

# 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. All the displays in the network need to be able to address both of them separately.

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. This page explains how to change these instances.

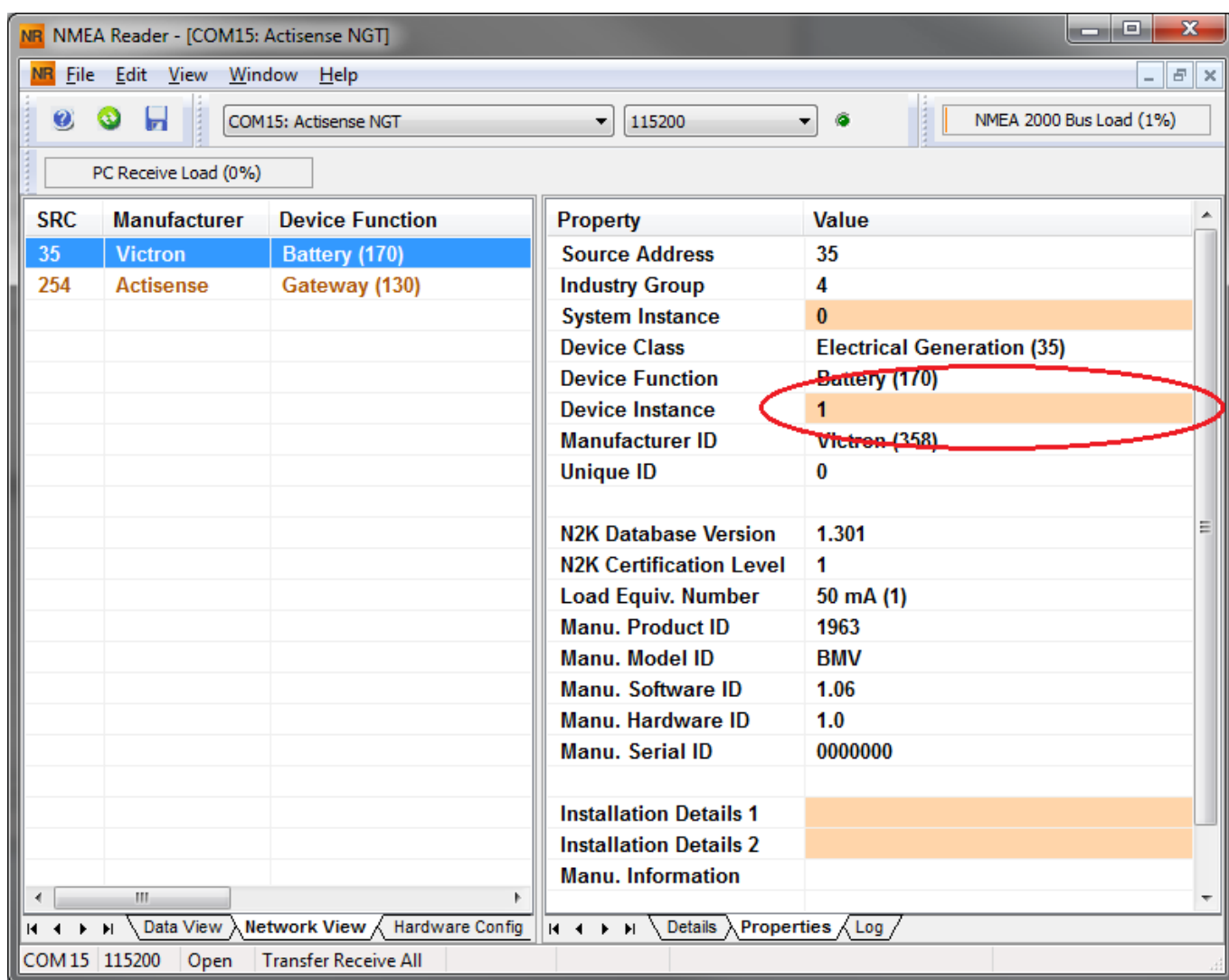
Both the device instance and the data instance of a product can easily be changed with both Maretron N2Kview as well as and Actisense PC software. This does require a canbus adapter for your computer.

