

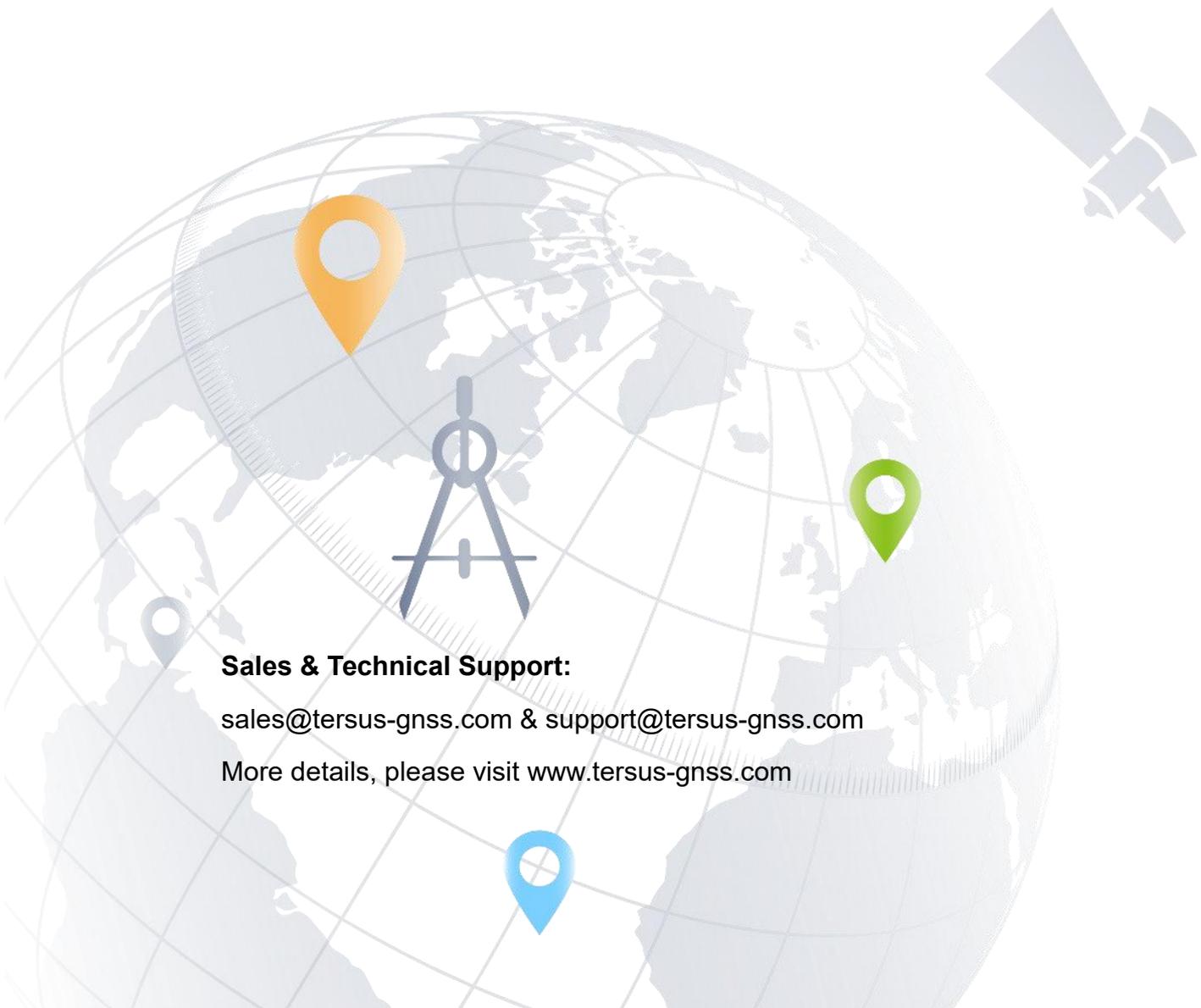
Guide

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Oscar GNSS Receiver Firmware Upgrade Guide

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1. Interfaces of Oscar

The bottom of Oscar receiver is shown as below.

