

# Garmin BIN Firmware

## File Format

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# Garmin BIN Firmware File Format

Filename extension \*.bin

This type of firmware files is encountered only embedded in GCD and RGN firmware update files.

This documentation is based on own research and the sources listed in the references section.

Garmin uses different microcontroller architectures for their devices and therefore the file format of firmware files also differs widely. But frequently the microcontroller is from the ARM family ([https://en.wikipedia.org/wiki/ARM\\_architecture](https://en.wikipedia.org/wiki/ARM_architecture)), and the file format has some recurring elements. Of course one would have to reverse engineer, i.e. disassemble and understand, the firmware to exactly know what each byte means. But even without reverse engineering, there is still easy-to-get valuable information: The load address (where this firmware is loaded into the memory of the device), the hardware identification and the software version.

## Basic data types

All values are serialized in little-endian byte order (least significant byte first).

Type	Length	Description
byte	1	8 bit unsigned integer (range 0 .. 255)
ushort	2	16 bit unsigned integer (range 0 .. 65535)
int	4	32 bit signed integer (range -2147483648 .. 2147483647)
uint	4	32 bit unsigned integer (range 0 .. 4294967295)

Version:

A byte or ushort where the value is calculated as major version x 100 + minor Version.

E.g. 0x0064 = 100 = V1.0

In the following, *offset* means the distance from the beginning of the file. *Address* means the address of something in memory in the device, after the file content has been loaded starting with the load address. So to find out where an address points to with regard to the file, one has to subtract the load address from an address to get the corresponding offset.

## Jump pattern

Type	Content
uint	One of the ARM jump instructions, see [4].
Optional: some uints	Varying fields like hardware identification (HWID) address, software version address, end address, load address, entry point, ...
	...
optional	Software version structure
	...
8 byte	End pattern: 0xFF 0xFF 0x5A 0xA5, most of the times followed by 0xFF 0xFF 0xFF 0xFF
optional	Filler ... (usually 0x00 or 0xFF up to the next multiple of 0x100)

Type	Content
byte	Checksum byte

## Detection algorithm

1) Check the first uint for an ARM jump instruction

0xE28FFnnn = add pc, pc, #nnn (followed by some more such jump instructions)

0xE59FFnnn = ldr pc, [pc, #nnn] Seen values for nnn: 8 and 12

0xEAnnnnnn = b + 4 \* nnnnnn Seen values for nnnnnn: 2, 3 and 4

2) Search for the end pattern from the end backwards

## Meaning of fields

Load address: Address in memory of the device, where the firmware is loaded to.

HWID address: Points to the ushort containing the hardware identification (see table below).

SWVersion address: Points to the ushort containing the software version.

End offset/address: Points to the end pattern, but not to the first byte. It points to the third byte, the 0x5A.

Entrypoint: Address of first instruction to be executed after the initial jump. Here, it is directly following this field.

## Software version structure

The strings are C-like strings, i.e. 0-terminated. Most of the times, the strings consist of 8-bit characters, but sometimes they consist of 16-bit characters. Seen characters are from the ASCII subset (codes 32-126) plus the copyright character (code 169).

8-bit characters (could be ISO 8859-1 or UTF-8):

Type	Content
string	"Software Version" or "Beta Software"
string	The software version as "x.y" or "x.yz", followed by " Beta" if the first string is "Beta Software"
optional: more strings	Copyright
sometimes byte	=0 Kind of terminator. It does not seem to be for word alignment ...
ushort	HWID
ushort (Version)	Software version

There is no indication whether more strings are following and how many. I check the next two bytes or words (depending on the character width). The first must be ASCII or copyright character, and the second must be ASCII.

When I encounter a 0 byte, it could be the terminator, or it could be a legal low byte of some HWID. For correct detection, I calculate the binary software version from the software version string and see whether there is a match with or without the terminator byte.

16-bit characters (could be UCS-2 or UTF-16):

Type	Content
optional: wide string	4-digit year
wide string	"Software Version"
wide string	The software version as "x.y" or "x.yz"
optional: more wide strings	Copyright

With 16-bit characters, the fields HWID and software version are not exactly after these strings, but only in the vicinity (before or after, sometimes even one field before and one after). So this does not help much.

Sometimes, the software version structure appears more than once. The HWID and software version fields have the same content in these cases.

## Checksum byte

The checksum is calculated this way: Start with a byte value of 0. Sequentially add to that each byte of the firmware file, in consecutive order, starting at file offset 0, except for the last one.

If the file length is not a multiple of 256, we now have to add the byte value 255 for all the left-out bytes at the end.

Then add the checksum byte itself. The result should be 0.

## Jump variant 1a

Type	Content
uint	0xE59FF008 = ldr pc, [pc, #8]
uint	End address
uint	HWID address
uint	SWVersion address
uint	Entrypoint

## Jump variant 1b

Type	Content
uint	0xE59FF008 = ldr pc, [pc, #8]
uint	HWID address
uint	SWVersion address
uint	End address
uint	Entrypoint

If the first two addresses are only different by 2 (HWID and SWVersion are adjacent), I detect variant 1b, else 1a.

## Jump variant 1c

Type	Content
uint	0xE59FF008 = ldr pc, [pc, #8]
uint	=0
uint	Load address
uint	End offset
uint	Entrypoint

## Jump variant 2a

Type	Content
uint	0xE59FF00C = ldr pc, [pc, #12]
uint	End address
uint	HWID address
uint	SWVersion address
int	If <0, it is the negative value of the load addresses else, it is an offset to the string 'LEND'
uint	Entrypoint

## Jump variant 2b

Type	Content
uint	0xE59FF00C = ldr pc, [pc, #12]
uint	=0
uint	Load address
uint	End address
uint	Unknown address
uint	Entrypoint

## Jump variant 3

Type	Content
uint	0xEA000002 = b +8
uint	End offset or address
uint	HWID address
uint	SWVersion address

## Jump variant 4

Type	Content
uint	0xEA000003 = b +12
uint	End offset
uint	HWID address
uint	SWVersion address
uint	Unknown offset or length

## Jump variant 5

Type	Content
uint	0xEA000004 = b +16
uint	=0
uint	Load address
char[8]	= "BT_IMG" + 0xAA 0 0x55
uint	End address

## Jump variant 6

Type	Content
uint	0xE28FFnnn = add pc, pc, #nnn

How to determine the load address:

For jump variants 1 or 2, take the EntryPoint address and subtract the offset of the byte directly following it, i.e. subtract 20 for jump variant 1 and 24 for jump variant 2.

Jump variant 5 (as well as 1c and sometimes 2a) have a dedicated field for that.

For jump variants 3-4:

If we have an end address, subtract the offset of the end pattern (+2 so it points to the 0xA5 byte) from that to get the load address. If we only have an end offset: If we found a software version structure, use the offset to the HWID field and subtract this from the HWID address to get the load address. If we did not find a software version structure, we are out of luck.

For jump variant 6, we can't determine the load address.

