

iG8: Updating the Trimble OEM GNSS Engine with WinFlash

Date: 19 April 2019 By: Mark Silver, <u>ms@igage.com</u>

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): <u>https://www.amazon.com/Tera-Grand-Premium-Adapter-Supports/dp/B00BUZ0K68/ref=sr 1 fkmrnull 3?crid=3DW6VBW80ZS0A&keywords=tera+grand+serial+to+usb+adapter&qid=1555703924 &s=gateway&sprefix=terra+grand+serial+%2Caps%2C198&sr=8-3-fkmrnull</u>

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 GNSSdevice-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: <u>http://192.168.1.1</u>



192.168.1.1/pc/login.html × +				- □ ;
· → C () Not secure 192.168.1.1/p	c/login.html		c	H \star 👻 🖬 🐇
i Google 🖸 YouTube 🌓 RPLS Today 🎇 G	ioogle Maps 1 Calendar 🙁 Cont	acts 🛯 🗤 Washington Post: B		» 📃 Other bookmar
	GNSS			
	Login Account:			
	admin			
	dumm			
	Password:			
	remember me	Login		
	Name In Course 1	Fills or Safed		

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

Click on Login:

192.168.1.1/pc/index.htm	nl?param 3	× +									-		×
← → C ① Not :	secure '	192.168.1.1/pc/inde	ex.html?paran	1=HC_F	PRODUCT_N	IODEI	L_180&pa	aram2=true&pa	ram3=true&p	. ☆	•	G 🛛 🎝	. :
G Google 🖸 YouTube	💽 RPLS	Today 🔀 Google	Maps 🔢 Ca	lendar	Contacts	top	Washingto	on Post: B		>>		Other book	marks
												Quit	
Gage								SN-102160	, 🗐			English	~
								514.102109				-	
Status	× 110	udmana Vansia											
Satellites	× ^{Ha}	ruware versio	1										
Receiver Configuration	*		Main Board	10									
Data Recording	*		Core Board:	1.4									
I/O Settings	*		PN:	11800	81031142	_							
Network Setting	*	Board Firm	ware Version	5.37									
Module Setting	*		Number.										
Firmware	~												
Firmware Info.													
Hardware Version	1	1											
Config File	4	-											
System Log													
User Log													
Firmware Update													
GNSS Board Upgrade													
Upgrade Online													
GNSS Registration													
102 169 1 1/oc/index html?oxra		ODUCT MODEL 1808	inaram2=toue8		true8inaram4-	falcos	koaram5-t	nue&iearam6-teue	Suparam7-falcoS		GPDS T	VDE 2/2 M/	-D
raz.roo.n.r/pc/ndex.numr.parar	III-IIC_PR	ODOCI_MODEL_1000	quarante = trueoc	parambe	u ueoquarame:	- raised	xparamo=t	rueocparamo=true	ocparann/=taiseo	parattio=	onP3_1	nrc_30_W	-Den

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: <u>http://192.168.1.1/set_en.html</u> 3



It will look like this:

Google ● YouTube	ecure 192.1 [RPLS Today	68.1.1/set_en /	» 🛄 Othe	er book
Choose File No file ch	losen	Upload rad	lio channel list	
Choose File No sen	Upload the	NTRIP APIS	configuration	
Active Pass-through to	GNSS BOAR	D		
Active Pass-through to	Radio			
Inactivate Pass-through	١			
Type of Tilt Sensor:	N/A			
Choose File No file ch	iosen		Update	

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:



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:

WinFlash v1.217 - Device Configur	ration	×
WinFlash	The devices which WinRash can communicate with are listed below. Select a device and PC serial port to use, and press 'Next' to continue. Device Configuration Device type: Trimble OEM Receiver Trimble OEM Receiver Trimble Survey Integrated Receivers PC serial port: COM1	
< <u>F</u>	ack <u>N</u> ext > Cancel Help	

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



Click 'Next':

WinElach	The operations supported by the Trimble OEM	
WINFIASI		
1	Select an operation to perform and press 'Next' continue.	to
	_ Operations	
C. ST.	Update receiver options Upload clone file Verfv receiver software version	^
	Verify receiver options	
Solution and the second state	View error log	~
1	Description	
Strimble.	Retrieves the current configuration of the BD9xx.	
	,	

Select 'Verify receiver options' in the Operations box.

