

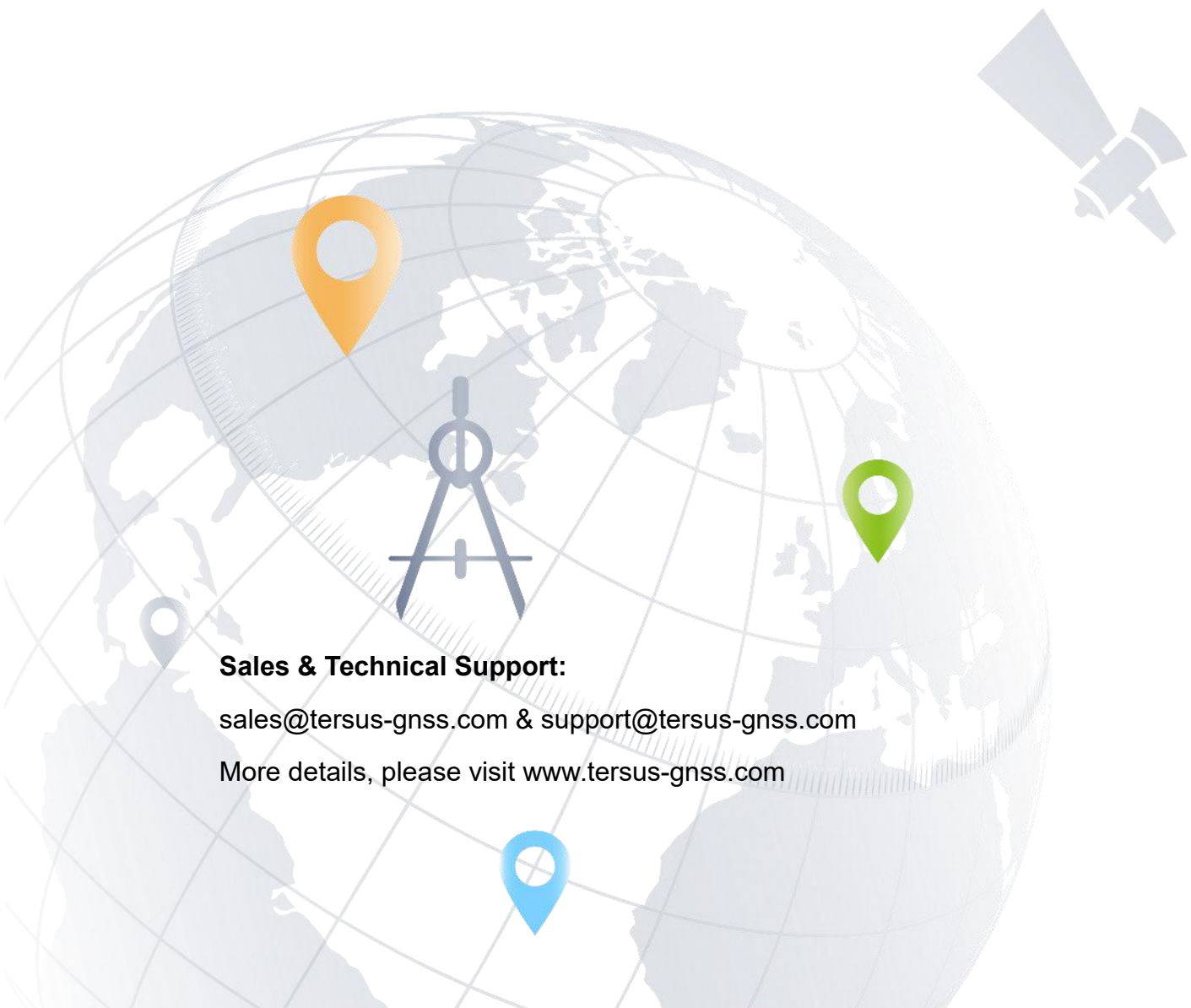
## Guide

Version V1.4-20210903



# Oscar GNSS Receiver Firmware Upgrade Guide

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# 1. Interfaces of Oscar

The bottom of Oscar receiver is shown as below.