## Clear register pattern

The firmware file starts with the following ARM THUMB (16 bit, Little Endian) instructions:

Bytes	Content
0x00 0x20	mov r0,#0x0
0x00 0x21	mov r1,#0x0
0x00 0x22	mov r2,#0x0
0x00 0x23	mov r3,#0x0
0x00 0x24	mov r4,#0x0
0x00 0x25	mov r5,#0x0
0x00 0x26	mov r6,#0x0
0x00 0x27	mov r7,#0x0
0x80 0x46	mov r8,r0
0x81 0x46	mov r9,r0
0x82 0x46	mov r10,r0
0x83 0x46	mov r11,r0
0x84 0x46	mov r12,r0
0x02 0x48	ldr r0,[STACKLOC]

Bytes	Content
0x85 0x46	mov sp,r0
0x02 0x48	ldr r0,[ENTRYPOINT]
0x00 0x47	bx r0
0x00 0x00	(DWORD-alignment)
(uint)	STACKLOC: Absolute stack address
(uint)	ENTRYPOINT: Relative entrypoint address Note: The actual destination address is always word-aligned (even), and bit 0 of this value here determines the THUMB state, which is set to =1 here.

This is followed by some code, then a sequence of 0xFF bytes that goes until file offset 0x0100 or 0x0200. After that:

Type	Content
ushort	HWID
ushort (Version)	Software version
uint	Seen values: With sequence to 0x0100: 0xFFFF0000 With sequence to 0x0200: 200, 201, 240, 260 – another Version?

With sequence to 0x0100, the load address is 0x0800, else (sequence to 0x0200) the load address is 0x1000.



## HWID (hardware identification) values

See [2] and [3].

For non-marine and non-aviation Garmin products, there is a relationship between the product number (ProdNumber) and the HWID: The combination of "006-B" + HWID as 4 decimal digits + "-00" often results in the ProdNumber of the device. But this is not 1:1 – there are sometimes several ProdNumber values sharing the same firmware and therefore the same HWID. On the other hand, there is sometimes more than one firmware update for the same HWID, and the ProdNumber then often, but not always, keeps them apart by incrementing the last part of the ProdNumber like "-01", "-02" and so on.

The table below tries to cover both the ProdNumber values and the seen HWID values. It lists seen ProdNumber values with the pattern "006-BHWID-Nr" even if the firmware update for it does not contain the HWID, and it lists seen HWID values even if the ProdNumber has not been seen. In the latter case, the "Nr" column is empty.

HWID	Nr	Device
48		GPSMAP 195
49		GPSMAP 175, 130, 230, 175 Sounder, 135 Sounder, 235 Sounder
67		Street Pilot I
68		GPS 25LPBB, 25-xVx, 25-LVC, 25-HVC, 25-LVS, 25-HVS, 25-LVB, 25-HVB
71		GPS III Pilot
72		GPS III
73		GPS II+
77		GPS 12, 12XL, 45+
78		NavTalk
87		GPS 12
88		GPSMAP 215, 225
89		GPSMAP 180, 185
95		GPS 126, 128
96		GPS 12XL, GPS 12, GPS 48, GPS 80
97		GPS II+
111	0	eMap
112		GPS 92
116		GPS 12CX
118		Street Pilot Colormap
119		GPS III+
121		GPSMAP 230, 235 Sounder
122		GPSMAP 180, 185 Sounder
123		Fishfinder 100
126		GPSMAP 162, 168 Sounder
128	0	GPSMAP 295
129		GPS 12 Map
130	0	eTrex
132		StreetPilot I Atlantic
135		NavTalk Pilot

HWID	Nr	Device
136	0	GPSMAP 176
138		GPS 12
141	0	eTrex Summit
144	0	GPSMAP 176C
145	0	GPSMAP 196
148		Fishfinder 100 Blue
150		Fishfinder 240 Blue
151	0	StreetPilot III
154	0	eTrex Venture/Mariner
155	0	GPS V
156	0	eTrex Camo/Euro
158		GPSMAP 182, 188, 232, 238
166		GPSMAP 182C, 188C
168	0	Navtalk GSM
169	0	eTrex Vista, rev A
170		GPSMAP 2006, 2010
173	0	GPS 76 Rev A
176		GPS 17, 17HVS
177	0	GPSMAP 76 Rev. A
178		GSD 20
179	0	eTrex Legend Rev A
188		GPS 17N
194	0	GPSMAP 76S Rev. A
197	0	Rino 110
208		GPSMAP 2006, 2010
209	0	Rino 120
210	0	StreetPilot 26xx
231	0	Quest
247	0	GPS 72 Rev A
248	0	Geko 201
256	0	Geko 301
260	0	GPSMAP 296
264	0	Rino 130/120/110
271		GMR 20, 40
273	0	GPS 18
282	0	Forerunner 201
283	0	Forerunner 301
285	0	GPSMAP 276C
289	0	GPS 60
291	0	GPSMAP 60C/60CS/76C/76CS
292	0	GPSMAP 60Cx/60CSx/76Cx/76CSx
294		GPSMAP 3006, 3010
295		eTrex, eTrex Camo, eTrex Summit
300		GPSMAP 172C, 178C
303		GDL 30, 30A
308	0	GPSMAP 60

HWID	Nr	Device
314	0	Foretrex 101/201
315	0	eTrex Legend C/Vista C
316		GPSMAP 172, 178
381	0	Rino 520/530
382	0	StreetPilot c320/c330
384		GPSMAP 3005
402	0	GPSMAP 396
404	0	StreetPilot 27xx
406	0	GPSMAP 376C
410	0	GPSMAP 276C Plus
411	0	eTrex Legend Rev B
412	0	StreetPilot 7200/7500
418		West Marine 76CS Plus
419		eTrex Venture Mariner
420	0	eTrex Vista, rev B
421	0	eTrex Legend Cx/Vista Cx/Venture Cx
426	0	Firmware Update for GXM30 Receiver
429	0	StreetPilot i3
430	0	GPS 72 Rev B
437		GPSMAP 192C, 198C
439	0	GPSMAP 76 Rev. B
444	0	GPS 76 Rev B
450	0	Edge 205/305
451		GSD 22
462		GPS 17, 17HVS
463	0	Quest2
469		GSD 21
476	0	nuvi 300/350
478	0	GPS Chipset Type G
481	0	StreetPilot c340
482	1	Firmware Update for GTMxx Traffic Receiver
484	0	Forerunner 205/305
497	0	StreetPilot c310/c320/c330
505	0	StreetPilot i3/i5
509		GMR 404, 406
513		GPSMAP 292, 298, 392, 398, 492, 498
520	0	StreetPilot 2820
529		GPSMAP 3205
530		GPSMAP 3206, 3210
532	0	StreetPilot i2
536		GPSMAP 2106, 2110, 2206, 2210
537		GPSmap 420, 420s, 430, 430s, 440, 440s, 430x, 430sx, 440x, 440sx, 450 AUS, 450s AUS, 450 UK, 450s UK
539	0	StreetPilot c5xx
541		GMR 21, 41
550		KNA G520

