

iG8: Updating the Trimble OEM GNSS Engine with WinFlash

Date: 19 April 2019

By: Mark Silver, ms@igage.com

Note

These instructions are valid for iG8 devices sold by iGage.

These instructions are not applicable to CHC I70 devices sold by other sources which look identical to the iG8. These alternate devices have completely different engines and these instructions won't work.

It is strongly recommended that you NOT update your iG8 OEM engine without iGage's version approval. In other words: 'call iGage and ask if it is reasonable to upgrade.' Generally if your receiver is working just fine you should not upgrade.

DO NOT upgrade your device to new versions immediately. DO NOT downgrade your device without carefully determining that it is safe to do so.

Trimble OEM firmware versions often are released and then immediately recalled. Do not update needlessly and without a good reason.

You will need:

Serial Port on a Windows computer. If you don't have a hardware serial port, we recommend the TerraGrand model (about \$12 from Amazon Prime): https://www.amazon.com/Tera-Grand-Premium-Adapter-Supports/dp/B00BUZ0K68/ref=sr_1_fmnull_3?crid=3DW6VBW80ZS0A&keywords=tera+grand+serial+to+usb+adapter&qid=1555703924&s=gateway&sprefix=tera+grand+serial+%2Caps%2C198&sr=8-3-fknull

The serial cable that was included with your head:



Two **fully charged** batteries:



Copy of PuTTY: <https://www.putty.org/>

The (probably latest) version of WinFlash for BD970. Currently available from:

<https://www.trimble.com/precision-gnss/BD970-Board.aspx?tab=support>

Download the WinFlash tool for the version you are installing AND the release notes for the version that you are installing.

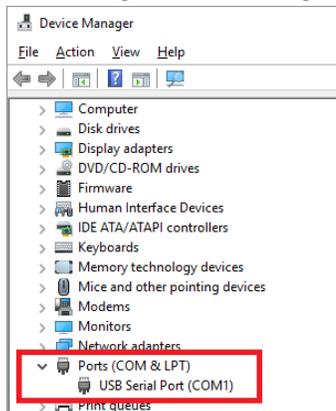
Install WinFlash on your computer. If you have already installed an earlier version of WinFlash, the new installation will add the new firmware to the existing installation.

Getting Started

Put two fully charged batteries in the head.

Turn on the head and wait for it to boot.

Connect the serial port to your computer with the supplied serial port cable. Determine the COM port number using 'Device Manager' if you don't already know it:

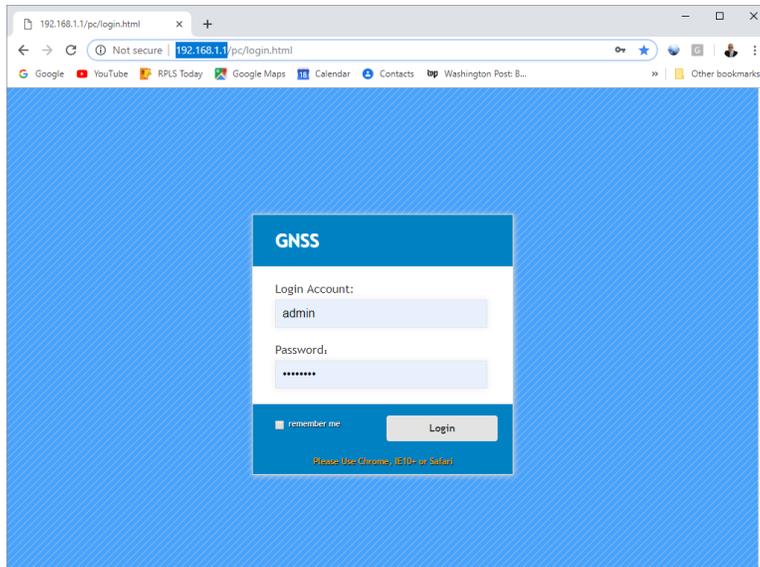


The serial port is COM1 in the image above.

Connect to the head using Wi-Fi (instructions are in the User Manual. Briefly Wi-Fi SSID is GNSS-device-serial-number, WI-FI password is '12345678'; login Address is 192.168.1.1; login user name is 'admin'; login password is 'password'.)

