

# DAC sim cards in BRx7

Date: 11 August 2022

## Thesis

Configuring and testing an iGage supplied DAC sim card in a Carlson BRx7 receiver.

## Setup

### BRx7 Device Firmware

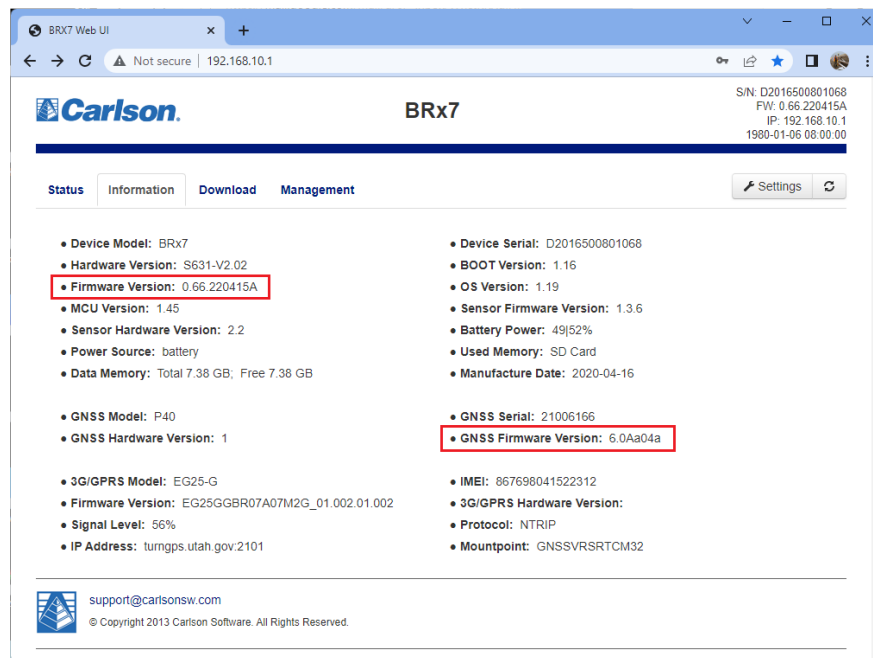
Early versions of BR7 are KNOWN to NOT work with GSM Sim Cards (4G)!

Verify that you have the latest Web UI and Firmware in the BRx7. At the time this FAQ was prepared:

August 2022:

Firmware Version: 0.66.220415A

GNSS Firmware Version: 6.0Aa04a



The screenshot shows the Carlson BRx7 Web UI interface. The browser address bar displays "BRx7 Web UI" and "192.168.10.1". The page title is "BRx7". The status bar shows "SIN: D2016500801068", "FW: 0.66.220415A", "IP: 192.168.10.1", and "1980-01-06 08:00:00". The main content area is divided into sections for "Status", "Information", "Download", and "Management". The "Status" section lists various device parameters, with "Firmware Version: 0.66.220415A" and "GNSS Firmware Version: 6.0Aa04a" highlighted with red boxes. Other parameters include Device Model (BRx7), Hardware Version (S631-V2.02), MCU Version (1.45), Sensor Hardware Version (2.2), Power Source (battery), Data Memory (Total 7.38 GB; Free 7.38 GB), GNSS Model (P40), GNSS Hardware Version (1), 3G/GPRS Model (EG25-G), Firmware Version (EG25GGBR07A07M2G\_01.002.01.002), Signal Level (56%), IP Address (turngps.utah.gov:2101), Device Serial (D2016500801068), BOOT Version (1.16), OS Version (1.19), Sensor Firmware Version (1.3.6), Battery Power (49|52%), Used Memory (SD Card), Manufacture Date (2020-04-16), GNSS Serial (21006166), IMEI (867698041522312), 3G/GPRS Hardware Version, Protocol (NTRIP), and Mountpoint (GNSSVRSRTC32).