HWID	Nr	Device
553	0	Firmware Update for c550 Bluetooth Module
553	1	nuvi Bluetooth Firmware
553	2	Firmware Update for c5xx/Mercedes Bluetooth Module
553	3	Firmware Update for zumo Bluetooth Module
557	0	GPSMAP 378
558	0	GPSMAP 478
566	0	nuvi 310/360/370
570	0	Astro 220
574	0	Geko 201/301
577	0	Rino 520HCx/530HCx
580	0	zumo 4xx/5xx
583	0	Firmware Update for STP2820 / BMW Navigator III Bluetooth Module
584	0	GPSMAP 76S Rev. B
585	0	GPSMAP 278
595	0	GPSMAP 496
596	0	nuvi 6xx
601	0	StreetPilot c5xx, Smart
602	0	StreetPilot c5xx, Mopar
603	0	StreetPilot c5xx, Mercedes
604		GPSMAP 4008, 4012, 5008, 5012, 4208, 4212, 5208, 5212, 4010, 5015, 4210, 5215
605		GPSMAP 4008, 4012, 5008, 5012, 4208, 4212, 5208, 5212, 4010, 5015, 4210, 5215
606		GPSMAP 4008, 4012, 5008, 5012, 4208, 4212, 5208, 5212, 4010, 5015, 4210, 5215
607		GPSMAP 4008, 4012, 5008, 5012, 4208, 4212, 5208, 5212, 4010, 5015, 4210, 5215
609	0	Rino 520 Australia
611		GMR 18, 24, 18HD, 24HD
617	0	GPS Chipset Type G2
625	0	Edge 605/705
644		nuvi 360 JP
651		DNX 7100
654		GPSmap 4008, 4010, 4012, 5008, 5012, 5015, 4208, 4210, 4212, 5212, 5215
660	0	nuvi 2xx
661	0	Colorado
665		GPSmap 525, 525s, 535, 535s, 545, 545s, 555 AUS, 555s AUS, 555 UK, 555s UK
666		GPSmap 525, 525s, 535, 535s, 545, 545s, 555 AUS, 555s AUS, 555 UK, 555s UK
670		GPSmap 520, 520s, 530, 530s, 540, 540s, 550 AUS, 550s AUS, 550 UK, 550s UK
672	0	nuvi 350 Toyota DIO
673	0	nuvi 360 MINI
675	0	nuvi 360 BMW3
680	0	GPS Chipset Type B
681	0	nuvi 350 Honda Access
682	0	nuvi 360 Honda Access
683	0	nuvi 350 Toyota PIO
689	0	DC20, DC30, DC40
694	0	eTrex Legend HCx/Vista HCx
695	0	eTrex Summit HC/Venture HC
696	0	eTrex H

HWID	Nr	Device
697	0	BMW Motorrad Navigator III plus
698	0	Zumo BMW
711	0	Zumo Honda
721		GPSmap 420, 420s, 430, 430s, 440, 440s, 430x, 430sx, 440x, 440sx, 450 AUS, 450s AUS, 450 UK, 450s UK
723	0	nuvi 5xx
725		GPSmap 520, 520s, 530, 530s, 540, 540s, 550 AUS, 550s AUS, 550 UK, 550s UK
726	0	nuvi 8xx
732	0	StreetPilot c5xx, Mercedes Phase2
733	0	GPS Chipset Type M
737	0	nuvi 2xxW
739	0	GPS Chipset Type M2 (RGN)
743	0	Nuvi 5000
745	0	GPSMAP 695/696
746		GDU37x Cockpit Display
751		KNA G520
754	0	nuvi 7xx
757		GFS10
774		Intelliducer
775	0	GPS Chipset Type B (RGN)
781	0	GPS 17x HVS
783		GMI 10, GHC 10
784		GMI 10, GHC 10
786	0	eTrex Venture HC/Summit HC
788	0	nuvi 7x0, Mercedes/Smart
790		nuvi 250 JP
793		GPSMAP 4008, 4012, 5008, 5012, 4208, 4212, 5208, 5212, 4010, 5015, 4210, 5215
794		GPSMAP 4008, 4012, 5008, 5012, 4208, 4212, 5208, 5212, 4010, 5015, 4210, 5215
795	0	Oregon
796	0	GPS 18x PC/LVC, GPS 16x
798	0	eTrex H,China
800		DNX5, DNX 7x20, DNX 8x20
811	0	GPS 18x USB, GPS 20x USB
814	0	nuvi 900T
815		GPSMAP 4008 Taiwan, 4012 Taiwan, 5008, 5012, 4208 Taiwan, 4212 Taiwan, 5208, 5212, 4010, 5015, 4210, 5215
827	0	nuvi 2x5W
830		GSU 73
832	0	GPSMAP 6x0
834	0	nuvi 2xx
835	0	nuvi 2xxWide
836	0	nuvi 760 TWN
849		GHP 10
851	0	nuvi 2x5
852	0	eTrex H,Taiwan
853	0	StreetPilot C5XX Cendant-Avis Australia

HWID	Nr	Device
855	0	nuvi 300/350 MLC
856	0	nuvi 310/360/370 MLC
861	0	GolfLogix Black
862	0	GXM40 Software
865	0	GPS 18x 5Hz
869		GPS 17x NMEA2000
870	0	nuvi 7x5
887	0	GPSMAP 495
896	0	Oregon x50
897	0	Colorado TWN
901	0	Firmware Update for GTMxx Traffic Receiver Type 3
903		GWS 10
904	2	G60 nuvifone - Sunrise
904	4	G60 nuvifone - Atlantic
913	0	Aera GPS Software
917		GPSMAP 6008, 6208, 6012, 6212, 7012, 7212, 7015, 7215
918		GPSMAP 6012, 7012, 6212, 7212, 7015, 7215, 6008, 6208
919		GPSMAP 6012, 7012, 6212, 7212, 7015, 7215, 6008, 6208
920		GPSMAP 6012, 7012, 6212, 7212, 7015, 7215, 6008, 6208
921		GPSMAP 6012, 7012, 6212, 7212, 7015, 7215, 6008, 6208
923		GXM 51
924	0	zumo 660
932	0	nuvi 2x5W TWN
936		GPSmap 421, 421s, 421s IND, 421s THAI, 421s CHN, 431, 431s, 441, 441s, 451 AUS, 451s AUS, 451 UK, 451s UK
937		GPSmap 421, 421s, 421s IND, 421s THAI, 421s CHN, 431, 431s, 441, 441s, 451 AUS, 451s AUS, 451 UK, 451s UK
941	0	eTrex HC,Japan
943	0	nuvi 465T
951		AIS 600
954		GPSmap 521, 521s, 521s IND, 521s THAI, 521s CHN, 531, 531s, 541, 541s, 551 AUS, 551s AUS, 551 UK, 551s UK
955		GPSmap 521, 521s, 521s IND, 521s THAI, 521s CHN, 531, 531s, 541, 541s, 551 AUS, 551s AUS, 551 UK, 551s UK
956	0	Honda Navi Gen 3
956	1	Honda Navi Gen 3
956	2	Honda Navi Gen 3
957	0	eTrex Legend/Vista H
960	0	Dakota
969	0	Firmware Update for FMI Cables with Traffic
970	0	Mount Software
971	0	nuvi 12xx
972	0	nuvi 13xx and 14xx series
974		GPSmap 526, 536, 546, 556 UK, 556s UK, 556 AUS, 556s AUS, 526s, 536s, 546s
977	0	Firmware Update for Bluetooth
978	0	nuvi 7x5 DSP Software