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

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

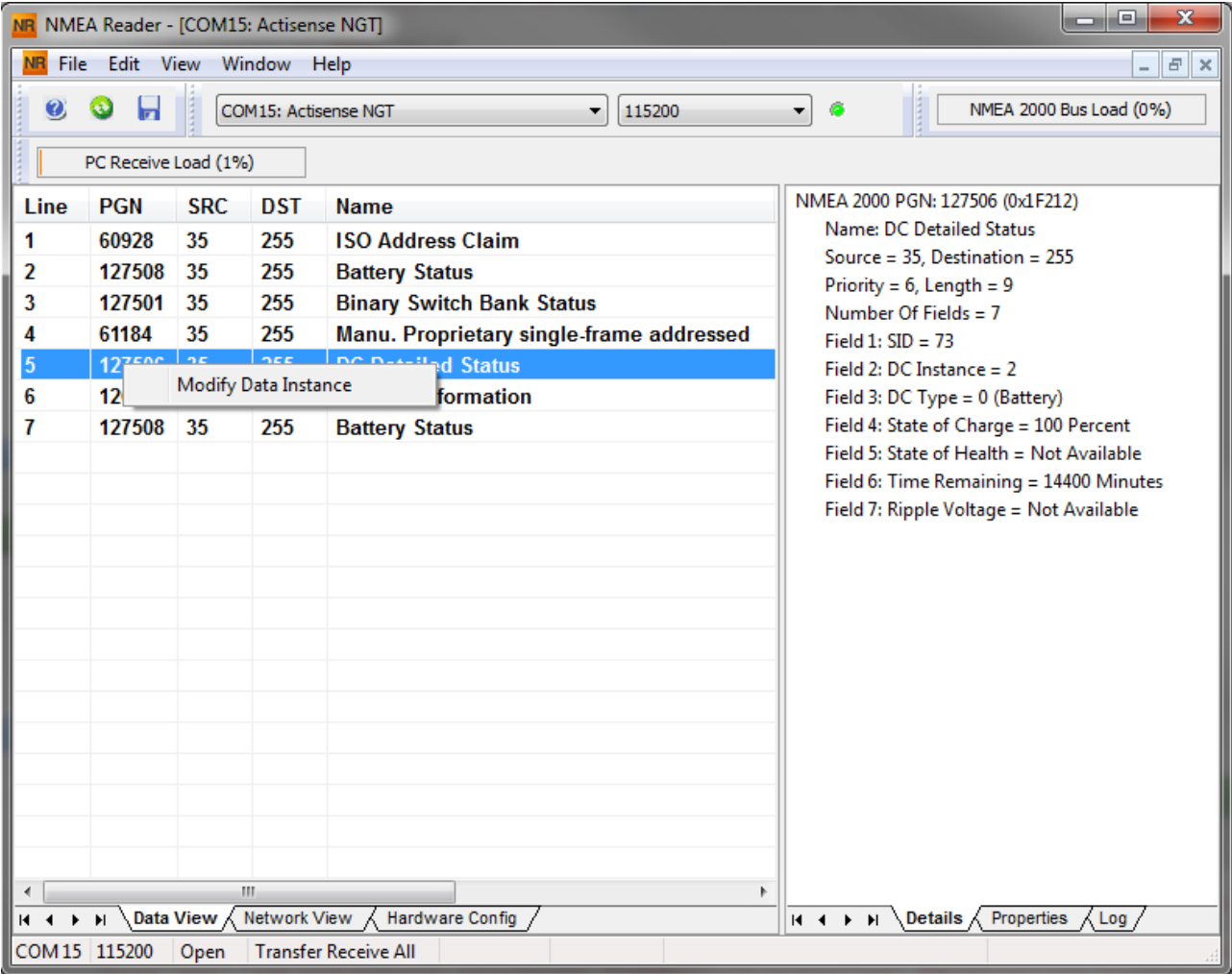


### 3. Changing a data instance with Actisense

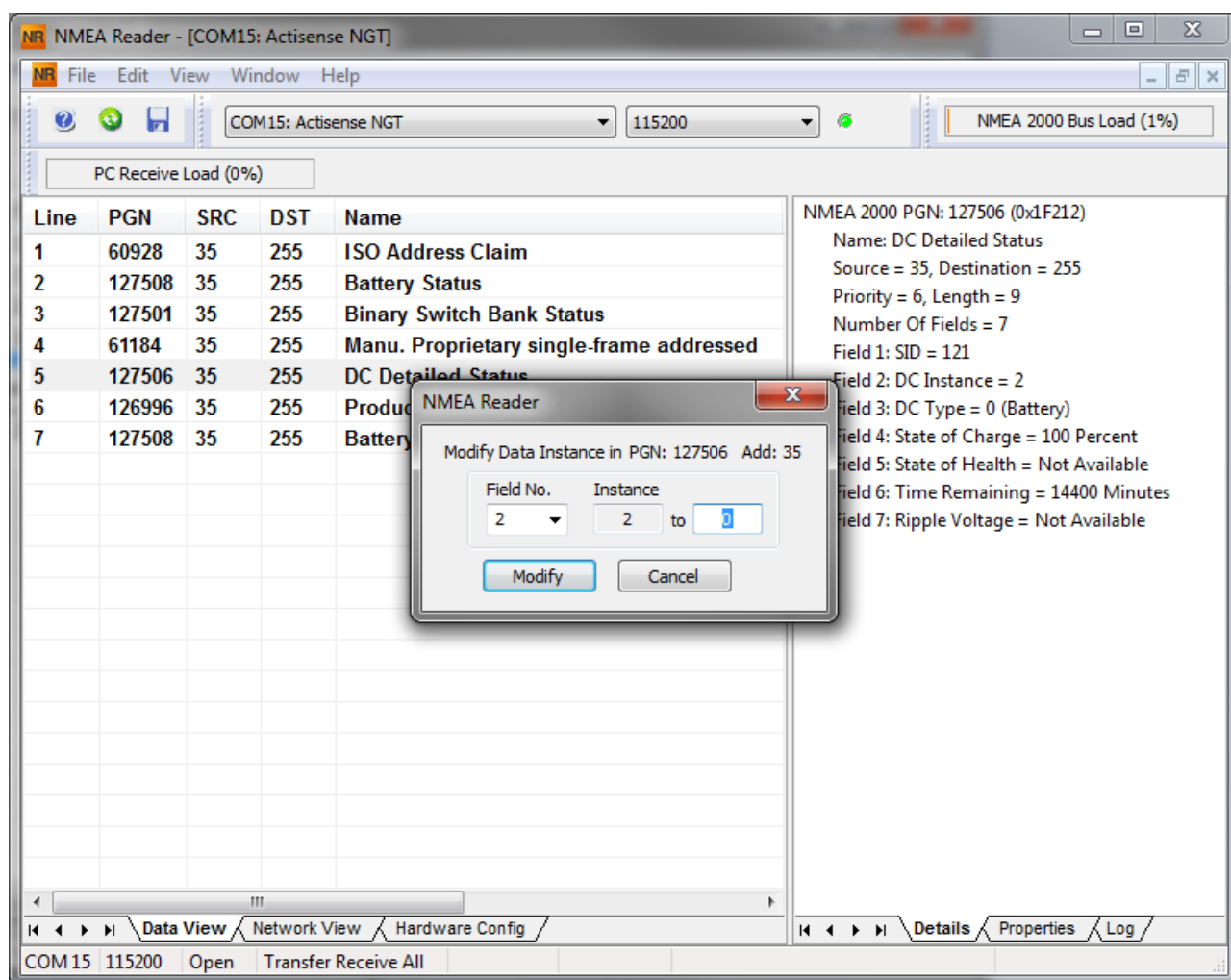
Changing the data instance is possible with Actisense NMEA Reader PC software, version v1.517 and later. Download the latest version [from their website](https://www.actisense.com/products/nmea-2000/ngt1.html). Look for the setup.exe on that page. Besides the PC software you also need the interface to hook the nmea2000 network up to your PC: the Actisense NGT-1: <http://www.actisense.com/products/nmea-2000/ngt1.html>

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.