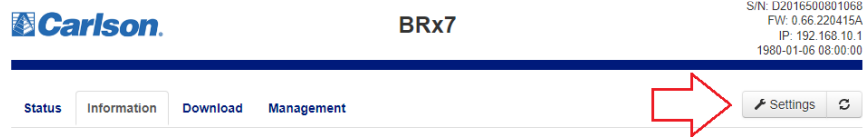
## Configuration

While it is possible to initially configure the BRx7 from the SurvCE/SurvPC interface, it is much simpler to initially configure from the web interface.

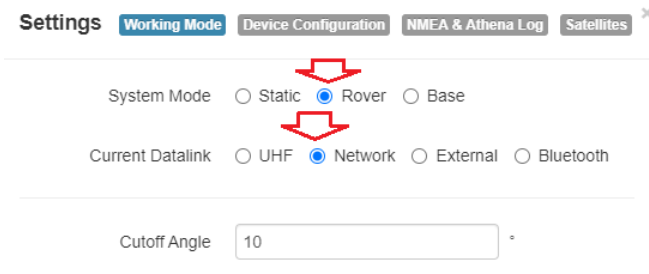
These step-by-step instructions are known to work:

1. Login to the web interface. (Instructions are in the Carlson User Manual.)

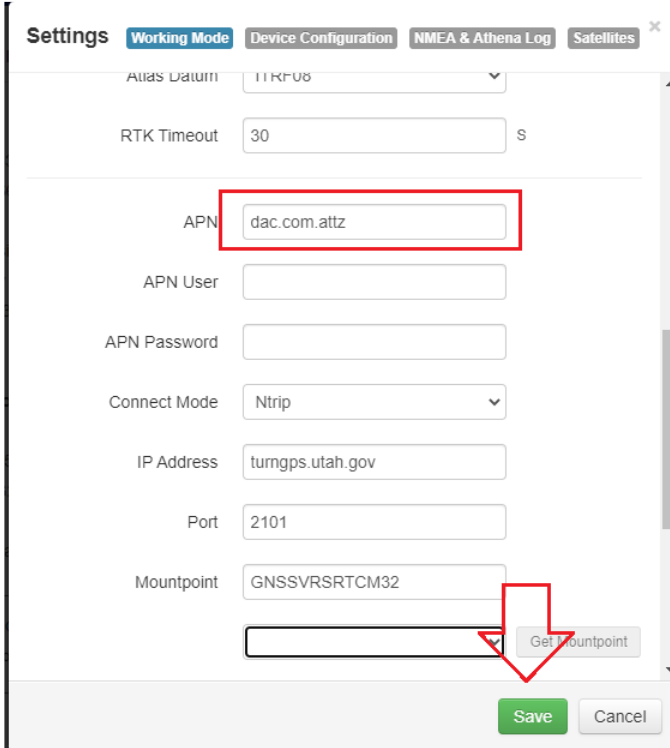
- From the main menu, click on the settings button:



- Select: System Mode 'Rover' and 'Current Datalink' = 'Network':



- Scroll down and set the 'APN' to 'dac.com.attz', the 'APN User' is blank and then APN Password' is blank:



If you change the APN, click on 'Save'. Wait 10 seconds. Turn off the receiver and then turn it on again. Log back into the web interface.

**Again:** if you change the APN you **MUST** cycle the power on the internal GSM modem in the BRx7. Since power control is not provided, you must cycle the power on the entire head, then reconnect to Wi-Fi, login to the web interface and return to the 'Settings: Working Mode' menu.

If you don't change the APN, there is no need to cycle the power.