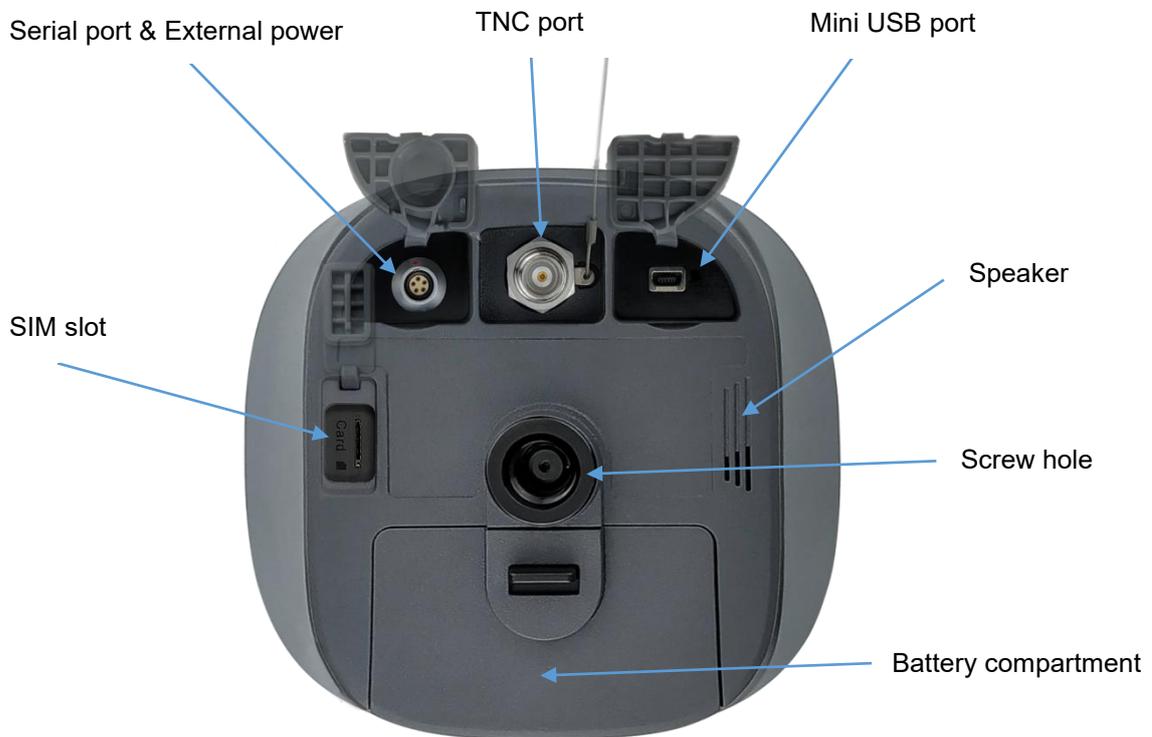
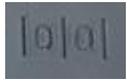


Figure 1 Bottom of Oscar

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

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.

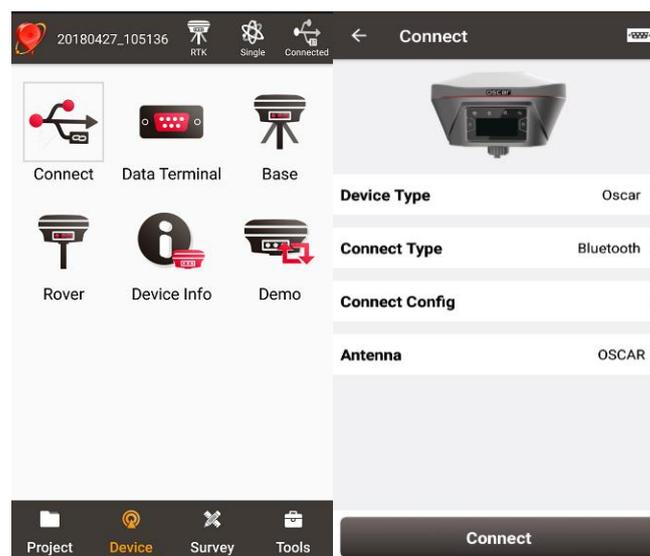


Figure 2 Connect to Oscar via Bluetooth

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.

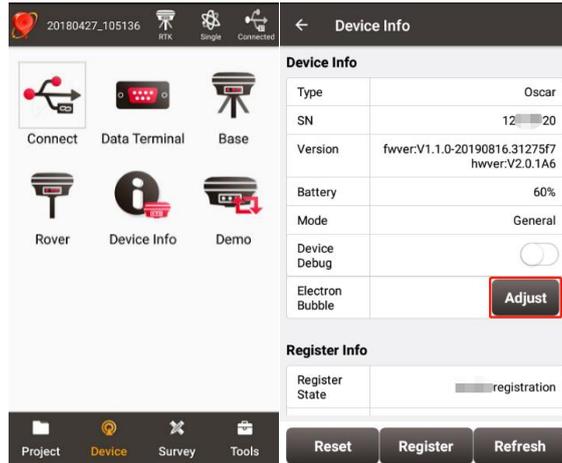


Figure 3 View Oscar firmware version

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. If your Oscar firmware version is below V2.0.0, you can use a USB flash drive to upgrade the firmware.