Login to the head and check the current version

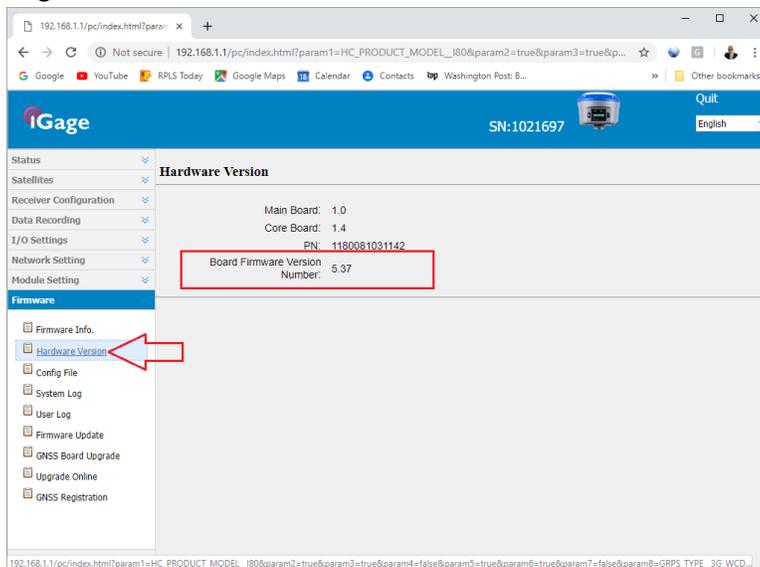
Browse to this address: <http://192.168.1.1>



3

The 'Login Account' is 'admin' and the Password is 'password'. The values are all lower case.

Click on Login:



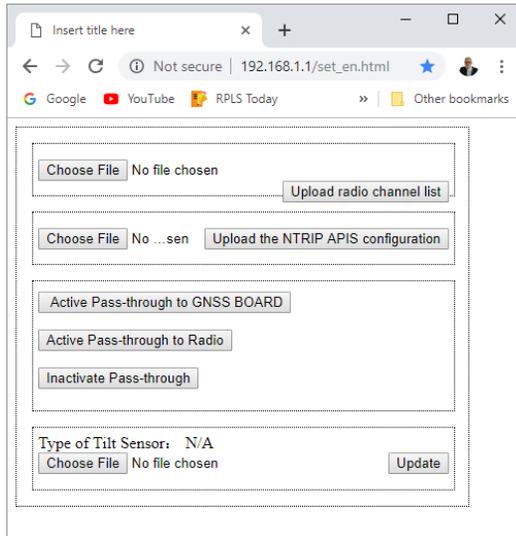
Click on 'Firmware', then 'Hardware Version' and the OEM Board Firmware Version will be shown. It is 5.37 on the device shown above.

Note that this value is only read when the head boots. After you update the firmware you will have to reboot the entire head to see this version reflect the newly updated version.

Pass the Serial Port directly to the OEM Engine

Browse to this address: http://192.168.1.1/set_en.html

It will look like this:



Click on 'Active Pass-through to GNSS BOARD', you will see:

```
{"awk": "success"}
```

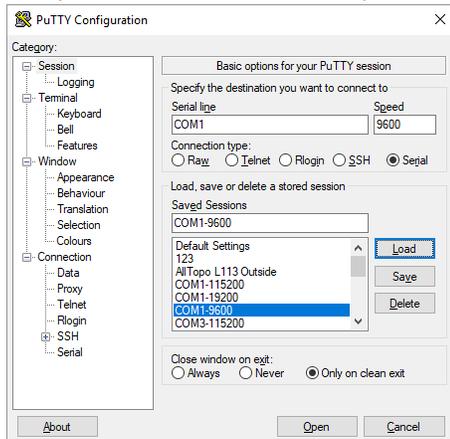
Click on the browser 'Back' button, then click on 'Active Pass-through to GNSS BOARD' again, you will see:

```
{"awk": "success"}
```

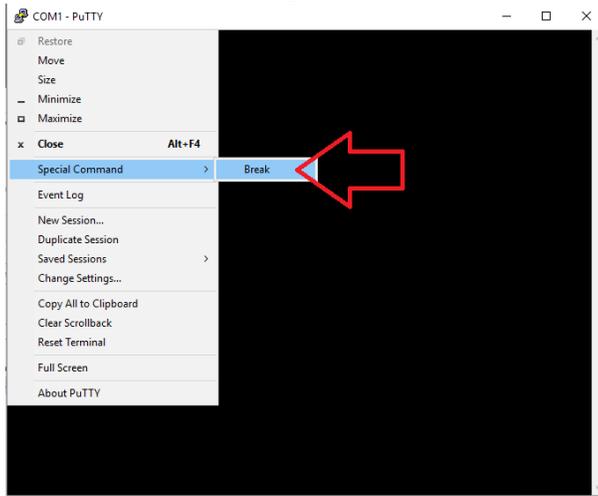
(In other words you are going to request pass-through twice.)