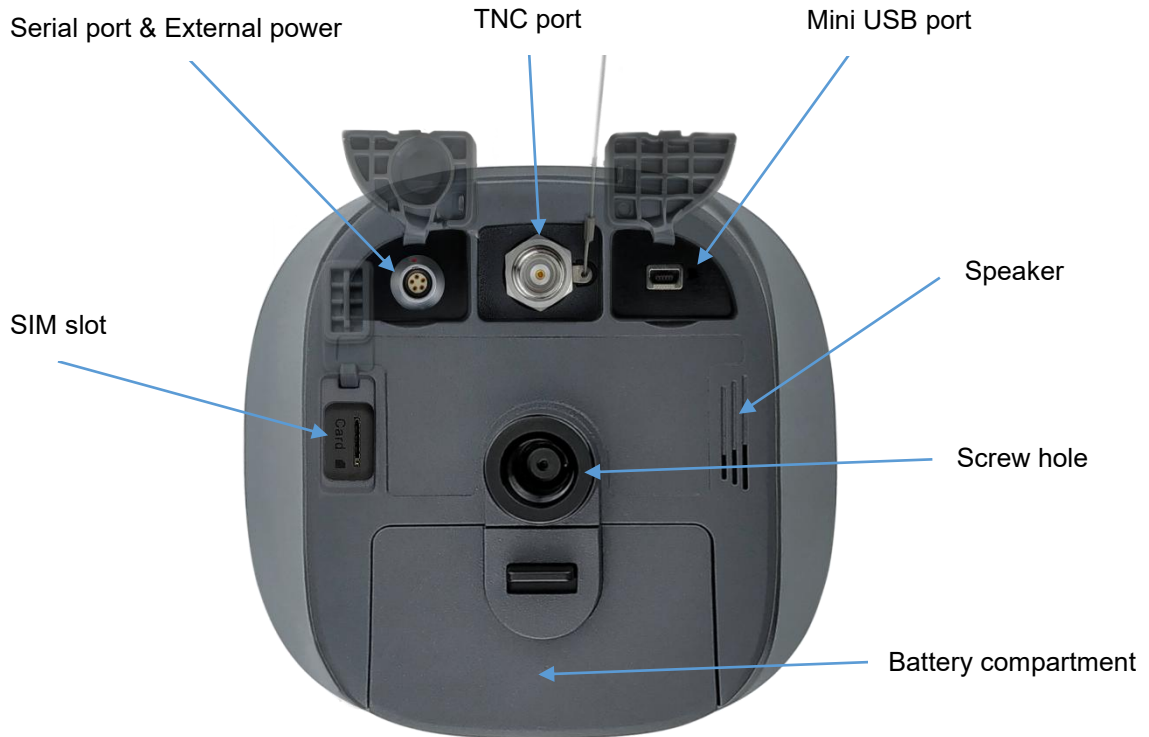


Figure 1 Bottom of Oscar

Table 1 Interfaces on the bottom side

Icon	Connector	Name	Connections
		Serial port & External power	External power, RS-232 communication, external radio
		Mini USB port	Device, computer, USB drive
SIM		SIM slot	Nano SIM card
-		TNC port	410-470MHz Radio Antenna
		Screw hole	It is a 5/8" x 11 UNC female connector for corresponding connector and pole.

## 2. Firmware Upgrade

There are two methods to upgrade firmware for Oscar GNSS Receiver: wired upgrade and wireless upgrade.

### 2.1 Wired Upgrade

The detailed steps of Oscar upgrade are as follows.

- 1) Download the latest firmware file from Tersus website <https://tersus-gnss.com/software/oscar-receiver> for different versions. If your Oscar firmware version is V1.2.x or previous versions, it is needed to download the specific upgrade package that is designated for your Oscar version (Ultimate/Advanced/Basic). If your Oscar firmware version is V1.3.0 or later, download the unified upgrade package only.

Please be noted that the downloaded file is a .zip file, unzip this file to find a pdf document and the firmware file of .GZ format or .BIN format (for V1.3.0 or later firmware upgrade).

- 2) Prepare a USB flash drive, ensure the file system of this drive is **FAT32**. Create a folder named "**OscarUpdate**" under the root directory of the USB flash drive, then put the latest firmware file in it (DO NOT unzip the firmware file further). Make sure there is only one firmware file in this folder.