2.1.1 Upgrade the firmware through a USB flash drive

The detailed steps are as follows.

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

If your Oscar firmware version is V1.2.x or previous versions, it is needed to upgrade to V1.3.1 firmware first, and then upgrade to the latest firmware. V1.3.1 firmware needs to download the specific upgrade package that is designated for your Oscar version (Ultimate/Advanced/Basic), as shown below.

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, **DO NOT** unzip the firmware file further.

	Oscar Firmware	Firmware Upgrade	Release Note	2021-05-26/Version:2.0.0
	Oscar Ultimate Firmware	Firmware Upgrade	Release Note	2020-07-23/Version:1.3.1
	Oscar Advanced Firmware	Firmware Upgrade	Release Note	2020-07-23/Version:1.3.1
	Oscar Basic Firmware	Firmware Upgrade	Release Note	2020-07-23/Version:1.3.1

Figure 4 V1.3.1 firmware upgrade package download

If your Oscar firmware version is V1.3.0 or later, download the latest upgrade package only. Please be noted that the downloaded file is a .zip file, unzip this file to find the firmware file of .BIN format.

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 . Make sure there is only **one** firmware file in this folder.

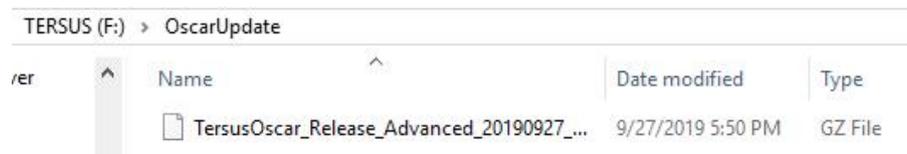


Figure 5 Copy the .GZ firmware file to a USB flash drive

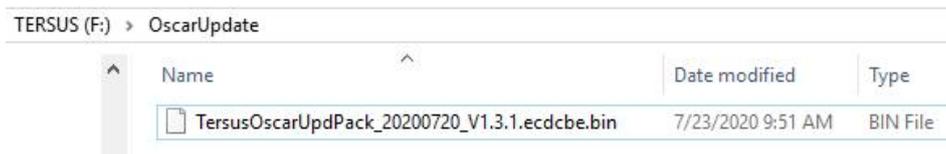


Figure 6 Copy the .BIN firmware file to a USB flash drive

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



Figure7 Connect Oscar to a USB flash drive

4) If the current firmware version of your Oscar is earlier than V1.4.0 (not included), the firmware upgrade program will automatically start after boot up; If your Oscar firmware version is V1.4.0 or later, it is needed to follow the steps below.

Steps for Ultimate and Advanced versions:

Press and hold the power button and the FN button at the same time. When the TERSUS icon appears on the LED panel, release the power button. Only hold down the FN button and keep pressing the FN button until the LED panel displays "SYSTEM UPGRADE". Release the FN button and wait for the upgrade. "SYSTEM UPGRADE" means starting to upgrade the firmware, "SYSTEM REBOOT" means the receiver starts to restart automatically, please wait for this process until the LED panel displays the operation interface. After the LED panel displays the operation interface, you can check whether the Oscar firmware upgrade is successful. If the Oscar firmware version is consistent with the latest firmware version in the USB flash drive, it means the firmware upgrade is successful.

Steps for Basic version:

Press and hold the power button and the FN button at the same time, release the power button when the six indicators on the LED panel are all on. Only hold down the FN button and keep pressing the FN button until the six indicators on the LED panel are all on again. Release the FN button and wait for the upgrade. After the firmware upgrade is completed, the power LED light is on and the satellite light flashes. At this time, you can check the Oscar firmware version. If it is consistent with the latest firmware version in the USB flash drive, 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.

2.1.2 Upgrade the firmware through the built-in storage of the host

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.

The detailed steps are as follows.

- 1) 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.

- 2) 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 8 Mini USB cable connect the computer and OSCAR

- 3) The computer interface will automatically pop up two removable disks. As shown in the figure below.



