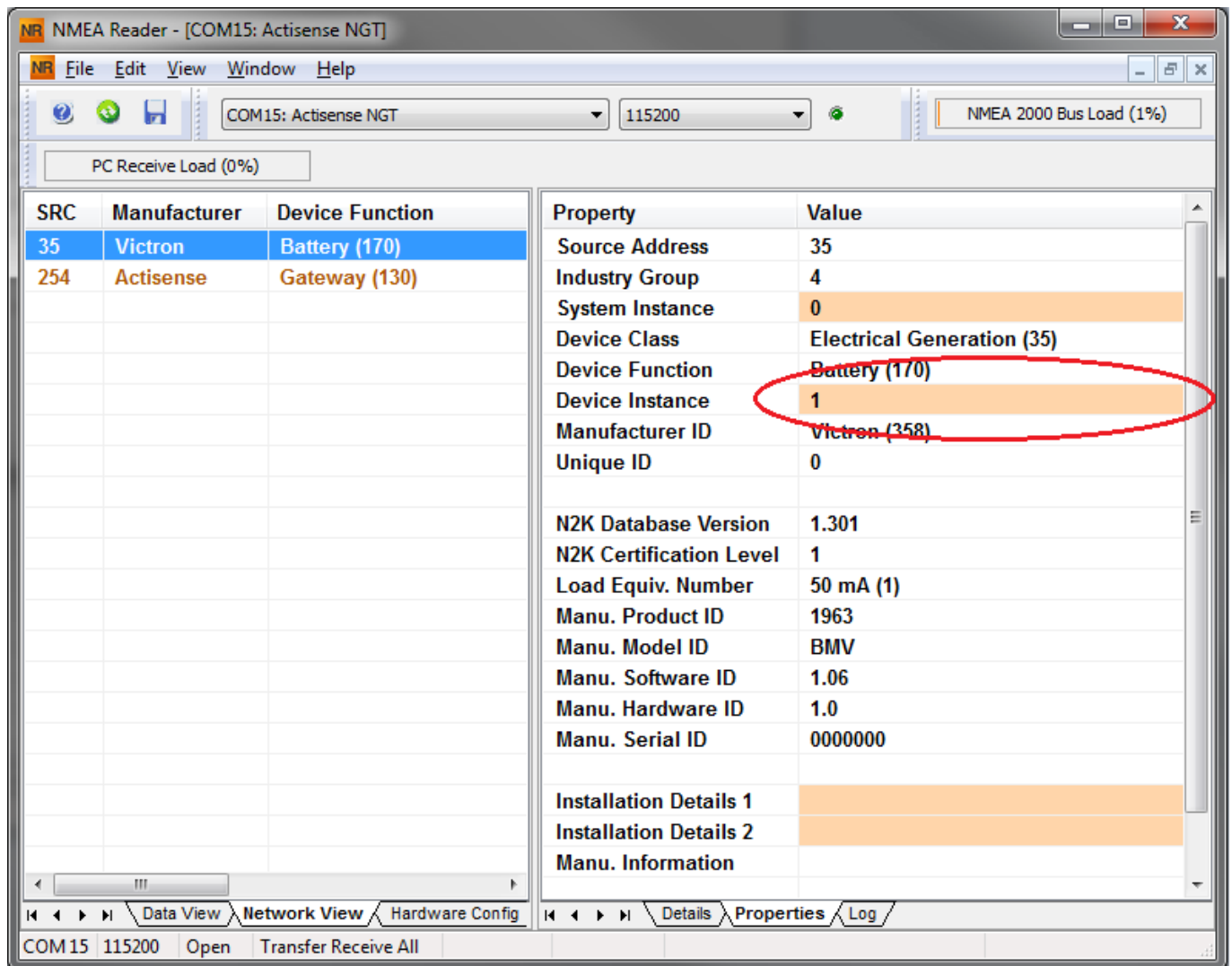
For more detailed information, see also the FAQ in our [Data communication whitepaper](#).

And the main [NMEA2000 integration guide](#).