Click 'Next':

WinFlash	Connect the BD9xx to COM1 of the PC u cable.	sing the DB9
4	Review the settings below and press 'Fini the Retrieve Configuration.	sh' to start
	Current Settings	
	Device configuration: Trinble OEM Receiver connected to COM1. Operation to perform: Verify receiver options	^
🖉 Trimble.	<	>

Click 'Finish':

Read Configuration	×
Status Establishing communication with the BD9xx. P	lease wait
0%	
Cancel	



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

Installed Options ——				
-				
Option	Status	From	То	
CMR Outputs RTCM Inputs RTCM Outputs Binary Outputs Moving Base Event Marker L2CS L5 Enable GLONASS Enable GLONASS Enable BeiDou Enable BeiDou Enable Gailleo Hardware Version	Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled Enabled			
Firmware Option Downgrade Limit	Enabled 417		9/2020	
Mau Data Hata	5U Hz			

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:

Read Configuration	Х
Status The configuration was retrieved successfully.	
Press 'Menu' to select another operation, or 'Exit' to quit WinFlash.	
100%	
	Π
Menu Betry Exit	

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

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Update the OEM Firmware

On the main WinFlash menu:

WinFlash	The operations supported by the Trimble OEM Receiver are listed below.
	Select an operation to perform and press 'Next' to continue.
	Operations Configure ethemet settings
	Configure cellular modem settings Load GPS software
	Reset to factory default Description
Trimble.	Loads new application software into the BD9xx.
	1

Select 'Load GPS software'.

Click the 'Next' button:

	Select a software version and press Next to continue. <u>A</u> vailable Software IEN970 EW V5 21 Eeb 24 2017	
	IBD970 EW/V5 21 Eeb 24 2017	
	BD970 FW V5.37 BD982 FW V4.62 Sep 14 2012	
	BD982 FW V4.94 Feb 17 2015 BD982 FW V5 11 Dec 16 2015]
STrimble.		

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'.

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Click 'Next':

	Review the settings below and press Finis	h'to start
	the software upgrade.	
	Current Settings	
	Device configuration: Trimble OEM Receiver connected to COM1. Operation to perform: Load GPS software Upgrade software to: BD970 FW V5.37	^
🔊:Trimble.	<	>
	,	

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Click on 'Finish':

-	
Software Upgrade	×
- Status	
Establishing communication with the BD9xx. Please wait	
0%	
[Cancel]	

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:

Software Upgrade	×	Software Upgrade X
Status Updating the software of the BD9xx		Status Erasing data logging file system area
3%		92%
Cancel		Cancel

When the blue bar reaches 98%:

Software Upgrade	×
Status Erasing data logging file system area	7
98%	
Cancel	

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:

Software Upgrade	×
_ Status	
Done. The receiver will reboot itself momentarily.	
100%	
Cancel	

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

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

Software	Upgrade		
Status The sc	ftware was update	d successfully.	
Press '	vlenu' to select and	other operation, or	'Exit' to quit WinFlash.
		100%	
		100%	

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:

BD950 v5.00b65 - Operation Select	ion	×		
BD950 v5.00b65 - Operation Selection WinFlash The operations supported by the Trimble OEM Receiver are listed below. Select an operation to perform and press 'Next' to continue. Operations Update receiver options Upload clone file Marce version				
©:Trimble	Verify receiver options View error log Description Retrieves the software version from the BD9xx.			
< <u>B</u> ack <u>N</u> ext > Cancel Help				

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

Check the OEM Software Version:

Software Version		
Model: BD970		OK
Serial Number:	5724C00953	
Software Version:	5.37	
Boot Version:	5.38	
Radio Version:		
PCB S/N:		
IMEI Number:		



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.