**Unique Instance Column**

ID	Mfg Model Version	Mfg Serial Number	Unique Instance	Label	Current Software	Available Software	Installation Description #1	Device Instance	NMEA 2000 Version	NMEA 2000 Certification Level	LEN
44-162-1-02...	11002103	2			4.000.4.001	-	Sea water temp	2	1.300	B	1
Rev D	327681	64			1.11	-	AC Panel Load Sh...	64	1.200	B	2
Rev F	131120	32			1.5	-	DC breakers 16x30...	32	1.200	B	1
		1			V01.0.1	-		1	1.200	A	7
					2.40	-		3	1.210	B	3
					1.0.0 SO3653	-		5	0.001	B	1
					2.0.0.4	3.0.3.1	Connected Aft Bus	1	2.000	A	4
					1.4.17.5	1.6.6.3		1	2.000	A	13
					1.0.8.2	1.0.9.2	Main A/C Bus A	0	1.301	A	1
					1.0.13.2	1.2.1.1	Maker	0	1.301	A	3
					5.0.3	5.0.4.1	Midship	0	1.210	A	3
					1.6.13.0	2.3.0.1	Backup 1	2	1.210	A	3
					1.1.6	1.1.8.3	Board Water	0	1.301	B	2
					1.1.6	1.1.8.3	Tender Gasoline T...	0	1.301	B	2
					2.0.13	2.0.13	id Sensor	0	1.210	A	3
					1.003.1.022	-	Port Sounder	0	1.300	B	4
					1.0.6	1.0.6	Engine Room	6	1.301	A	2
					3.5	3.7.1.1	Primary GPS Ante...	0	1.301	A	3
					1.0.4	1.0.5.2	System Power	2	1.210	A	1
					1.1.6	1.1.8.3	Tank	0	1.301	B	2
					1.8.3b1	1.8.6.2	Connected to Hel...	1	1.210	A	3
					1.1.1	1.1.2.7	Ship's Inside Tem...	0	1.210	A	1