Figure 9 Two Removable Disks

- 4) Choose the OscarUpdate removable disk and put the firmware file in the .BIN format on this removable disk. As shown in the figure below, copy the firmware to the OscarUpdate drive.



Figure 10 The FW is placed in the OscarUpdate removable disk

- 5) Unplug the Mini USB cable, press and hold the power button for 3 seconds to shut

down OSCAR .

6) 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 11 Upgrading(Ultimate and Advanced versions)

After the LED panel displays the operation interface, you can check whether the Oscar firmware upgrade is successful. 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 12 Upgrading(Basic version)

After the firmware upgrade is completed, the power LED light is on and the satellite light flashes. At this time, you can 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 Wireless Upgrade

You have two methods for wireless upgrade: one is a one-click firmware upgrade via NUWA, and the other is a web upgrade via WiFi.

2.2.1 Upgrade the firmware through NUWA

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.

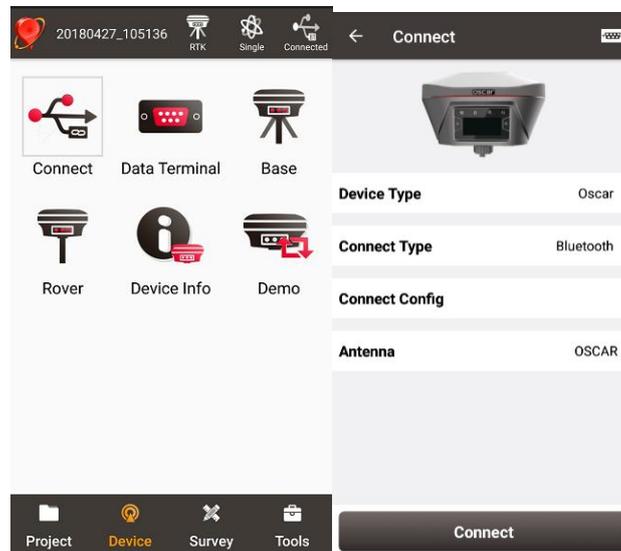


Figure 13 Connect to Oscar via Bluetooth

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.

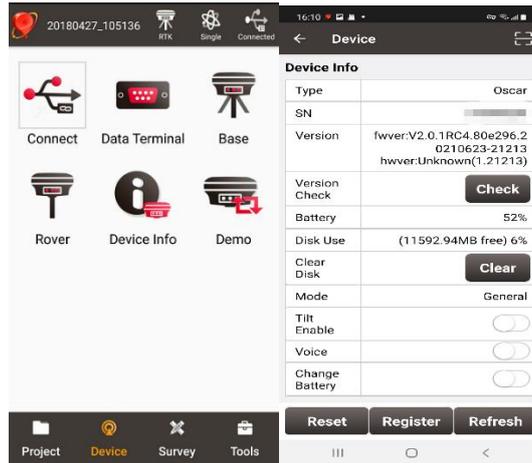


Figure 14 View Oscar firmware version

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 V2.0.1 or higher, you can upgrade the firmware through NUWA.

2) The one-click firmware upgrade through NUWA can only be done through Oscar host network at present now, so we need to confirm whether Oscar is connected to the Internet, as shown in the picture.

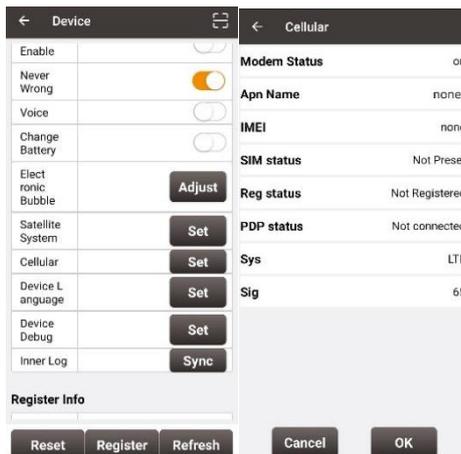


Figure 15 check Oscar Networking status

3) [Version update]--Click [Check] in the interface. When there is a version update, a dialog box will pop up automatically. Click "Update Now" and the receiver will automatically download the new Oscar firmware, as shown below.