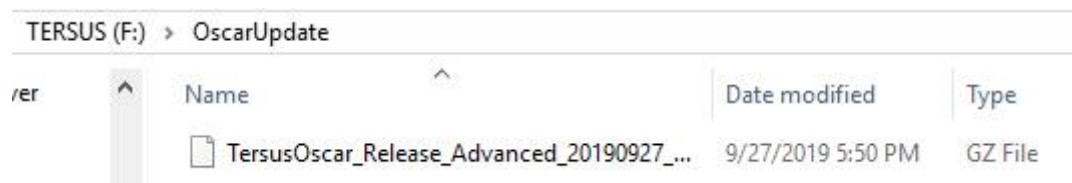


Figure 2 Copy the .GZ firmware file to a USB flash drive

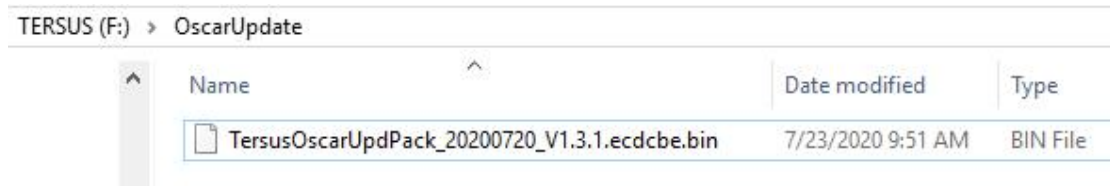


Figure 3 Copy the .BIN firmware file to a USB flash drive

- 3) Ensure Oscar is powered off, and use the Mini-USB OTG cable to connect Oscar to the USB flash drive.



Figure 4 Connect Oscar to a USB flash drive

- 4) Long press the power button to power on Oscar. If your Oscar firmware version is earlier than V1.4.0RC1 (not included), the firmware upgrade program will automatically start after boot up; if your Oscar firmware version is V1.4.0RC1 or later, it is needed to long press the FN button to start firmware upgrade program, when the OLED displays "SYSTEM UPGRADE" or the six LEDs of the basic version are all on, release the FN button and wait for the upgrade.  
For Ultimate and Advanced versions, the firmware upgrade starts when the OLED displays 'SYSTEM UPGRADE', after finishing the upgrade it displays 'SYSTEM REBOOT' and it reboots automatically to present the

upgraded firmware. For Basic version, all its six LEDs light up when it starts firmware upgrade, after finishing the firmware upgrade the power LED lights up and the satellite LED flashes, which means it restarts successfully with updated firmware.

## 2.2 Wireless Upgrade

There are three methods for wireless upgrade: The first is through the built-in storage of the host, the second is using web upgrade via WiFi, and the third is via NUWA one-click firmware upgrade.

### 2.2.1 Upgrade through the built-in storage of the host

The detailed steps of Oscar upgrade are as follows.

#### 1) View Oscar firmware version.

When Oscar GNSS receiver is powered on, to connect Oscar, put controller near the NFC logo on Oscar, the controller pair Bluetooth with Oscar automatically; or click [Device] -> [Connect] under an opened project, and select [Oscar] for the Device Type, select [Bluetooth] for the Connect Type. Click [Connect Config] to search and pair the Bluetooth address of Oscar. The antenna is selected as [Oscar] by default. Then click [Connect] to enable the communication between controller and Oscar. As shown in Figure below.

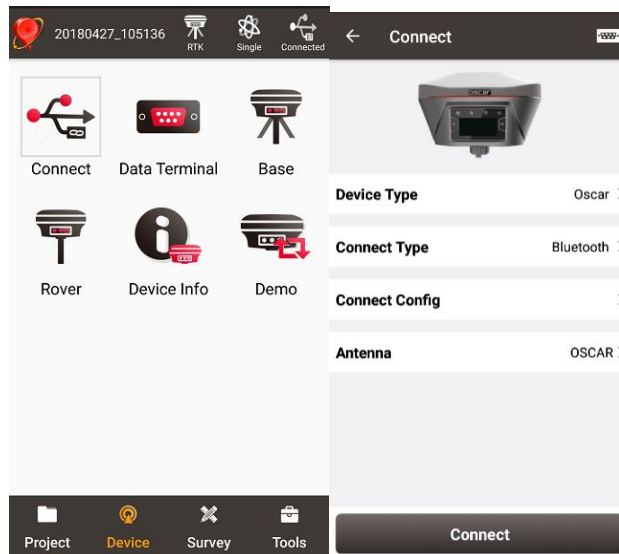



Figure 5 Connect to Oscar via Bluetooth

Click the device information icon  on the top tool bar of Nuwa, the Oscar info is shown as below. You can view Oscar firmware version.