Optional Connection and OEM Firmware Version Verification

Using PuTTY, you can connect to the com port at 9600 baud:

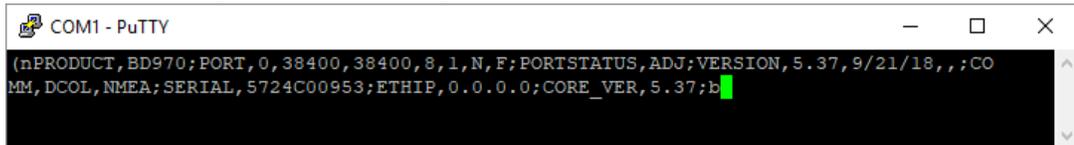


Send a break to the head by clicking on the PuTTY icon on the left top of the window:



5

You will see a device ID string from the BD970 engine:



If you see something similar to what is shown above, you can be sure that you are connected to the OEM engine.

Close PuTTY to release the COM port.

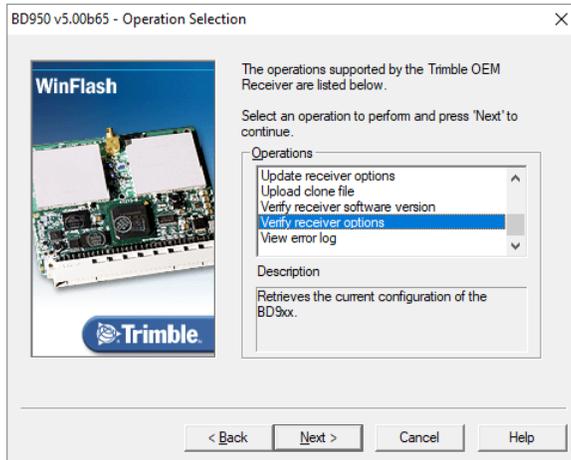
Get the Warranty Expiration Date from the OEM Board

Start WinFlash:



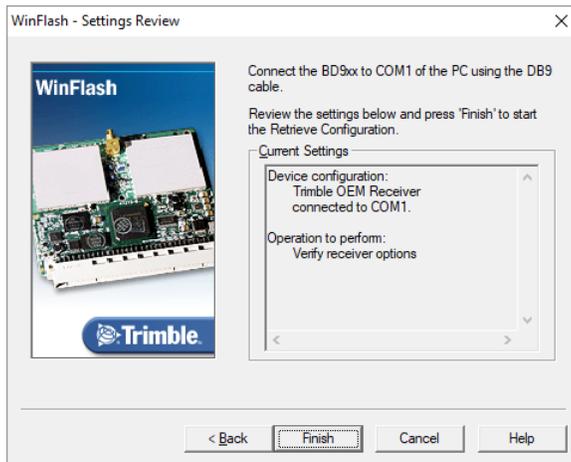
Choose the correct PC Serial Port. Select 'Trimble OEM Receiver' if there is more than one option.

Click 'Next':

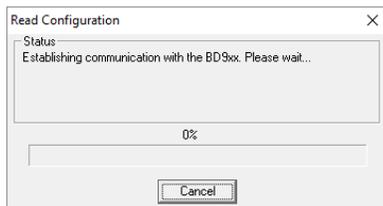


Select 'Verify receiver options' in the Operations box.

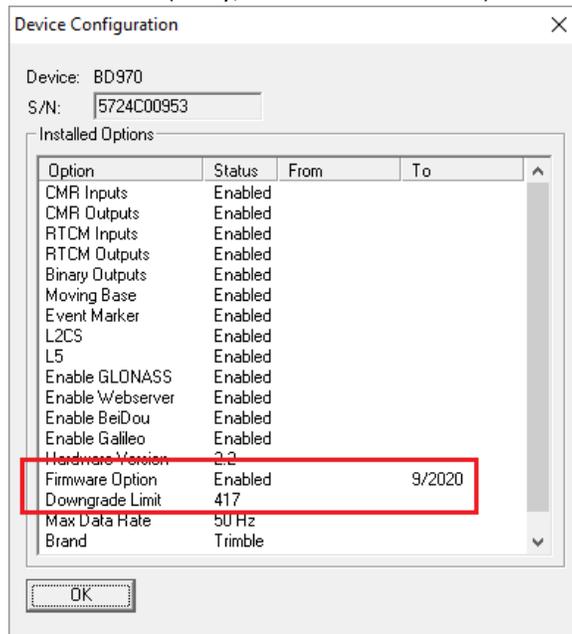
Click 'Next':



Click 'Finish':



Wait for a few minutes (really, it takes a few minutes):



Make a note of the 'S/N' (take a picture with your cell phone or highlight it and copy/paste.) You will need it if a warranty extension is required.