2. Changing the device instance with Actisense

Changing a device instance:

1. Open Actisense NMEA Reader
2. Select the network view (tab selection is at the bottom left)
3. Select the product whose device instance you want to change
4. Select the properties tab at the bottom right and change the device instance

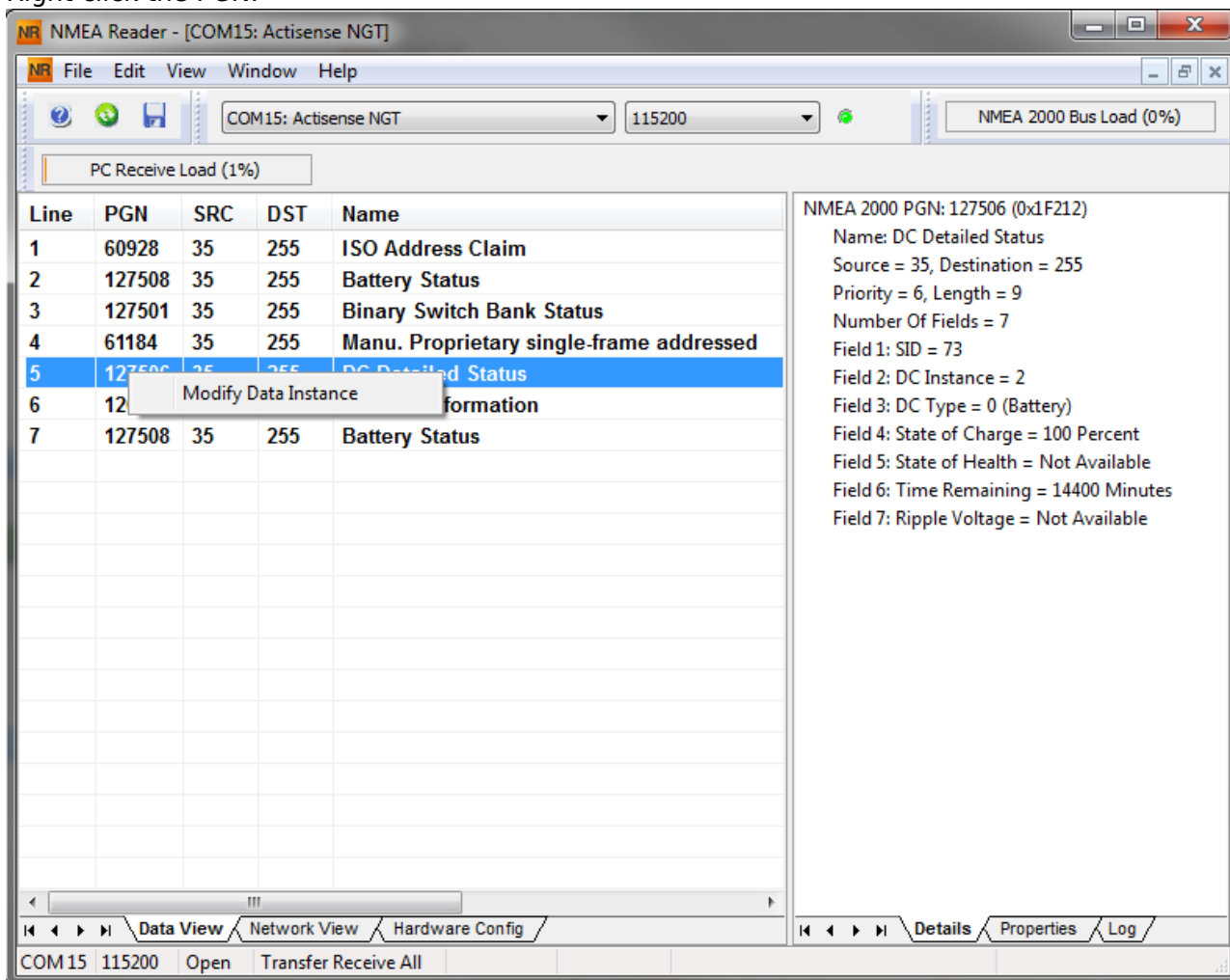


3. Changing a data instance with Actisense

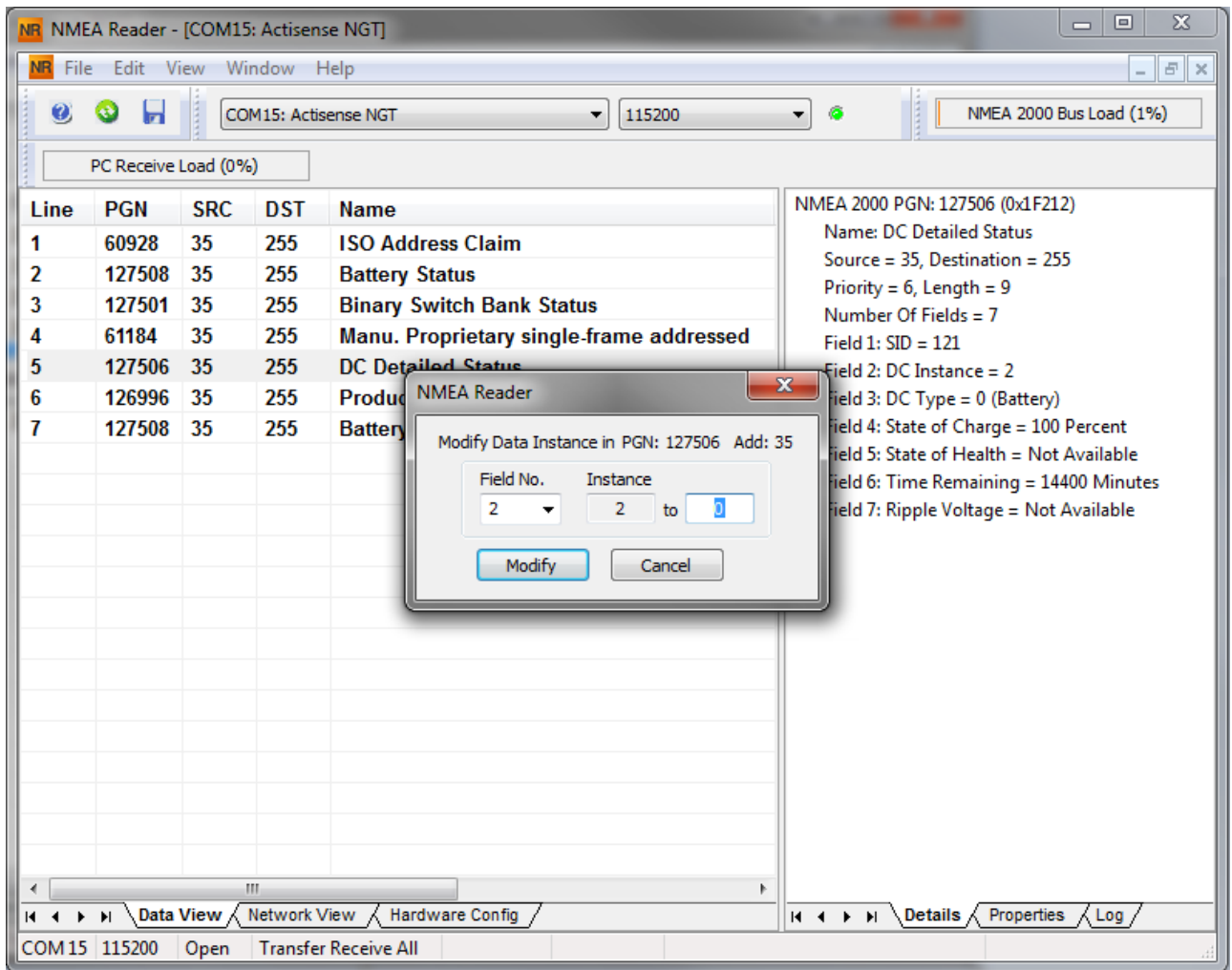
Changing a data instance:

1. Open Actisense NMEA Reader
2. Select data view (tab selection is at the bottom left)

3. Right click the PGN:



4. And change the value:



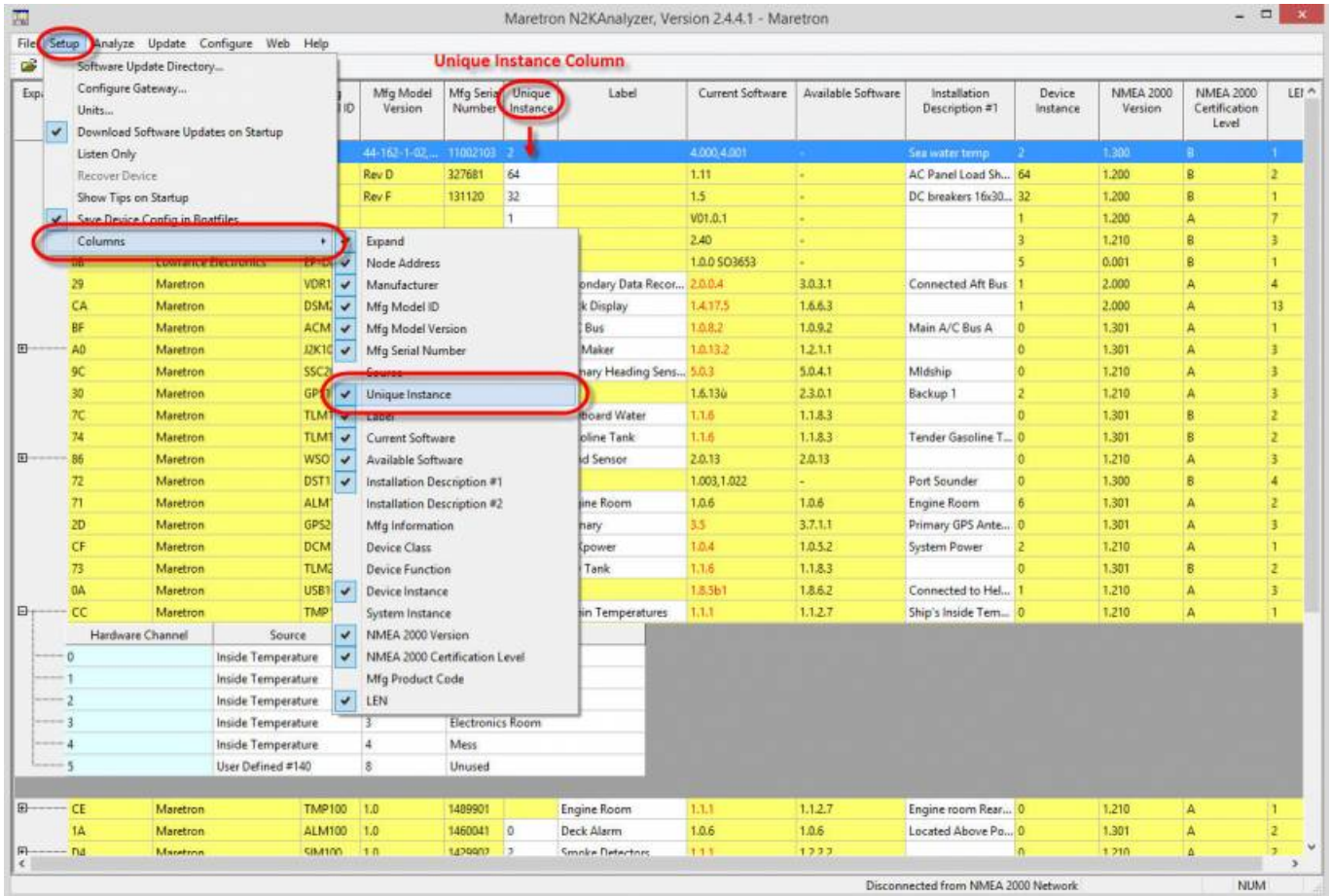
Notes for BMVs, Lynx Shunt and the Lynx Ion + Shunt:

- The Battery Instance and the DC Detailed instance are the same value. Changing one of them, will also change the other one.
- Since the BMV sends out two voltages, the main voltage and the aux- or starter-voltage, it comes preconfigured with two battery instances: 0 and 1. When you want to change that to 1 and 2, change the 1 into 2 first, and then the 0 into 1, as they cannot be the same.

