

September 2023 iG9 Firmware Update

29 September 2023

In addition to the new, updated OEM, Radio and Mainboard firmware is available for the iG9 and iG9a released with version 2.2.4.x in March 2023; this release fixes a single (perhaps arcane) radio frequency programming issue in the iG9 and iG9a.

The enhancements are listed at the end of this document.

There are two update methods: Wi-Fi, Thumbdrive.

Step 1: Download the Update Files

The first step for both methods is to download the update files.

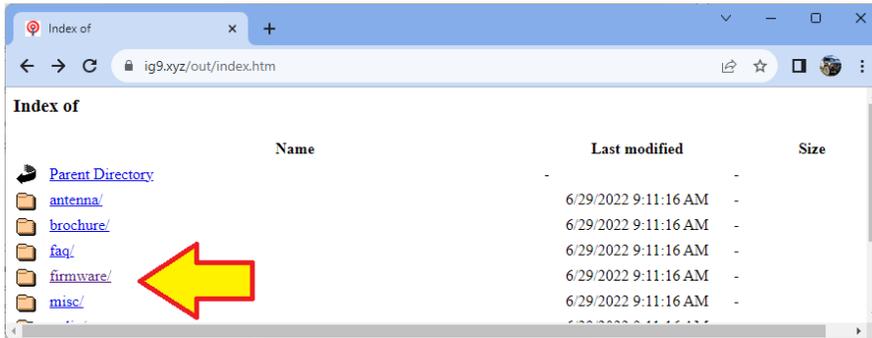
Navigate to:

https://ig9.xyz/out/firmware/2.2.5.3_20230327/index.htm

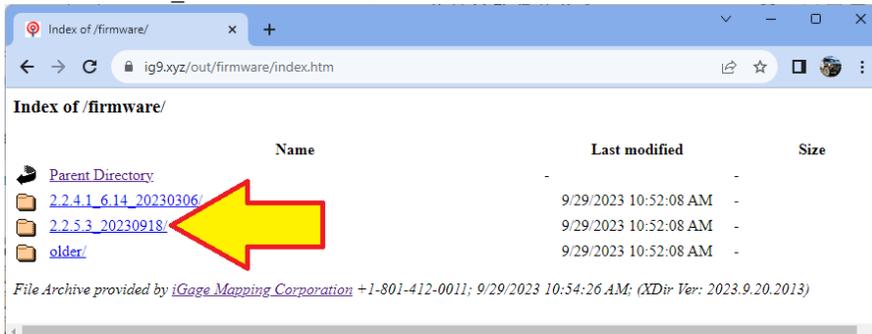
You can easily get to this web location by browsing to ig9.xyz, then click on **Tools**



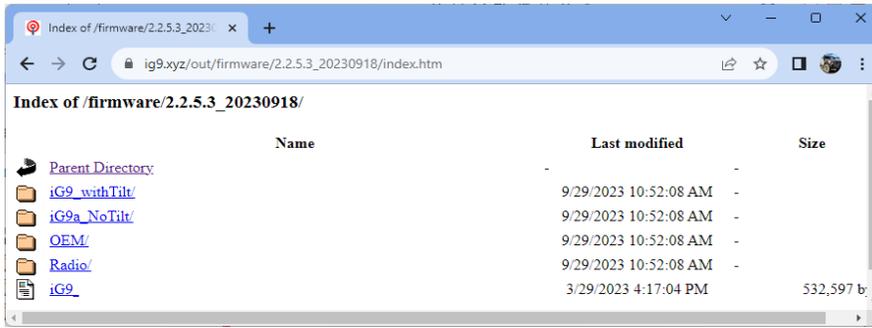
then click on firmware:



then click on 2.2.5.3_20230918:



You will need to download a file from 3 of the 4 folders:



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Download the files to an empty folder on your computer by right-clicking, then **Save-as**.

Download the correct mainboard file for your receiver depending on iG9 (with Tilt) or iG9a (no Tilt):

- iG9 with tilt update_i90_v2.2.5.3XPsunchongT_b20230918.bin
- iG9a without tilt update_i90_v2.2.5.4IMUsunchongT_b20230918.bin

to your computer's local drive.