HWID	Nr	Device
979	0	GPS Chipset Type M3
983	0	Oregon TWN
988	0	FR60
992	2	Modem Firmware, G60 nuvifone - Atlantic
992	5	Modem Firmware, G60 nuvifone - Sunrise
1004		GMR 1204 xHD, 404 xHD, 604 xHD, 1206 xHD, 406 xHD, 606 xHD
1005	0	Approach G5
1007	0	nuvi 765 TWN
1014		GHP 10V
1015		GRA 10, GET 10, GFL 10, GBT 10, GST 10
1018	0	Forerunner 310XT
1020	0	Foretrex 301/401
1033		nuvi 205 JP
1036	0	Edge 500
1037	0	eTrex Legend/Vista H China
1038	0	eTrex HC China
1046	0	nuvi 16xx NA
1049	0	eTrex Legend H China military
1050	0	eTrex H China military
1058	0	Nuvi 5xx TWN
1059	0	GPS Chipset Type M3 (RGN)
1063	1	aera 5xx
1073	0	Firmware Update for ecoRoute HD
1074	0	nuvi 2x5 MTK
1077		nuvi 1480 JP
1091	0	nuvi 2x5W MTK
1095	0	GPS 72H
1096		GPSmap 720, 730, 740, 750 UK, 750s UK, 750 AUS, 750s AUS, 720s, 730s, 740s
1101	0	nuvi 37xx
1103	0	Nuvi 13xx, TWN
1104	0	nuvi 13xx and 14xx series MTK
1106	0	nuvi 12xx MTK
1113	0	GPSMAP 62/78
1114		GDL40
1120	0	Oregon x50 TWN
1124	0	Forerunner 110
1128	0	Aera DSP Software
1136	0	Approach G3
1137	0	Nuvi 1480 TWN
1138	0	zumo 2x0
1142	0	Oregon 550,Thai
1147	0	zumo 665
1155		DNX 7x60, 9x60
1156	0	nuvi 16xx AU
1157	0	nuvi 16xx CA
1158	0	GPS 72H,Arabic

HWID	Nr	Device
1161	0	Nuvi 16xx TWN
1169	0	Edge 800
1180		nuvi 1255 CHN
1186	0	nuvi 22xx
1187	0	nuvi 23xx
1188	0	nuLink 1695
1195		GPSMAP 585
1196	0	nuvi 1490TV
1201	0	GTU 10 US
1202		nuvi 1360, 1460, 1365 JP
1204	0	Dakota TWN
1209	0	Oregon 550,Korea
1211	0	Firmware Update for Touchscreen Module - Nuvi 37xx
1213	0	Edge 500, JPN
1218		GHP 12
1247	0	Rino6xx
1250		Forerunner 410
1252	0	Oregon 450tc, Japan
1254	0	nuLink 23xx
1258	0	nuvi 35xx
1259	0	Nuvi 37xx, Taiwan
1264	0	Forerunner 210
1266	0	Nuvi 2585 TWN
1269	0	dezl 560
1271	0	Approach S1
1273	0	nuvi 24xx
1275	0	Montana
1301	0	GPSMAP 62SJ, Japan
1304	0	eTrex 10
1305	0	eTrex 20/30
1318		GSD 24, 26
1320		GSD 24, 26
1325	0	Edge 200
1328	0	Forerunner 910XT
1331	0	GTU 10 EU
1334	0	Edge 800,JPN
1339	0	Astro 320
1340	0	GPSMAP 62sc/62stc
1343	0	GDL 39
1344	0	GTU 10 CA
1345	0	Forerunner 610
1349	0	nuvi 30
1350	0	nuvi 40 and 50
1352		nuvi 2565, 2580Z, 2582 JP
1353	0	GPSMAP 62S, Korea
1354	0	GPSMAP 62S/78S, Thai/Indonesia



HWID	Nr	Device
1364	1	aera 7xx
1369		nuvi 246x JP
1371	0	nuvi 24x5 and 25x5
1376	0	nuvi 34xx
1379	0	GPS Chipset Type M3 (Aviation)
1381	0	Vector
1381	2	Vector – 02
1384	0	GPS 72H SEA
1389	0	Nuvi 2585LT EU
1392	0	GPS 19x HVS
1400	0	DC20, DC30, DC40
1405	0	Approach G10
1406		nuvi 3770V JP
1412		Volvo Autopilot Display
1413		Volvo Autopilot Compass
1422	0	Edge 500, Korea
1425		Chrysler CTP16 v3/CTP17 v4/CTP18 v1
1429	0	Montana 650t, Taiwan
1431	0	Montana Korea
1441	0	nuvi 3595,JPN
1443	0	Nuvi 40/50 CHN
1445	0	nuvi 2495 LT GLONASS
1446	0	Forerunner 310XT
1452	0	Approach G6
1454		Volvo OEM, GHP 20, GHP 20 for Steer-by-Wire, GHP 20 for Viking
1461	0	UAT 163
1463	0	Nuvi 2585 Russia (RGN)
1464		nuvi 2790 JP
1468	1	Fuji MY13 Maintenance
1469	0	Approach S3
1471	0	eTrex 20/30 JPN, System
1472	0	eTrex 10 JPN, System
1473	0	zumo 3x0
1475	0	fleet 590 U.S.
1482	0	Forerunner 10
1484	0	GPS Chipset Type M4
1485	0	GPS Chipset Type M4 (Fitness)
1490	0	GLO
1497	0	Edge 800,KOR
1498	0	eTrex 20/30 SEA, System
1499	0	Garmin Swim
1504	0	eTrex 10 SEA, System
1506	0	Nordic Rino650
1510	0	Nuvi 40/50, Taiwan
1516	0	dezl 760
1517	0	nuvi 27x7 and 27x8

HWID	Nr	Device
1525	0	Oregon 550 CHN Recreation
1532	0	GPSMAP62sc CHN Recreation
1533	0	GPSMAP62sc Japan, System
1535	0	Nuvi2580 South America
1536	0	Oregon550tc, Japan
1537	0	Forerunner 910XT, China
1540		nuvi 3750 JP
1541	0	BMW Motorrad Navigator V
1545	0	TT 10
1546	0	Firmware Update for GTMxx Digital Radio Type S
1546	1	Firmware Update for Digital Radio Type S
1548		Yushan
1550	0	Zumo 660 Taiwan
1551	0	fenix/D2/tactix
1555		Edge 200 TWN
1556	0	eTrex 20/30 China
1561	0	Edge 510
1562	0	Alpha 100
1563	0	Nuvi 3595 TWN
1566	0	Garmin Swim Strings
1567	0	Edge 810
1575		GEA 24
1582	0	nuvi 2xx7 and 2xx8
1587	0	Rino6xx, China
1594	0	eTrex 20/30 Taiwan
1595	0	nuvi 140/150
1597	0	Approach S3, APAC
1599	0	GPSmap 62stc System, Taiwan
1600	0	ForeAthlete 910XTJ, Japan
1603	0	nuvi 35x7 and 35x8
1610		GMI 20
1611		GHC 20
1613	0	nuvi x2 and x4
1617	0	Nuvi c155/c165/c175, China
1619	0	GPS Chipset Type M5
1620	0	GPS Chipset Type M5 (Fitness)
1621	0	GPS Chipset Type M5 (1621)
1623	0	Forerunner 620
1624	0	GPS Chipset Type M426 (Rec)
1626		GSA 28
1628	0	Garmin HUD
1630	0	Forerunner 620/920, Wi-Fi
1632	0	Forerunner 220
1634		GNT 10
1635	0	Montana 650t, China
1642		GSU 25