5. Change the Connect Mode to 'Ntrip', set the 'IP Address' to the UNC or dotted address for the server, enter your User and Password, check the Auto Connect Yes radio button:

The screenshot shows the 'Settings' window with the following configuration:

- Connect Mode: Ntrip
- IP Address: turngps.utah.gov
- Port: 2101
- Mountpoint: GNSSVRSRTC32
- Upload GGA: 5 s
- User: marks0011
- Password: [masked]
- Auto Connect: YES
- External Serial Port Baud: 115200

Buttons: Save, Cancel, Get Mountpoint

3

If the card is properly seated and the APN was correctly entered, you will be able to click the 'Get Mountpoint' button and after a few seconds 'Success (xx)' will be displayed with the number of mount point entries:

Success (96) Get Mountpoint

Since the mount table can be downloaded, you now know that the SIM card configuration is correct. You can then drop down the mountpoint selection box and click on the desired mount point:

The screenshot shows the 'Mountpoint' dropdown menu open, displaying a list of available mount points. The 'GNSSVRSRTC32' option is highlighted in blue.

- Success (96)
- VRSCMRX
- VRSCMRXDEG
- SB\_IDHA\_CM Rx\_Hailey
- SB\_UTMB\_RTCM31\_Moab
- SB\_WYJA\_CM Rx\_JacksonHole
- SB\_WYJA\_RTCM31\_JacksonHole
- VRS\_Development\_RTCM31
- SB\_AZPG\_CM Rx\_Page
- SB\_NYH1\_CM Rx\_Henderson1

Buttons: Get Mountpoint, Cancel

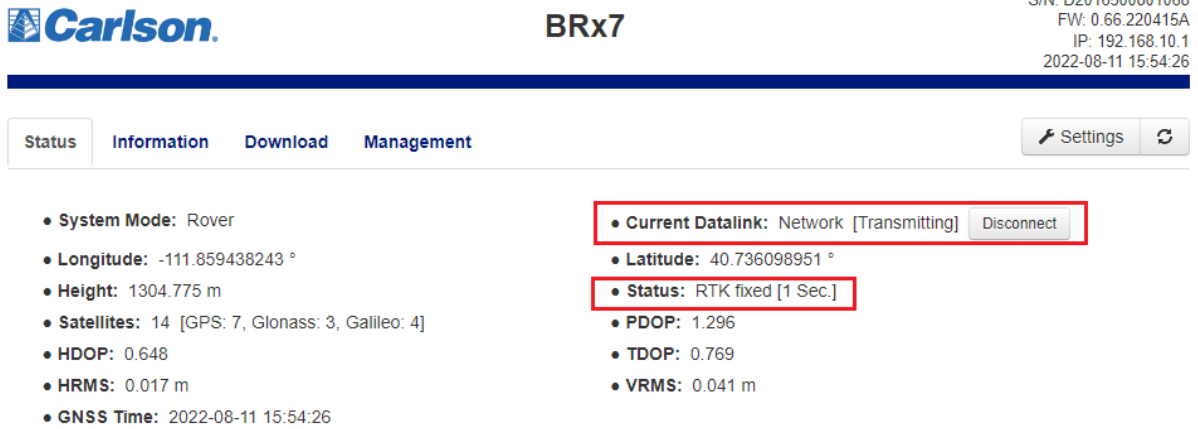
6. Finally click on the 'Save' button:



7. Configuration is complete.

### Debugging the connection

You can use the web interface Status screen to debug the connection:



**Carlson** BRx7

S/N: D2016500801068  
FW: 0.66.220415A  
IP: 192.168.10.1  
2022-08-11 15:54:26

Status Information Download Management Settings

- **System Mode:** Rover
- **Longitude:** -111.859438243 °
- **Height:** 1304.775 m
- **Satellites:** 14 [GPS: 7, Glonass: 3, Galileo: 4]
- **HDOP:** 0.648
- **HRMS:** 0.017 m
- **GNSS Time:** 2022-08-11 15:54:26

- **Current Datalink:** Network [Transmitting] Disconnect
- **Latitude:** 40.736098951 °
- **Status:** RTK fixed [1 Sec.]
- **PDOP:** 1.296
- **TDOP:** 0.769
- **VRMS:** 0.041 m