Download the OEM update file from the OEM folder:

update_gnss_v614_29_b20230130.bin

Download the Radio update file from the Radio folder:

update_radio_v040406_05_b20230109.bin

Method 1: Updating by Wi-Fi

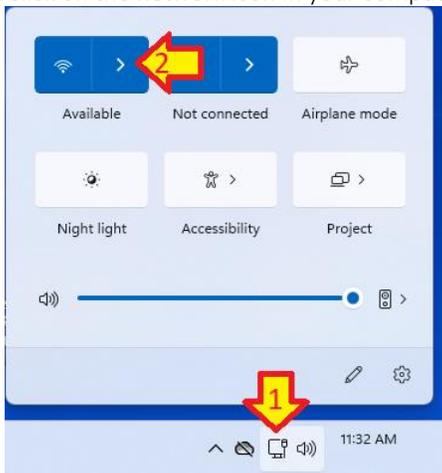
Put two fully charged batteries into the receiver (iG9 or iG9a).

Turn on the receiver and connect to it by Wi-Fi.

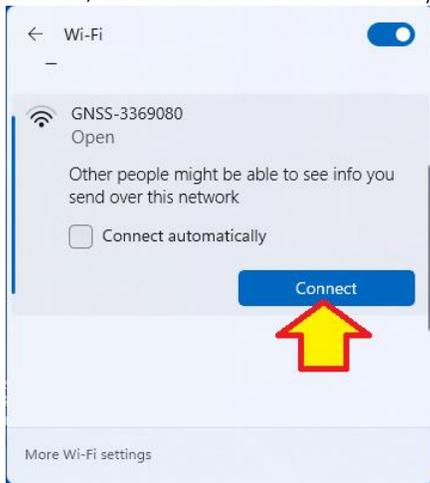
Wi-Fi Overview

- SSID: GNSS-xxxxxxx device-serial-number
- Wi-Fi Key: (open) no password is needed, connection is open
- address: http://192.168.1.1
- port: 80
- User Name: admin lower case
- password: password lower case

First click on the network icon in your computer's system tray (1), then click on the Wi-Fi device list (2):



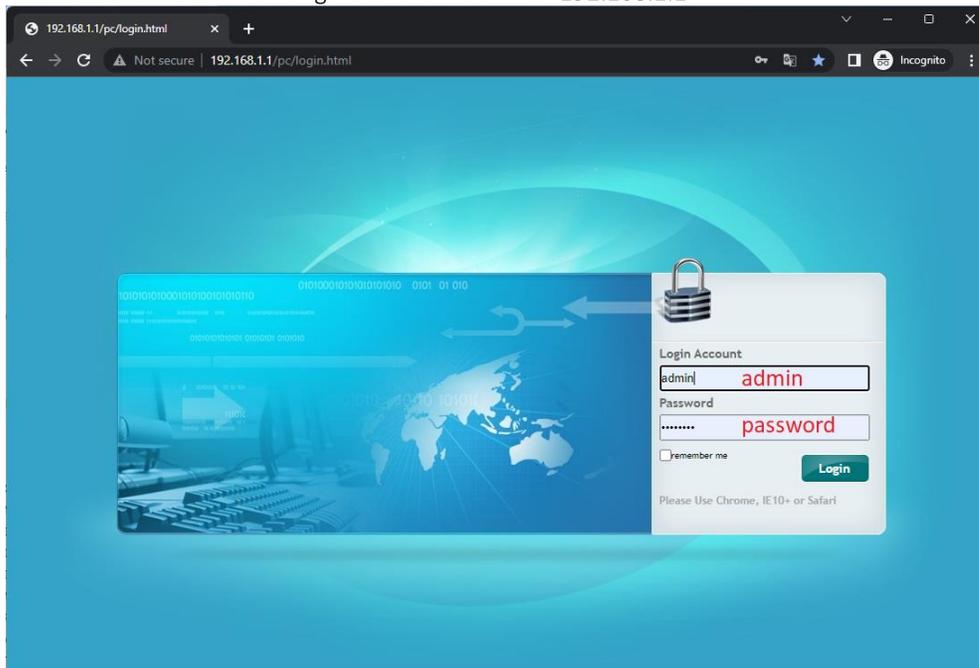
Find the iG9/iG9a receiver in the Wi-Fi list by serial number (GNSS-xxxxxx), click on **Connect**:



3

If a **'no internet access'** screen is displayed, click on **'stay connected.'**

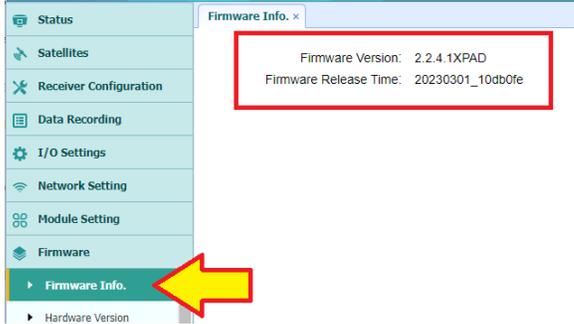
Open a browser window and navigate to the IP address: **192.168.1.1**:



The **Login Account Name** is **admin** and the **Password** is **password**. Click on **Login**.

Step 2: Mainboard Firmware

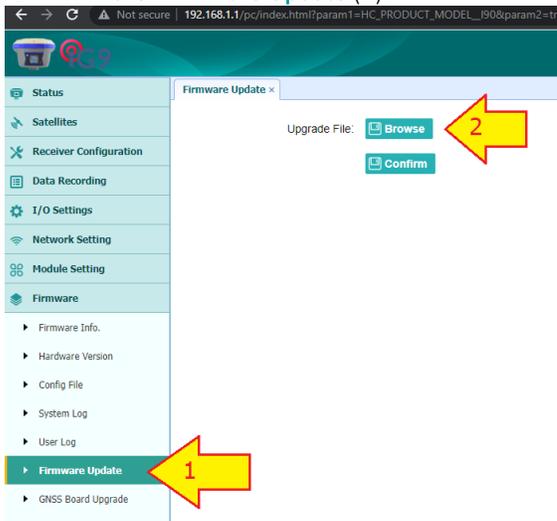
On the left panel, click on **Firmware**, then **Firmware Info**. The current firmware version will be displayed:



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If the firmware version is previous to 2.2.5.2, update the Mainboard firmware:
iG9 with tilt update_i90_v2.2.5.3XPsunchongT_b20230918.bin
iG9a without tilt update_i90_v2.2.5.4IMUsunchongT_b20230918.bin

Click on **Firmware: Firmware Update** (1):

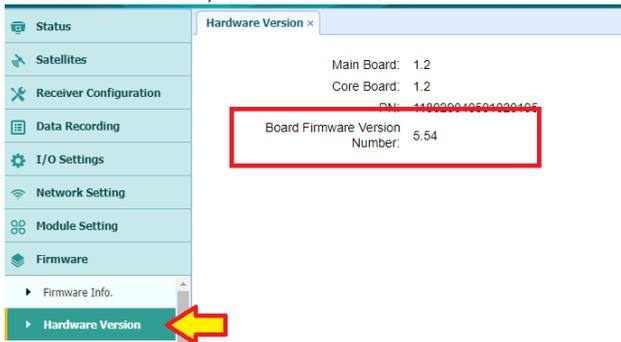


Then click on **Browse** (2) select the file the correct mainboard update file, finally click on **Confirm**.

The update will take about 2 minutes and 20 seconds and the receiver will reboot twice. When the update has completed, reconnect with Wi-Fi and verify that the Mainboard firmware matches the version shown above.