HWID	Nr	Device
1649	0	Approach S2
1651	0	Oregon 6x0
1664	0	Forerunner 910XT, Korea
1665		GPSMAP 721, 741, 527, 547, 751 UK/IRE, 557 UK/IRE, echoMAP 50s UK/IRE, 70s UK/IRE, GPSMAP 751xs UK/IRE, 557xs UK/IRE, echoMAP 50dv UK/IRE, 70dv UK/IRE, GPSMAP 751 AUS/NZ, 557 AUS/NZ, echoMAP 50s AUS/NZ, 70s AUS/NZ, GPSMAP 751xs AUS/NZ, 557xs AUS/NZ, echoMAP 50dv AUS/NZ, 70dv AUS/NZ, 50s US Offshore, 70s US Offshore, echoMAP 50dv US Offshore, 70dv US Offshore, 50s, 70s, 50s US Lakes, 70s, 70s US Lakes, 50dv US Lakes, 70dv US Lakes, GPSMAP 721xs, 741xs, 527xs, 547xs
1666		echoMAP 50s/50dv or 70s/70dv
1667		GPSMAP 721, 741, 527, 547, 751 UK/IRE, 557 UK/IRE, echoMAP 50s UK/IRE, 70s UK/IRE, GPSMAP 751xs UK/IRE, 557xs UK/IRE, echoMAP 50dv UK/IRE, 70dv UK/IRE, 751 AUS/NZ, 557 AUS/NZ, 50s AUS/NZ, 70s AUS/NZ, GPSMAP 751xs AUS/NZ, 557xs AUS/NZ, echoMAP 50dv AUS/NZ, 70dv AUS/NZ, 50s US Offshore, 70s US Offshore echoMAP, 50dv US Offshore, 70dv, 50s, 70s, 50s US Lakes, 70s US Lakes, 50dv US Lakes, 70dv US Lakes, GPSMAP 721xs, 741xs, 527xs, 547xs
1668		echoMAP 50s/50dv or 70s/70dv
1676	0	Fenix China
1677	0	Fenix System, Japan
1678	0	Fenix System, Korea
1679	0	Fenix Taiwan
1681		nuvi 2795 Japan
1686		SIRIUS/XM Navcast
1688	0	ForeAthlete10J
1689	0	GPS Chipset Type M426 (Fitness)
1692	0	quatix
1696	0	DC 50
1697	0	nuvi 55/56
1708	0	fleet 590 EU
1711	0	Nuvi2795 South America
1712	0	Nuvi 42/52, SGMV
1714	0	Nuvi 42/52, Taiwan
1716	0	Monterra
1719	0	GPSMAP 62sc System, SEA
1721	0	Edge 810, Japan
1723	0	Nuvi 3590 CHN
1724	0	Nuvi 3592,SG/MY
1725	0	Nuvi 3592 THAI
1726	0	Monterra Outdoor Software
1727		GDU 4xx Cockpit Display
1728		TSC
1729		nüvi 2590/2592/2595V Japan
1730	0	RV and Camper 760
1731	0	Nuvi 3590 TWN
1735	0	VIRB
1736	0	Edge Touring

HWID	Nr	Device
1739	0	GPSMAP 629sc System, CHN
1740	0	Nuvi 1690 lite, Taiwan
1741	0	eTrex 20S, System, SG
1742	0	Edge 510, Japan
1743	1	HRM-Tri
1743	2	HRM-Tri
1744		GMR18, 24XHD
1749	0	nuvi 65/66
1752	1	HRM-Run
1758	0	nuvi 25x9
1760		GAD 29
1765	0	Forerunner 920XT
1766	0	Nuvi 42/52, India
1769	0	SIRIUS/XM Weather Support File
1772	0	nuvi 26x9
1779	10	Flight Stream 110/210 v2.30
1779	11	Flight Stream 110/210 v2.40
1779	20	Flight Stream 110/210 v2.50
1786	0	GPS 18x PC/LVC, GPS 18x 5Hz, GPS 16x 1786
1788		GTR20/200
1796	0	zumo 590
1798		GPSMAP 1020, 820, 1020xs, 820xs, 1040xs, 840xs
1811	0	Approach S4
1817	0	UAT-1817
1819		CAN Coprocessor
1820	0	eTrex 209/309 System, China
1821	0	Edge 510 China & Taiwan
1822	0	Edge 810 China
1823	0	Edge 810, Taiwan
1829		GCV 10
1836	0	Edge 1000
1837	0	vivofit
1842	0	Approach G7
1843	0	Oregon6xx System, SEA
1850	0	Forerunner 620/220, Display
1851	0	Forerunner 620/220, ANT
1854		GPS 17N
1857	0	Oregon6xx System, JPN
1859	0	GPSMAP 64
1875		GXM 52
1876	0	Rino6xx, Korea
1882		GI 260
1884	0	nuvi 2798
1885	0	vivoki
1888		GND 10
1891	0	Approach S2J

HWID	Nr	Device
1895	0	Monterra, GPS/BeiDou, CHN
1903	0	Forerunner 15
1907	0	vivoactive
1908	0	vivoactive, Display
1909	0	ANT/BLE N4 Firmware
1917	0	Approach G8
1918	0	Edge 510, Korea
1925	0	Approach S6, Display
1928	0	ForeAthlete 620J
1929	0	Forerunner 620 China
1930	0	ForeAthlete 220J
1931	0	Forerunner 220 China
1932	0	nuvi 27x9
1936	0	Approach S6
1939	0	Virb CHN
1940	0	Virb System ASIA
1942	0	Forerunner 920XT, Display
1947	0	nuvi 25x9 C4
1948	0	nuvi 26x9 C4
1955	0	vivosmart, ANT
1956	0	vivosmart
1960		GHP Reactor
1966	0	nuvi 55TV, Brazil
1967	0	fenix2
1969	0	Forerunner 15, ANT
1987	0	Epix, Display
1988	0	Epix System
1998		echoMAP 42dv, 43dv, 44dv, 45dv
1999	0	Approach S2 APAC
2002	0	dezl 770
2003	0	dezl 570
2005	0	vivosmart, PSOC
2021	3	Flight Stream 510 v2.03
2021	10	Flight Stream 510 v2.10
2022		Panoptix PS 21-TM, 21-TR, 22-TR
2024	0	Quatix China
2032	0	T 5, TT 15
2035	0	Approach S4 APAC
2043	0	nuviCam
2044	0	nuviCam Camera Firmware
2047	0	ANT/BLE N1 Firmware (RGN)
2050	0	fenix 3/tactix Bravo/quatix 3
2051	0	fenix 3/tactix Bravo/quatix 3, Display
2052	0	Edge 1000, Taiwan
2053	0	Edge 1000, Japan
2054	0	Fenix2 China

HWID	Nr	Device
2061	0	ForeAthlete 15J
2062	0	fleet 660, GPS
2063	0	fleet 670, GPS
2067	0	Edge 520
2068		SW, Honda PH
2070	0	Edge 1000, China
2076		GMR X2X
2077	0	nuvi 2xx7 and 2xx8 C4
2079	0	Vector S
2079	2	Vector S - 02
2087	0	nuvi 57/58
2088	0	nuvi 67/68
2094	0	fenix2J
2096		echoMAP 52dv, 53dv, 54dv, 55dv
2100	0	Edge 1000, Korea
2101		echoMAP 71sv, 72sv, 72dv, 73sv, 74sv, 75sv, 75dv, 91sv, 92sv, 93sv, 94sv, 95sv
2108	0	fenix 3/tactix Bravo/quatix 3, Wi-Fi
2112	0	Firmware Update for the BC30 RX
2120		GNX Keypad
2121		GNX 120/130
2123	0	GPSMAP64S, SEA
2124	0	GPSMAP64SJ, Japan
2127	0	Touchscreen E1 Firmware
2130	0	Forerunner 920XT Taiwan
2131	0	Forerunner 920XT China
2132	0	Forerunner 920XT Japan
2134	0	VIRB X
2135	0	vivosmart APAC
2140	0	eTrex Touch 25/35
2141	0	dezlCam
2147	0	Edge 25
2148	0	Forerunner 25
2150	0	vivofit2
2151	0	Forerunner 225, OHR
2153	0	Forerunner 225
2156	0	Forerunner 630
2157	0	Forerunner 230
2158	0	Forerunner 735XT
2159	0	Forerunner Display A1 Firmware
2160	0	vivoactive APAC
2161	0	Vector 2 (Firmware is identical to Vector2S, VectorS and Vector, HWID=?)
2161	2	Vector 2 - 02
2162	0	Vector 2S
2162	2	Vector 2S - 02
2172	0	VIRB XE
2173	0	Forerunner 620, Taiwan