Disconnected from NMEA 2000 Network: NUM

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 device's 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 product 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	Label	Current Software	Available Software	Installation Description #1	Device Instance	NMEA 2000 Version	NMEA 2000 Certification Level	LEI
23	Carling Technologies	DC16	Rev F	131120	32		4.000.4.001	-	Sea water temp	2	1.300	B	1
2F	Floscan Instrument Co., I...	VDR100	1.0	1760015	1		1.11	-	AC Panel Load Sh...	64	1.200	B	2
1C	Garmin	GPS17...	1.00	3431140...	3		1.5	-	DC breakers 16x30...	32	1.200	B	1
11	Lowrance Electronics	EP-DDS	1.0.0	316	5		V01.0.1	-		1	1.200	A	7
BA	Maretron	DSM250	1.0	1300176	1	Secondary Data Recor...	2.0.0.4	3.0.3.1	Connected Aft Bus	1	2.000	A	4
0B	Maretron	ACM100	1.0	1389904	0	Deck Display	1.4.17.5	1.6.6.3		1	2.000	A	13
29	Maretron	J2K100	1.0	1241404	0	A/C Bus	1.0.8.2	1.0.9.2	Main A/C Bus A	0	1.301	A	1
CA	Maretron	SSC200	2.0	1120707	0	ICE Maker	1.0.13.2	1.2.1.1		0	1.301	A	3
BF	Maretron	GPS100	1.1	1140232	2	Primary Heading Sens...	5.0.3	5.0.4.1	Mildship	0	1.210	A	3
A0	Maretron	TLM100	1.0	1500082	0	Backup 1	1.6.130	2.3.0.1		2	1.210	A	3
9C	Maretron	TLM100	1.0	1500082	0	Starboard Water	1.1.6	1.1.8.3		0	1.301	B	2
30	Maretron	TLM100	1.0	1529901	0	Gasoline Tank	1.1.6	1.1.8.3	Tender Gasoline T...	0	1.301	B	2
7C	Maretron	WSO100	2.0	1201734		Wind Sensor	2.0.13	2.0.13		0	1.210	A	3
74	Maretron	DST110	D235-S1-TS...	*	0		1.003.1.022	-	Port Sounder	0	1.300	B	4
86	Maretron	ALM100	1.0	1469902	5	Engine Room	1.0.6	1.0.6	Engine Room	6	1.301	A	2
72	Maretron	GPS200	2.0	15266	0	Primary	3.5	3.7.1.1	Primary GPS Ante...	0	1.301	A	3
71	Maretron	DCM100	1.0	1400046	1	N2Kpower	1.0.4	1.0.5.2	System Power	2	1.210	A	1
2D	Maretron	TLM100	1.0	1540111	2	Day Tank	1.1.6	1.1.8.3		0	1.301	B	2
CF	Maretron	USB100	1.0	1160258	1		1.8.5b1	1.8.6.2	Connected to Hel...	1	1.210	A	3
73	Maretron	TMP100	1.0	1480009		Cabin Temperatures	1.1.1	1.1.2.7	Ship's Inside Tem...	0	1.210	A	1
0A	Maretron	TMP100	1.0	1489901		Engine Room	1.1.1	1.1.2.7	Engine room Rear...	0	1.210	A	1
CC	Maretron	ALM100	1.0	1460041	0	Deck Alarm	1.0.6	1.0.6	Located Above Po...	0	1.301	A	2
CE	Maretron	SM100	1.0	1429902	2	Smoke Detectors	1.1.1	1.2.2.2		0	1.210	A	2
1A	Maretron	IPG100	1.0	1620002	1	Secondary	3.6.0	4.0.7.6	Secondary Ship's ...	1	1.301	A	3
D4	Maretron	J2K100	1.0	1241755	0	Main Ships HVAC	1.0.13.2	1.2.1.1	Domestic Converter	0	1.301	A	3
0B	Maretron	VDR100	1.0	1760014	0	Primary Data Recorder	2.0.0.4	3.0.3.1	Connected Fwd Bus	0	2.000	A	4
A3	Maretron	USB100	1.0	1160253	2		1.8.3	1.8.6.2	Connected to Nav...	2	1.210	A	3
2B	Maretron	EMS100	2.0	1220251	0	Engine Main	1.4.2.4	1.4.3.1	12AY-W 1659HP	0	1.210	A	1
04	Maretron	NBE100	1.0	1240263	0	Fwd Ship's NMEA200...	1.0.0	1.1.0.1		0	1.301	A	3
94	Maretron	DSM150	1.0	1800001	0	Captain's Quarters	1.4.17.5	1.6.6.3		0	2.000	A	3
8D	Maretron	SMS100	1.0	1739904	0		1.0.1.1	-		0	1.301	A	2
88	Maretron	DSM250	2.0	1340328	2	Engine Room	1.4.14.4	1.6.6.3		2	1.301	A	13
7B	Maretron	DSM250	3.0	1329901	4	Crew Quarters	1.4.16.3	1.6.6.3		4	2.000	A	13
15	Maretron	RIM100	1.0	1459902	1	Fire Suppression Syst...	1.1.3	1.2.2.2		19	1.301	A	1
14	Maretron	NBE100	1.0	1240360	0	Aft Ship's NMEA2000 ...	1.0.0	1.1.0.1		0	1.301	A	3
D1	Maretron	DSM250	1.0	1309906	3	Fly Bridge	1.4.17.5	1.6.6.3		3	2.000	A	13
C3	Maretron	TLM100	1.0	1501234	0	Bow Holding Tank	1.1.6	1.1.8.3		0	1.301	B	2
80	Maretron	FFM100	1.0	1679904		Main Engine	1.1.2.1	1.2.2.1	Main Engine Fuel ...	0	1.301	A	2
70	Maretron	FFM100	1.0	1679904		Lighting Control	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!

## DISQUS

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