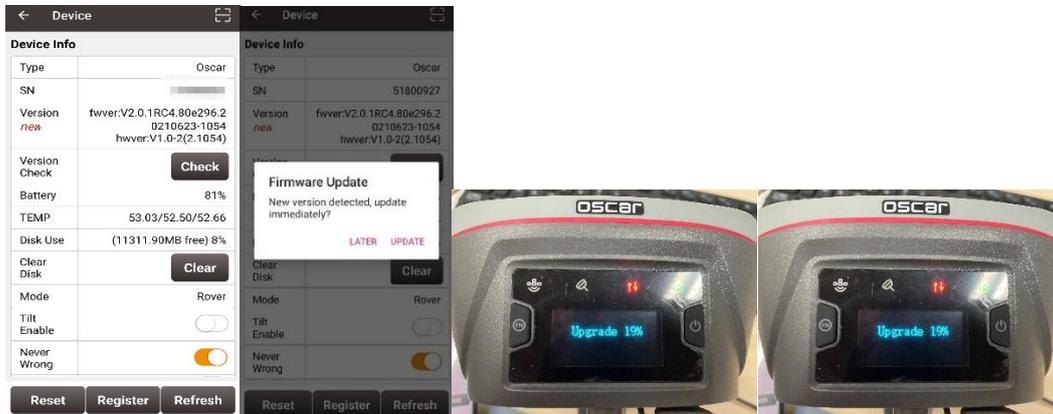


Figure 16 Status after Version Check

4) 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, 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, please wait for the upgrade to complete.



Figure 17 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, the firmware upgrade is successful.

2.2.2 Upgrade the firmware via a WiFi web page

The specific steps are as follows:

1) Check the Oscar firmware version. When Oscar GNSS receiver is turned on and the handbook is close to Oscar's NFC logo, the handbook will automatically match Oscar's Bluetooth. Or under an open project point [equipment] - >; [Device Connection], select [Oscar] in device type, select [Bluetooth] in connection type, click [Connection Configuration] to search Oscar's Bluetooth address and pair it, the default antenna is [Oscar], and then click [Connect] to enable wireless communication between the notebook and Oscar.

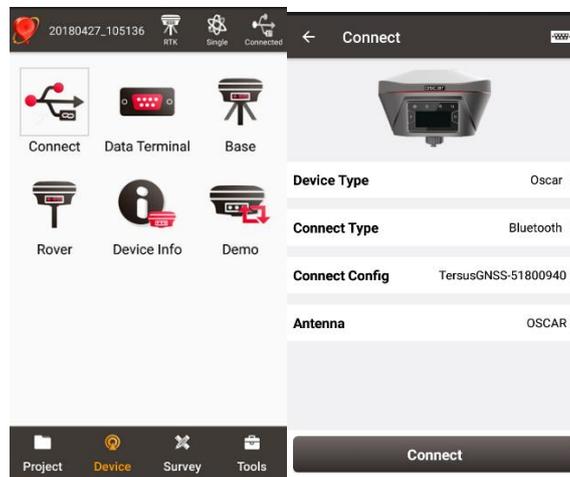


Figure 18 Oscar connected via Bluetooth

Click the device information icon in the toolbar at the top of NUWA to view the Oscar firmware version, as shown in Figure 19 below.

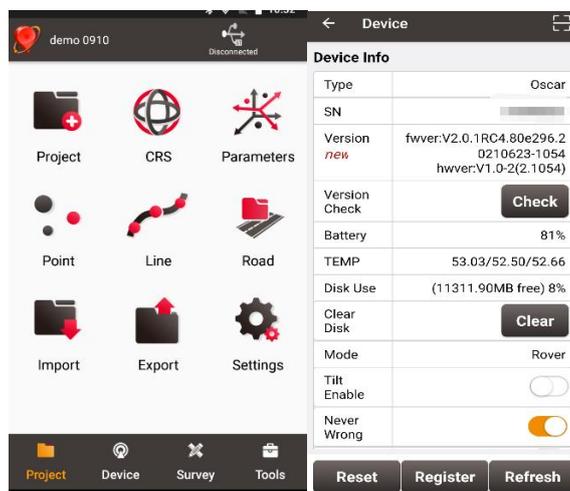


Figure 19 check the Oscar firmware version

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 note: your Oscar firmware version is V2.0.1 or higher, you can use the WiFi web upgrade mode.

2) Turn on the WIFI function of Oscar GNSS receiver.

Switch to [Device] -- [WIFI Setting] -- [Set] -- [Mode Config], select [AP] -- [confirm] via NUWA, as shown below.