HWID	Nr	Device
2175	0	TruSwing
2182	0	Approach S5
2188	0	fenix 3, K65, China
2189	0	fenix 3, Taiwan
2190	0	T5/TT15 Mini
2192	0	Varia Headlight
2194	0	Approach S6 APAC
2196	0	Wi-Fi A1 Firmware
2196	1	Wi-Fi A2 Firmware
2197	0	Forerunner 630 Touchscreen
2198	0	Dash Cam 30
2199	0	Dash Cam 35
2200	0	GPS 73
2201	0	GPS 12H
2204	0	Edge Explore 1000
2219	0	Forerunner 225 Asia
2220	0	ForeAthlete 225J
2221		GMA 245
2225	0	Varia Radar Tail Light
2226	0	Varia Radar Display Unit
2228	0	Forerunner 225, Display
2231	0	Oregon650TCJ2, JPN
2232		SW, Captain
2235		SW, Storm
2237	0	Camper/RV 660
2238	0	Edge 20
2239		Fantom OA FPGA
2250	0	eTrex 20x/30x
2256		GAD 27
2260	0	Edge 520 Asia
2261	0	Edge 520 Japan
2262	0	D2 Bravo
2266	0	Approach S20
2267	0	Drive and DriveSmart 40/50
2268	0	Drive, DriveSmart 60/70, and DriveTrack 70
2269	0	DriveLuxe 50
2270	0	DriveAssist 50
2273	0	ANT/BLE N2 Firmware
2274	0	Edge 1000, Thai
2281	0	GPSMAP 64s,KOR
2285	0	GPSMAP 64st, TWN
2288	0	Edge 25 Asia
2289	0	Edge 25 Japan
2290	0	Edge 20 Asia
2292	0	Approach X40
2293	0	fenix 3, K65, Japan

HWID	Nr	Device
2296	0	nuviCam, APAC
2297	0	nuvi 57, APAC
2298	0	nuvi67, APAC
2299	0	Montana 610/680
2302	0	eTrex 20x/30x China OPM & TWN
2304		G 5
2310	0	Forerunner 630 APAC
2311	0	ForeAthlete 630J
2313	0	ForeAthlete 230J
2315	0	eTrex 209x/309x CHN
2316	0	eTrex 20x/30x JPN, System
2317	0	eTrex 20x/30x SEA
2319		GPS 20
2325	0	UAT-B2325-00
2327	1	HRM4-Run
2327	2	HRM4-Run
2329	0	VIRBXE APAC System
2332	0	Epix JPN
2337	0	vivoactive HR
2338	0	vivoactive HR Sensor Hub
2339	0	vivoactive HR Cap Touch
2340	0	vivoactive HR Display
2347	0	vivosmart HR plus
2348	0	vivosmart HR
2361	0	vivosmart HR APAC
2362	0	vivosmart HR plus APAC
2368	0	Vivomove
2369	0	Forerunner 235 Sensor Hub
2379	0	Varia Tail Light
2392	0	fenix Chronos, Display
2393	0	fenix Chronos, Sensor Hub
2396	0	Forerunner 235 APAC
2397	0	ForeAthlete 235J
2398	0	Varia Vision
2400	1	aera 660
2403	0	Approach S20 nRF51
2405	0	Approach X40 BLE Firmware
2406	0	vivofit3
2407	0	fenix 3, K65, Korea
2408	0	fenix 3, K65, SEA
2413	0	fenix 3 HR
2414	0	fenix 3 HR, Display
2415	0	fenix 3 HR, Sensor Hub
2416		Panoptix PS21
2417	0	Virb Ultra 30
2423	0	ANT/BLE N3 Firmware



HWID	Nr	Device
2426		echoMAP CHIRP 42dv, 43dv, 44dv, 45dv, 42cv, 43cv, 44cv, 45cv
2427		echoMAP CHIRP 52dv, 53dv, 54dv, 55dv, 52cv, 53cv, 54cv, 55cv
2428		echoMAP CHIRP 72dv, 73dv, 74dv, 75dv, 72cv, 73cv, 74cv, 75cv
2429	0	Index Smart Scale
2431	0	Forerunner 235
2432	0	fenix Chronos
2435	0	Zumo 3x5
2436	0	Zumo 595
2440	0	GDR E350/C300
2442	0	Astro 430/Alpha 50
2444	0	Rino 7xx
2449	0	PRO Control 2 RR
2450	0	Delta Smart
2463		GNX Wind
2467	0	D2 Bravo, K65, China
2470	0	GDR C530
2471	0	Varia Vision, APAC
2473	0	fenix 3 HR, K26, CHN
2478	0	zumo590, APAC
2479	0	GPSMAP 276cx
2485	0	GDR E350 Japan
2488	0	RV-IN801
2495	0	DriveAssist 50 Camera FW
2496	0	Garmin Nautix
2497	0	vivoactive HR APAC
2503	0	Forerunner 35
2510	0	Forerunner 735XT, Sensor Hub
2512	0	Oregon 7xx
2513	0	GDL 5x
2517	0	zumo590, JPN
2530	0	Edge 820
2531	0	Edge Explore 820
2533	0	Forerunner 735XT APAC
2534	0	ForeAthlete 735XTJ
2535		VHF 110, 210, 210 AIS
2536		VHF 315, 315i
2544	0	fenix 5S
2545	0	Dash Cam 30
2546	0	Dash Cam 35
2547	0	D2 Bravo Titanium
2559	0	Approach S20 APAC
2560	0	D2 Bravo Titanium, Sensor Hub
2561	0	DriveSmart 50, APAC
2563	0	eTrex Touch 35 APAC
2567	0	Varia UT800 - Part 1
2567	3	Varia UT800 - Part 2