4. Changing Instance Using Maretron N2KAnalyzer

Maretron understands that it is sometimes difficult to know whether a particular product uses device instance or if it uses data instance to uniquely identify itself on an NMEA 2000 network. For this reason, Maretron uses a term called “Unique Instance” where the N2KAnalyzer software tool automatically determines if a particular device uses device or data instances.

Open N2KAnalyzer and make sure that the “Unique Instance” column is turned on (i.e. checked) using the Setup>Columns menu item.



Within the N2KAnalyzer main window, any cell with a white background can be edited by clicking in the cell and typing in the desired value. You can see from the following screen shot that a few parameters have a white background including Label and Installation Description #1. To change a devices instance, click in the Unique Instance cell for the device you want to change and type the new number followed by a carriage return. If the particular products accepts the instance change, you will see the new instance number reflected in the cell. You can also use a tool within N2KAnalyzer to check that all products on the network are uniquely instanced. Use the Analyze>Instancing menu to verify correct overall system instancing.

Expand	Label	Mfg Model ID	Mfg Model Version	Mfg Serial Number	Unique Instance	Current Software	Available Software	Installation Description #1	Device Instance	NMEA 2000 Version	NMEA 2000 Certification Level	LET
23	Sea water temp	HT200	44-162-T-02...	11002103	2	4.000.4.001	-		2	1.300	B	1
2F	AC Panel Load Sh...	AC08	Rev D	327681	64	1.11	-		64	1.200	B	2
1C	DC breakers 16x30...	DC16	Rev F	131120	32	1.5	-		32	1.200	B	1
11	V01.0.1	Floscan Instrument Co., I...			1	V01.0.1	-		1	1.200	A	7
BA		Garmin	GPS17v...	1.00	3431140...	2.40	-		3	1.210	B	3
0B		Lowrance Electronics	EP-DDS	1.0.0	316	5	1.0.0 S03653		5	0.001	B	1
29	Secondary Data Recor...	Maretron	VDR100	1.0	1760015	1	2.0.0.4	3.0.3.1	1	2.000	A	4
CA	Deck Display	Maretron	DSM250	1.0	1300176	1	1.4.17.5	1.6.6.3	1	2.000	A	13
BF	Main A/C Bus A	Maretron	ACM100	1.0	1389904	0	1.0.8.2	1.0.9.2	0	1.301	A	1
A0	ICE Maker	Maretron	J2K100	1.0	1241404	0	1.0.13.2	1.2.1.1	0	1.301	A	3
9C	Primary Heading Sens...	Maretron	SSC200	2.0	1120707	0	5.0.3	5.0.4.1	0	1.210	A	3
30	Backup 1	Maretron	GPS100	1.1	1140232	2	1.6.130	2.3.0.1	2	1.210	A	3
7C	Starboard Water	Maretron	TLM100	1.0	1500082	0	1.1.6	1.1.8.3	0	1.301	B	2
74	Tender Gasoline T...	Maretron	TLM150	1.0	1529901	0	1.1.6	1.1.8.3	0	1.301	B	2
86	Wind Sensor	Maretron	WSO100	2.0	1201734		2.0.13	2.0.13	0	1.210	A	3
72	Port Sounder	Maretron	DST110	D235-S1-TS-...	0	1.003.1.022	-		0	1.300	B	4
71	Engine Room	Maretron	ALM100	1.0	1469902	5	1.0.6	1.0.6	6	1.301	A	2
2D	Primary	Maretron	GPS200	2.0	15266	0	3.5	3.7.1.1	0	1.301	A	3
CF	N2Kpower	Maretron	DCM100	1.0	1400046	1	1.0.4	1.0.5.2	2	1.210	A	1