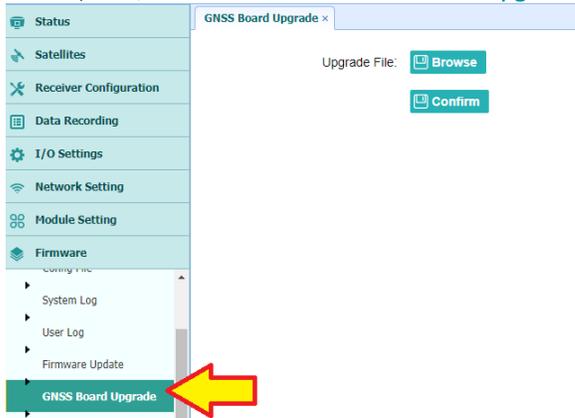
Step 3: OEM (Trimble BD990) Firmware

From the web interface, click on **Firmware: Hardware Version**:



If the Board Firmware Version Number: is less than 5.54 then continue and update the OEM firmware. (The current version is 5.54/6.14MaxPro, which will display as 5.54 on the web interface.)

On the left panel, click on **Firmware: GNSS Board Upgrade**



Then click on **Browse** and select the previously downloaded file:

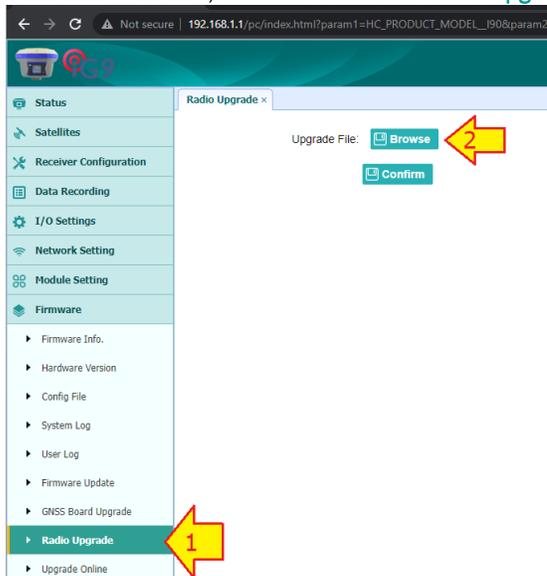
update_gnss_v614_29_b20230130.bin

then click on **Confirm**. **The update will take about 22 minutes** and the receiver will reboot twice during the update. When the update completes, you can log into the receiver by Wi-Fi and verify that hardware version 5.54 is shown as shown above.

Remember that the OEM update will take over 22-minutes to complete.

Step 4: Radio Firmware

From the web interface, click on **Firmware: Radio Upgrade:**



Then click on **Browse** and select the previously downloaded file:

update_radio_v040406_05_b20230109.bin

then click on **Confirm**. **The update will take about 4 minutes** and the receiver will reboot twice during the update.

Method 2: Updating by Thumbdrive

Put two, fully charged (or mostly fully charged) batteries into the receiver. Turn the receiver off.

Find an empty thumbdrive and the OTG cable provided with your iG9/iG9a:



Download the three update files as shown above in Step 1.

The updates need to be performed one at a time, the order is not significant.

Put the first file on the thumbdrive, insert the thumbdrive into the OTG adapter, insert the OTG adapter into the receiver, turn the receiver on, after the initial boot sequence, the receiver will ask if you want to update:



Click on the left **Fn** button **YES** to proceed with the update.

The receiver will reboot when the update is complete. The receiver will ask you again if you want to upgrade. Click on **NO** and then turn off the receiver.

Remove the first file from the thumbdrive, then load the second update file and turn the receiver on, wait for the confirm prompt, click on the left **Fn** button **YES**, then wait for the 2nd update to complete.

The receiver will reboot when the 2nd update is complete. The receiver will ask you again if you want to upgrade. Click on **NO** and then turn off the receiver.

Remove the 2nd file from the thumbdrive, then load the 3rd update file and turn the receiver on, wait for the confirm prompt, click on the left **Fn** button **YES**, then wait for the 2nd update to complete.

Remember that the OEM update will take over 22-minutes to complete.

Enhancements

Mainboard Firmware: better satellite tracking control with X-Pad and SurvXX 6.08, enhancements for new revisions of the iG9 hardware.

September 2023: Supports frequencies with x.x125 MHz center frequencies.

Radio Firmware: updated support for SATEL 3AS FEC OFF mode.