HWID	Nr	Device
2569	0	fleet 660 8G, GPS
2570	0	fleet 670 8G, GPS
2583	0	Delta Smart nRF51
2584	0	BMW Motorrad Navigator VI
2586	0	Drive and DriveSmart 51
2587	0	Drive 61
2588	0	DriveSmart 61
2589	0	DriveLuxe 51
2590	0	DriveAssist 51
2593	3	Running Dynamics Pod
2596	0	DriveAssist 50, APAC
2599	0	Edge 820 China
2600	0	Edge 820 Japan
2604	0	fenix 5X
2605	0	fenix 5X, Display
2606	0	vivofit jr
2614	0	GPSMAP 64sc
2620		?
2622	0	vivosmart 3
2623	0	vivosport
2624	0	fenix 3 HR APAC, Sensor Hub
2628	0	Edge 820 Taiwan
2629	0	Edge 820 Korea
2630	0	Edge 820 SEA
2631		Panoptix PS51
2635	0	Dash Cam 45 - S
2636	0	Dash Cam 55
2639	0	vivosmart HR plus Israel
2641	0	Xero A1(i)
2650	0	Forerunner 35 Israel
2652	0	Approach G30
2653	0	FR235, NFC CIB
2655	0	FR235 Sensor Hub
2656	0	Approach S60
2657	0	Approach S60, Display
2659	0	vivosmart 3 Sensor Hub
2660	0	vivosport Sensor Hub
2661	0	fenix 5, Sensor Hub
2662	0	fenix 5S, Sensor Hub
2663	0	fenix 5X, Sensor Hub
2664	0	Descent Mk1, Sensor Hub
2665	0	Forerunner 935, Sensor Hub
2667	0	Forerunner 35 APAC
2668	0	Forerunner 35 JPN
2675	0	fenix CHRONOS APAC
2680	0	vivosmart 3 Cap Touch Panel

HWID	Nr	Device
2681	0	Oregon7xx APAC
2682		9-Axis Heading Sensor
2684	0	RV/Camper 770
2687	0	VIRB 360
2689	0	SW, CAN uC, APGC18, AOER
2691	0	Forerunner 935
2697	0	fenix 5
2700	0	vivoactive 3
2702	0	fenix Chronos APAC Sensor Hub
2705	0	Avtex Tourer One Plus
2713	0	Edge 1030
2715		Fantom Dome FPGA
2718		Reactor 40
2725	1	aera 79x China
2726	1	aera 660 China
2727	0	Forerunner 35 SEA
2733	0	FR235, NFC, ExpressPay
2735	0	fleet 770, GPS
2736	0	fleet 780, GPS
2738	0	fleet 790 ATT, GPS
2739	0	fleet 790 EU, GPS
2740		LE910_SVL_1G
2741		LE910_NA1_1G
2742		HE910_EUD
2752	0	Approach S60, Sensor Hub
2760	2	RV-BBT600 RV HUB Dock
2760	3	RV-BBT600 RV HUB Dock Update Index
2763	0	GPSMAP 64sc JPN
2764	0	GPSMAP 64sc SEA
2769	0	Foretrex 601/701
2770		GMU 11
2771	0	Impact
2772	0	vivomove HR
2773	0	vivomove HR Sensor Hub
2774	0	vivomove HR Sport - Cap Touch Panel
2774	1	vivomove HR Premium - Cap Touch Panel
2775		SteadyCast Heading Sensor
2776	0	Approach G30 Touchscreen Firmware
2777	0	Rino 700
2778	0	GPS Chipset Type M4
2779	0	GPS Chipset Type M426
2781	0	vivosport Cap Touch Panel
2786	0	RV-BBT600 RV HUB Remote
2787	3	Vector 3
2796	0	Fenix 5 APAC
2797	0	Fenix 5S APAC

HWID	Nr	Device
2798	0	Fenix 5X APAC
2803	0	Drive 51 APAC
2806	0	Approach Z80
2814	0	Forerunner 35 KOR
2816	0	SW, CAN uC, ALSA18, AOER
2817	0	SW, ALSA18, System Code, AOER
2818	0	Xero A1(i), Sensor Hub
2819	0	D2 Charlie
2820	0	D2 Charlie, Display
2825	0	SW, APSA18, System Code, AOER
2826	0	UAT-2826
2830	0	SW, CAN uC, APSA18, AutoOEM
2831	0	Vivosmart3, APAC
2832	0	Vivosport, APAC
2833	0	Forerunner 935 APAC
2835	0	Vivosmart3, Sensor Hub, APAC
2836	0	Vivosport, Sensor Hub, APAC
2838	0	Dash Cam 65W
2841	0	nuviCam APAC Camera Firmware
2842	0	SW, BMW NAV VI, Japan, AOER
2858	0	Dash Cam 45 - O
2859	0	Descent Mk1
2864	0	Approach Z80, Aux
2866	0	fenix 5, Sensor Hub, APAC
2867	0	fenix 5S, Sensor Hub, APAC
2868	0	fenix 5X, Sensor Hub, APAC
2869	0	Descent Mk1, Display
2872	0	Forerunner 935 APAC, Sensor Hub
2886	0	Forerunner 645
2887	0	Forerunner 645 Music, ANT/BLE/BT
2888	0	Forerunner 645 Music
2891	0	Forerunner 30
2893	0	Atemos 50
2894	0	Atemos 100
2895	0	Atemos K5/KT15
2896	0	Forerunner 645, Sensor Hub
2897	0	Forerunner 645 Music, Sensor Hub
2900	0	fenix 5S Plus
2907	0	Approach S60, Host, APAC
2909	0	Edge 130
2912		Panoptix PS22
2924	0	Edge1030 APAC
2925	0	GPS 12H India
2927		vivosmart 4
2930	0	vivosmart 4 – 006-B2930-00 actually has HWID 2927! Only the Sensor Hub seems to have HWID 2930

HWID	Nr	Device
2930	0	vivosmart 4 Sensor Hub
2931	0	vivosmart 4 Cap Touch Panel
2933		LE910
2945	0	vivomove HR, APAC
2946	0	vivomove HR, Sensor Hub, APAC
2947	0	eTrex 20x/30x MN
2952	0	fleet 790 AUNZ, GPS
2954	3	Varia RTL510, Light
2954	7	Varia RTL510, System
2955	6	Varia RTL510, Radar
2956	0	Alpha 50 CHN
2957	0	GPS Chipset Type M5
2960	0	GPS Chipset Type M426 (2960-Fitness)
2961		GMC 507
2962	0	Approach X10
2976	0	vivoactive 3, APAC
2977	0	Forerunner 30 APAC
2983	0	vivoactive 3, Sensor Hub, APAC
2988		vivoactive 3 Music
2991	0	Descent APAC
2993	0	Descent APAC Sensor Hub
2994	0	D2 Charlie, APAC
2996	0	DriveSmart 61, APAC
2997	0	eTrex 302 CHN
3003	0	Forerunner 645 APAC
3004	0	Forerunner 645M APAC
3008	0	Forerunner 645 APAC, Sensor Hub
3009	0	Forerunner 645M APAC, Sensor Hub
3011		Edge Explore
3013	0	fenix 5S Plus, Sensor Hub
3014	0	fenix 5 Plus, Sensor Hub
3015	0	fenix 5X Plus, Sensor Hub
3028	0	GPSMAP 66
3029	0	zumo590 TPMS Firmware, APAC
3033		zumo 396
3049	0	Approach S10
3061		Drive 52
3076	0	Forerunner 245
3077	0	Forerunner 245M
3078	0	Forerunner 245, Sensor Hub
3079	0	Forerunner 245M, Sensor Hub
3082		GCV 20
3085	0	Approach G80
3089	0	Fenix5 Plus APAC
3092	0	Edge 130 APAC
3095	0	Edge 1030 Bontrager