Note the Firmware Option expiration date: 9/2020 in the example above.

Note the Downgrade Limit, it will NOT be possible to revert to a version prior to this limit.

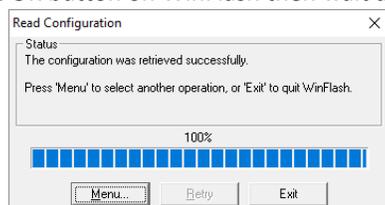
On the release notes for the version you are going to install there will be a note like this:

To use the new firmware, you must have a valid firmware warranty. You can check the Firmware Warranty Date using the web interface. Make sure the date shown is 1 May 2017 or later. Alternatively, obtain the warranty date from the WinFlash software. Select **Verify receiver options** and ensure the **Firmware Option** is 1 May 2017 or later.

In this case we are going to be able to install the selected firmware because September 2020 is after May 2017.

If your expiration date is prior to the firmware option date, then contact iGage with your device SN and OEM SN (we probably already have your OEM SN in our database, but it won't hurt to double check.) It costs \$75 per head and takes a few days for us to get a warranty extension.

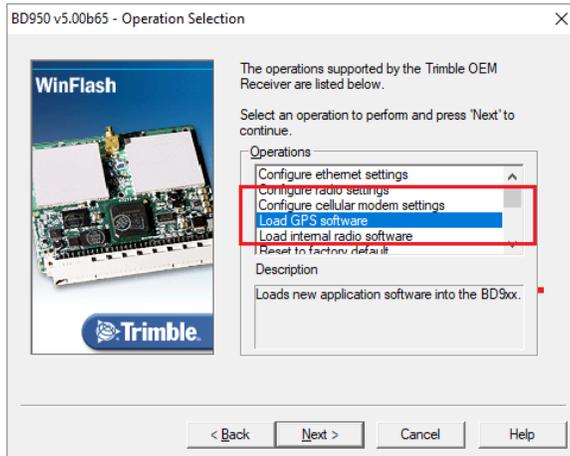
Click the OK button on WinFlash then wait a minute for the OEM engine to reboot, after a bit you will see:



Click on 'Menu' to return to the main WinFlash menu.

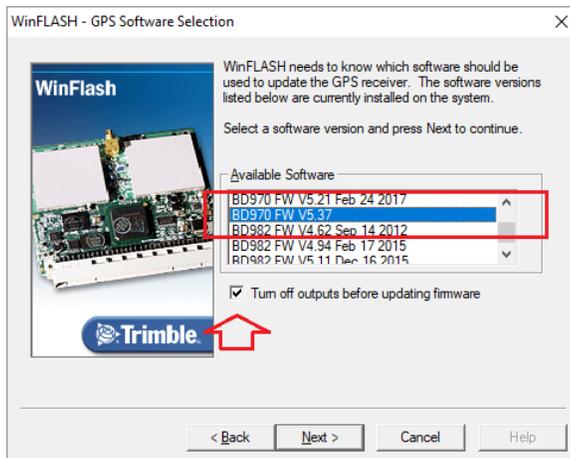
Update the OEM Firmware

On the main WinFlash menu:



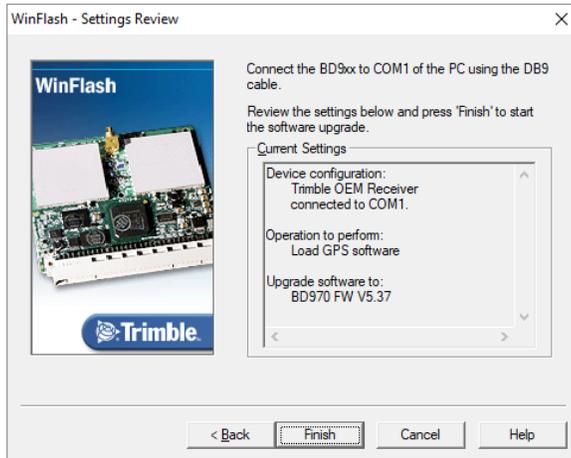
Select 'Load GPS software'.