73	Day Tank	Maretron	TLM200	1.0	1540111	2	1.1.6	1.1.8.3	0	1.301	B	2
0A	Connected to Hel...	Maretron	USB100	1.0	1160258	1	1.8.5b1	1.8.6.2	1	1.210	A	3
CC	Cabin Temperatures	Maretron	TMP100	1.0	1480009		1.1.1	1.1.2.7	0	1.210	A	1
CE	Engine room Rear...	Maretron	TMP100	1.0	1489901		1.1.1	1.1.2.7	0	1.210	A	1
1A	Deck Alarm	Maretron	ALM100	1.0	1460041	0	1.0.6	1.0.6	0	1.301	A	2
D4	Smoke Detectors	Maretron	SIM100	1.0	1429902	2	1.1.1	1.2.2.2	0	1.210	A	2
08	Secondary	Maretron	IPG100	1.0	1620002	1	3.6.0	4.0.7.6	1	1.301	A	3
A3	Main Ships HVAC	Maretron	J2K100	1.0	1241755	0	1.0.13.2	1.2.1.1	0	1.301	A	3
28	Primary Data Recorder	Maretron	VDR100	1.0	1760014	0	2.0.0.4	3.0.3.1	0	2.000	A	4
04	Connected to Nav...	Maretron	USB100	1.0	1160253	2	1.8.3	1.8.6.2	2	1.210	A	3
94	Engine Main	Maretron	EMS100	2.0	1220251	0	1.4.2.4	1.4.3.1	0	1.210	A	1
8D	Fwd Ship's NMEA200...	Maretron	NBE100	1.0	1240263	0	1.0.0	1.1.0.1	0	1.301	A	3
88	Captain's Quarters	Maretron	DSM150	1.0	1800001	0	1.4.17.5	1.6.6.3	0	2.000	A	3
78		Maretron	SMS100	1.0	1739904	0	1.0.1.1	-	0	1.301	A	2
15	Engine Room	Maretron	DSM250	2.0	1340328	2	1.4.14.4	1.6.6.3	2	1.301	A	13
14	Crew Quarters	Maretron	DSM250	3.0	1329901	4	1.4.16.5	1.6.6.3	4	2.000	A	13
D1	Fire Suppression Syst...	Maretron	RIM100	1.0	1459902	1	1.1.3	1.2.2.2	19	1.301	A	1
C3	Aft Ship's NMEA2000 ...	Maretron	NBE100	1.0	1240360	0	1.0.0	1.1.0.1	0	1.301	A	3
80	Fly Bridge	Maretron	DSM250	1.0	1309906	3	1.4.17.5	1.6.6.3	3	2.000	A	13
70	Bow Holding Tank	Maretron	TLM100	1.0	1501234	0	1.1.6	1.1.8.3	0	1.301	B	2
6A	Main Engine	Maretron	FFM100	1.0	1679904		1.1.2.1	1.2.2.1	0	1.301	A	2
40	Lighting Control	Maretron	DCP100	2.0	1700032	0	1.1.1.4	1.1.2.3	0	2.000	A	3

5. Changing the DeviceInstance from the CCGX command line

Instead of using Actisense or Maretron software, it is also possible to change the device instance from the Color Control shell. To get root access, follow these instructions: [Venus OS: Root Access](#)

Once logged into the shell, follow below instructions. Note that the example shown changes the device instance of a Skylla-i. The device instance of a VE.Can connected MultiPlus or Quattro can be changed as well. It will show as `com.victronenergy.vebus.socketcan_can0_di0_xxxx`.

Step 1. List the devices:

```
root@ccgx:~# dbus -y
com.victronenergy.bms.socketcan_can0_di0_uc10
com.victronenergy.charger.socketcan_can0_di1_uc12983
```

It shows a Skylla-i (the charger). di1 in the name means that it is currently on DeviceInstance 1.

Step 2. Change it, for example, to 4:

```
root@ccgx:~# dbus -y com.victronenergy.charger.socketcan_can0_di0_uc12983
/DeviceInstance SetValue %4
retval = 0
```

Step 3. Wait a few seconds, and double check:

```
root@ccgx:~# dbus -y
com.victronenergy.bms.socketcan_can0_di0_uc10
com.victronenergy.charger.socketcan_can0_di4_uc12983
```

Device instance changed successful!

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