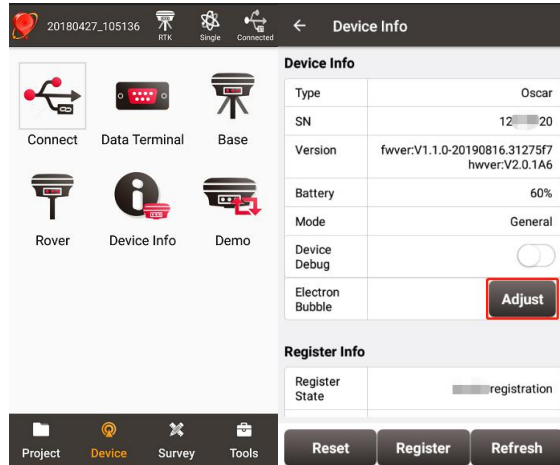


Figure 6 View Oscar firmware version

For Ultimate and Advanced versions, you can also check the firmware version by switching the button. In the [device information] -[GNSS information]- [firmware version], you can view the firmware version of the GNSS board inside Oscar. In the [device information] - [software version], you can view Oscar firmware version.

Please be noted that your Oscar firmware version is V2.0.0 or higher, you can upgrade the firmware through the built-in storage of the host .

2) Download the latest firmware file from Tersus website <https://www.tersus-gnss.com/software/oscar-gnss-receiver>.

Please be noted that the downloaded file is a .zip file, unzip this file to find the firmware file of .BIN format.

3) Prepare a Mini USB cable, when OSCAR is turned on, connect the Mini USB port of OSCAR to the computer with a Mini USB cable.



Figure 7 Mini USB cable connect the computer and OSCAR



4) The computer interface will automatically pop up two removable disks. As shown in the figure below, the memory of the removable disk F is about 12G, and the memory of the removable disk G is only about 31MB.



Figure 8 Two Removable Disks

5) Choose a removable disk with smaller memory and put the firmware file in the .BIN format on this removable disk. As shown in the figure below, copy the firmware to G drive.

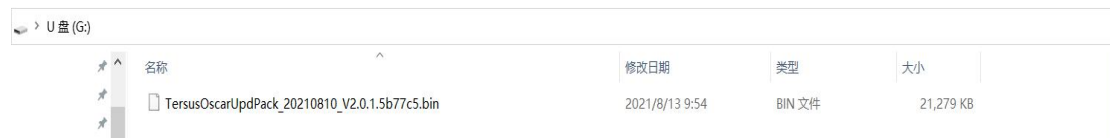


Figure 9 The FW is placed in a removable disk with smaller memory

6) Unplug the Mini USB cable, press and hold the power button for 3 seconds to shut down OSCAR .

7) Make sure that OSCAR is turned off, then press and hold the power button for 2 seconds to turn on OSCAR.

For Ultimate and Advanced versions, when the TERSUS icon appears, the boot is successful. Release the button and OSCAR enters the upgrade mode. The LED panel displays "SYSTEM UPGRADE" and waits for the upgrade to complete.



Figure 10 Upgrading(Ultimate and Advanced versions)

After the LED panel displays the operation interface, you can check whether the Oscar firmware upgrade is successful. Refer to step 1 to check the Oscar firmware version. If it is consistent with the latest firmware version in the removable disk, it means the firmware upgrade is successful.

For Basic version, when the six indicators on the LED panel are all on, the boot is successful, release the power button. OSCAR enters the upgrade mode when the six indicators on the LED panel are all on again, and waits for the upgrade to complete.



Figure 11 Upgrading(Basic version)

After the firmware upgrade is completed, the power LED light is on and the satellite light flashes. At this time, refer to step 1 to check the Oscar firmware version. If it is consistent with the latest firmware version in the removable disk, the firmware upgrade is successful.

**Note:** Please make sure the battery has enough power for the firmware upgrade. The GNSS board inside Oscar will upgrade when the firmware is upgrading, any forced power failure will cause the system crash.

### 2.2.2 Using web upgrade via WiFi

The details are to be updated. Stay tuned for the new version of this guide.

### 2.2.3 Via NUWA one-click firmware upgrade

The details are to be updated. Stay tuned for the new version of this guide.

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