Click the 'Next' button:



Highlight the correct firmware version. Make sure the board type (listed on the left side of the firmware) is 'BD970' the update will fail if you attempt to load the wrong device firmware (however you can immediately try again). Check the box 'Turn off outputs before updating firmware'.

Click 'Next':



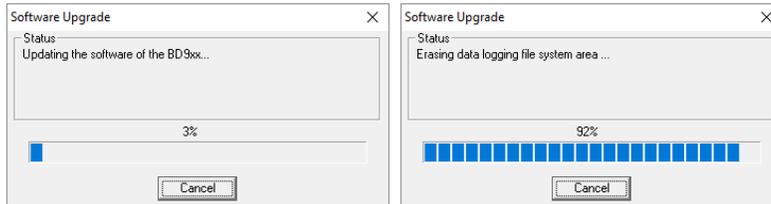
Click on 'Finish':



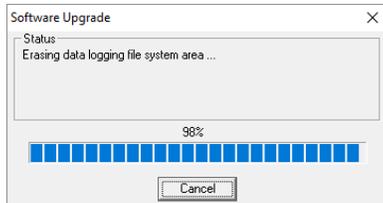
Stick around for the first 5-minutes. Typically you will get a very scary notice about replacing the 'Monitor', if you do, then click on 'YES'.

Once the process gets to 10% you can leave and do something else.

The update will take more than 20 minutes:

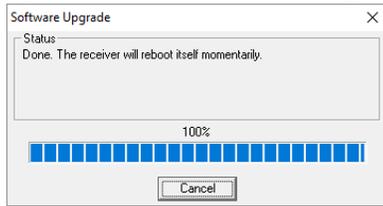


When the blue bar reaches 98%:



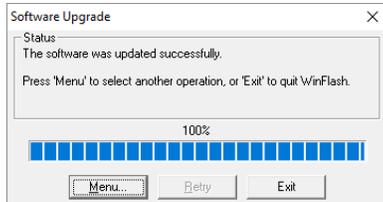
do not get excited. It will take another 5-minutes or more for the process to complete! Sit on your thumbs and wait.

When the process reaches 100% do not get excited:



you are not done! Continue to sit on your thumbs!

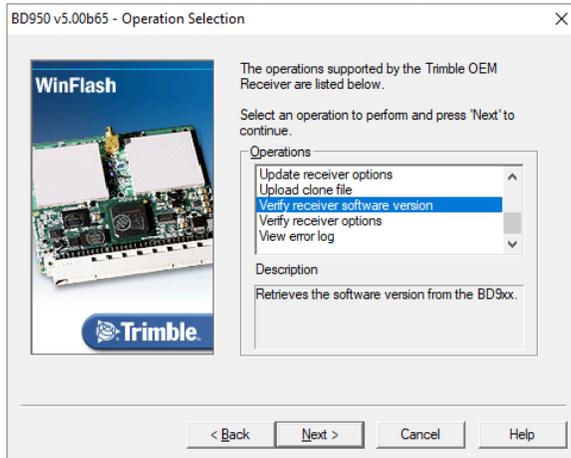
When the process is really done you will usually see this screen:



Now you are finished. You can stop sitting on your thumbs now.

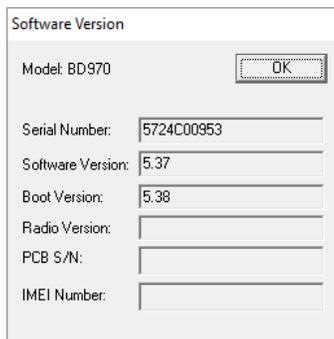
However, 20% of the time you will see a window that indicates that the process did **not** complete or was **not** successful. When this happens 99.8% of the time the process **really was successful** and really did complete. Clear the error message by clicking Yes or OK and return to the Menu.

Regardless of the displayed completion status, you should be able click on 'Menu' then select:



'Verify receiver software version' and click 'Next', then 'Finish'.

Check the OEM Software Version:





You can alternatively repeat the PuTTY steps shown in the earlier section 'Optional Connection and OEM Firmware Version Verification' to verify the new firmware version.

However: The version shown in the web interface will not update until after the head is rebooted!

The firmware update erases the ephemeris data. So you will need to leave the receiver outside tracking SV's for 20+ minutes to completely load ephemeris and SBAS (WAAS) correction values. However, the receiver will be ready to be used as a RTK receiver as soon as it begins tracking SV's (perhaps as soon as 1 minute) of being turned on again. However it will take a few minutes (perhaps 5) to track GLONASS, Galileo and BeiDou SV's.