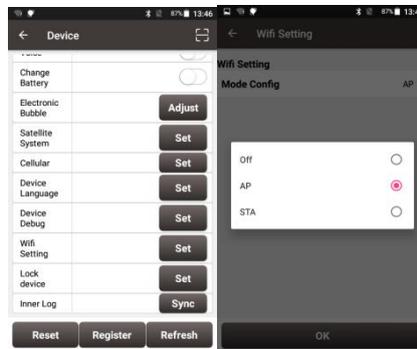


Figure 20 Open WIFI function

Note: the version of NUWA app must be upgraded to V2.2.9 or above.

For Advanced and Ultimate versions, we can also open WIFI through the button on the host: switch to [Device info] -- [GNSS info]-- [WIFI] and ensure that the WIFI mode screen is displayed. Click [confirm] after WIFI mode to switch to [AP] mode. As shown in the figure below.



Figure 20 Open WIFI function

3) Connect Oscar GNSS receiver WIFI and upgrade. Turn on your computer wifi and find the connection (TersusGNSS- "SN") in the wifi list.



Figure 21 Connecting to Oscar WIFI

4) Open the browser, enter the URL (192.168.2.1), and enter the account password (admin) in the pop-up. After login, enter the sub-menu, [Firmware] -- [Firmware Info]-- select file (load the latest Firmware) -- [Upgrade] , do not perform any operations after clicking. Wait patiently for the receiver to restart automatically.

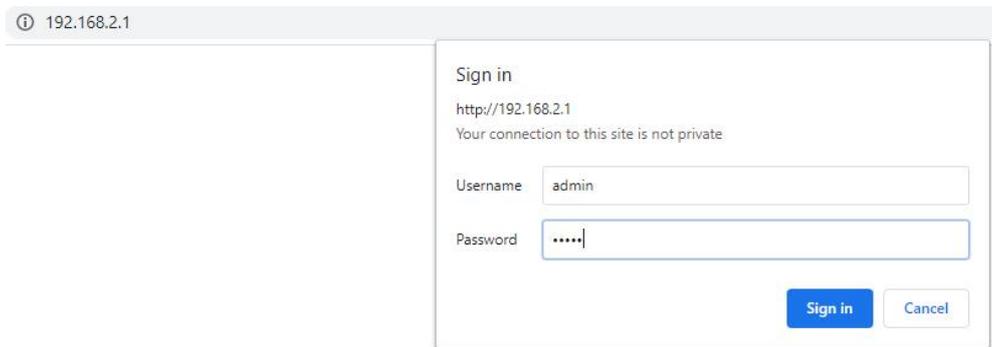


Figure 22. Oscar WIFI page

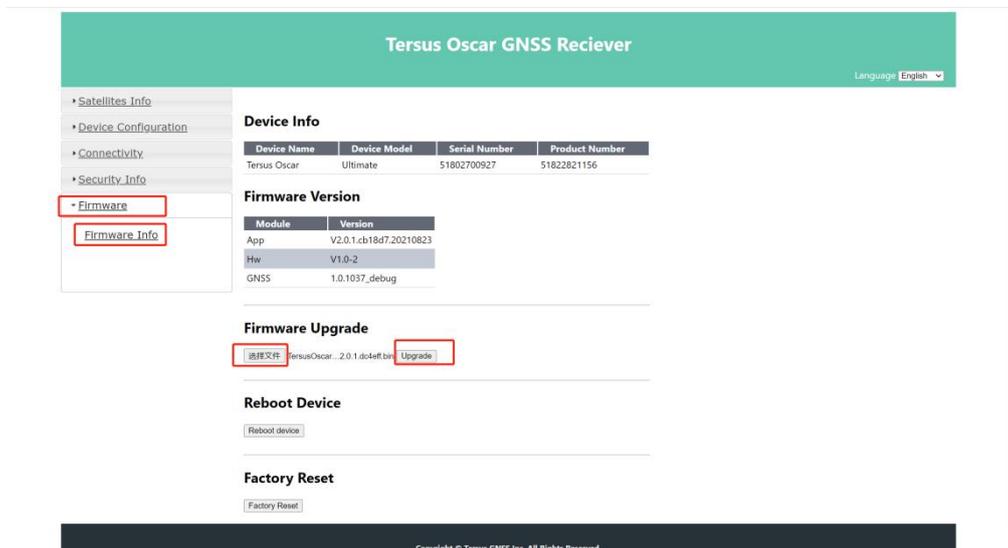


Figure 23. Upgrade via the Oscar WIFI page

5) 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.

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