GNSS Firmware: The iG9 has a Trimble BD990 engine with the MAXPro™ (similar to ProPoint) enabled, with the Advanced RTCM option enabled. The benefits of the Trimble MAXPro™

- Improved GNSS performance in harsh environments
- Support for latest constellations and frequencies
- Flexible signal management resulting in higher satellite availability
- Constellation agnosticism (ability to obtain independent position solutions)
- New system architecture designed for tight coupling of sensor data with RTK and RTX

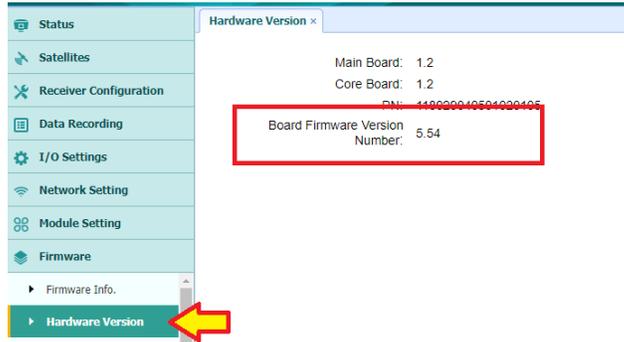
Robust estimation techniques for detection of outliers

5th generation RTK engine

More reliable precision estimates

Extensive testing worldwide in a variety of environments

The following list of OEM engine improvements summarizes the enhancements by OEM version. You can determine the current OEM firmware (shown on the Hardware Version) on your device using the web interface where the 5.xx version is shown:



Most iG9 receivers have had version 5.46 or 5.48 installed in them when shipped.

V5.48 / V6.08

The following improvements have been made to the Trimble GNSS OEM receivers since version 5.46 / 6.06.

- Updates to NMEA 2000 message outputs.
- Improvements to QZSS SLAS and MSAS positioning.
- Fixed issue with setting RTK Propagation Limit.
- Improvements to atmospheric models used in autonomous and SBAS positions.
- Fixed an issue where certain BD990 receivers failed to boot at cold temperatures

V5.50 / 6.10

The following improvements have been made to the Trimble GNSS OEM receivers since version 5.48 / 6.08:

- Improvements to GPS L1C tracking
- Improvements to QZSS LEX raw data decoding
- Improvements to Galileo health reporting
- Improvements to Galileo AltBOC tracking
- Improvements to QZSS SLAS positioning
- Corrected an issue where certain BD990 receivers are crashing during temperature testing
- Updated GSOF messages 34 and 48 to output SBAS L5 SNR when available
- Corrected an issue with GSOF messages 49 and 50 where RMS values were reported as negative
- Corrected an issue when many SBAS satellites are in view
- Removed support for RTCM 2.4 as the final release by the RTCM committee is not available
- Updates to RTX and OmniSTAR satellite beams
- Corrected an issue where SISAI data from Beidou III B2A is not reported correctly
- Updated available dynamic models
- Updates to the default GNSS signal selection



- Corrected issues with sCMRx operation
- Updates to support GNSS/INS DGNSS positioning
- Corrected an issue with reporting of Galileo E5 AltBOC SNR values
- INS is now disabled when the receiver is set up as a base station

V5.53 / V6.13

The following improvements have been made to the Trimble GNSS OEM receivers since version 5.50 / 6.10:

- Updates for new RTX beam changes.
- Updates for OmniSTAR beam changes.
- Improvements to L2C tracking.
- Improvements to B2A tracking.

V5.54 / V6.14

The following improvements have been made to the Trimble GNSS OEM receivers since version 5.53 / 6.13:

- Improvements to Galileo E5A/E5B tracking
- Improvements to Galileo E6 tracking
- Updates to RTX wet/dry map
- Corrected issue with GSOF message 27 not outputting in certain INS modes
- Updates to GSOF messages 6 and 7
- OmniSTAR positioning library updated to V8.26
- Improvements to lower positioning latency and consistency

Problems or Questions

If you have any questions or problems while updating your iG9 / iG9a receivers, do not hesitate to contact us:

801-412-0011 x0