HWID	Nr	Device
3098	0	Astro 900
3099	0	T9 GPS Collar
3107	0	GPS Chipset Type S1 (3107)
3109	0	DriveAssist 51, APAC
3110	0	fenix 5 Plus (identical to fenix 5S Plus and uses HWID 2900)
3111	0	fenix 5X Plus (identical to fenix 5S Plus and uses HWID 2900)
3112	0	Edge 520 Plus
3113	0	Forerunner 945
3114	0	Forerunner 945, Sensor Hub
3115	0	GPSMAP 64sc SiteSurvey
3120		ECHOMAP Ultra 122sv
3121	0	Edge 530
3122	0	Edge 830
3126	0	Instinct
3126	0	Instinct Solar (uses HWID 3466)
3127	0	Instinct, Sensor Hub
3130	0	Approach Z80, APAC
3131		?
3132		? contained in firmware package for HWID 3131
3133		AIS 800
3134	0	Fenix5S Plus APAC (uses HWID 3089)
3135	0	Fenix5X Plus APAC (uses HWID 3089)
3139	0	zumo 396, APAC
3142	0	Edge520Plus, APAC
3143	3	Descent T1 Transmitter
3144	0	Forerunner 235 Lite APAC
3153	0	fenix 5S Plus, ANT/BLE/BT (identical to fenix 5 Plus, ANT/BLE/BT)
3153	0	fenix 5 Plus, ANT/BLE/BT
3153	0	fenix 5X Plus, ANT/BLE/BT (identical to fenix 5 Plus, ANT/BLE/BT)
3163	0	vivoactive 3M, WiFi, APAC
3164	0	vivoactive 3M, Sensor Hub, APAC
3165	0	SW, ACIN19, Indonesia, AOER
3166	0	SW, CAN uC, ACIN19, Indonesia, AOER
3187	0	Rino 7xx GMRS
3196	0	D2 Delta S
3197	0	D2 Delta (uses HWID 3196)
3198	0	D2 Delta PX (uses HWID 3196)
3199	0	CYW20719 APAC
3204	0	Forerunner 245, ANT/BLE
3205	0	Forerunner 245M, ANT/BLE/BT
3206	0	GLO 2
3217		VHF 115, 215, 215 AIS
3218	0	Vivosmart 4, APAC
3220	0	NFC Third Party Applets
3224		vivoactive 4S
3225		vivoactive 4

HWID	Nr	Device
3226		Venu
3232	0	Fenix5S Plus APAC, Sensor Hub (Firmware is identical to Fenix5 Plus APAC, Sensor Hub and uses HWID 3233)
3233	0	Fenix5 Plus APAC, Sensor Hub
3234	0	Fenix5X Plus APAC, Sensor Hub (Firmware is identical to Fenix5 Plus APAC, Sensor Hub and uses HWID 3233)
3235		GSU 25C
3238	0	Forerunner 45 (uses HWID 3282)
3241	0	Vivosmart 4, Sensor Hub, APAC
3246	0	MARQ Driver (all MARQxx firmwares except Aviator are identical and use HWID 3246)
3246	0	MARQ Golfer (all MARQxx firmwares except Aviator are identical and use HWID 3246)
3247	0	MARQ Aviator
3248	0	MARQ Captain (all MARQxx firmwares except Aviator are identical and use HWID 3246)
3249	0	MARQ Commander (all MARQxx firmwares except Aviator are identical and use HWID 3246)
3250	0	MARQ Expedition (all MARQxx firmwares except Aviator are identical and use HWID 3246)
3251	0	MARQ Athlete (all MARQxx firmwares except Aviator are identical and use HWID 3246)
3252	0	MARQ, Sensor Hub
3253		MARQ, ANT/BLE/BT
3258	0	Descent Mk2/Mk2i
3260	0	D2 Delta series, ANT/BLE/BT
3262	0	GPSMAP276Cx APAC
3273	0	Instinct, APAC
3282		Forerunner 45
3284	0	GPSMAP 66i
3287	0	Fenix 6S/6S Solar
3288	0	Fenix 6S Pro/6S Pro Solar
3289	0	Fenix 6/6 Solar
3290	0	Fenix 6 Pro/6 Pro Solar
3291	0	Fenix 6X Pro/6X Pro Solar
3292	0	Fenix 6S/6, ANT/BLE
3293	0	Fenix 6S/6/6X Pro, ANT/BLE/BT
3294	0	Fenix 6S, Sensor Hub
3295	0	Fenix 6, Sensor Hub
3296	0	Fenix 6X, Sensor Hub
3300		HRM-Pro
3303	0	Forerunner 945, ANT/BLE/BT
3312	0	Edge 130 APAC, Sensor Hub
3313	0	GPS Chipset Type M5 (3313)
3314	0	Approach S40
3315	0	Approach S40, Sensor Hub
3315	1	Approach S42, Sensor Hub
3316	0	Approach S40, Touchscreen
3317	0	ForeTrex 601 Japan
3324	0	D2 Delta PX, Host, APAC
3331		GAD 13
3349	0	Edge 530, ASIA

HWID	Nr	Device
3381	0	SW, ACSG19, SGMY, AOER
3382	0	SW, CAN uC, ACSG19, SGMY, AOER
3393	0	Approach S62
3394	0	Approach S62, Touchscreen
3396	0	Approach S62, ANT/BLE
3399	0	Approach S62, Sensor Hub
3405	0	Swim 2
3411	0	GPS Chipset Type M5
3412	0	GPS Chipset Type M5 (Fitness)
3413	0	GPS Chipset Type M5 (3413)
3431	0	GPSMAP 64sx
3432	0	GPSMAP 64csx
3433	0	Alpha 200i US
3436		MTK MT3329
3441	0	Forerunner 945 ASIA
3445	0	eTrex 22x/32x
3446	0	Vivoactive 3t
3447	0	Approach S40, ASIA
3452	0	GPSMAP 86s
3453	0	GPSMAP 86sc
3454	0	GPSMAP 86i
3455	0	GPSMAP 86sci
3458	0	XERO X1i
3459	0	Montana 700/700i/750i
3466		Instinct Solar
3467	0	Instinct Solar, Sensor Hub
3468	0	Instinct Solar, BLE/ANT
3477	0	Vivoactive 3 Daimler APAC
3506	0	GPS Chipset Type S1 (3506)
3507	0	Alpha 200i WW (all Alpha200i* firmwares are identical and use HWID 3433)
3508	0	Alpha 200i EU Harmonized (all Alpha200i* firmwares are identical and use HWID 3433)
3509	0	Alpha 200i France (all Alpha200i* firmwares are identical and use HWID 3433)
3510	0	Alpha 200i Nordic (all Alpha200i* firmwares are identical and use HWID 3433)
3526	0	Approach Z82
3527	0	Approach Z82, Aux
3542	0	Descent Mk2s
3570		Edge 1030 Plus
3580		GPS 24xd NMEA2000
3589		Forerunner 745
3591		Forerunner 745, ANT/BLE/BT
3608	1	aera 760
3612	0	SW, AAIN20, Indonesia, AOER
3615		Lily
3622	0	Approach R10
3624	0	MARQ Adventurer (all MARQxx firmwares except Aviator are identical and use HWID 3246)
3629	0	SW, LFIN20, System Code, AOER



HWID	Nr	Device
3638	0	Enduro
3652		Forerunner 945 LTE
3694	0	GPSMAP 66sr
3695	0	fleet 790 EU LTE, GPS
3696		LE910C1-EU
3703		Venu 2
3704		Venu 2S
3715	0	fleet 790 SA, GPS
3725	0	GPSMAP 65/65s
3758		Alpha Dog Collar SNSHUB
3799		Forerunner 745 RemoteSW
3802	0	SW, LYIN20, System Code, AOER
3804		GPS 20A
3823	0	Approach G12/S12
3824	0	Approach G12/S12 BLE
3843		Edge 1040
3851		Venu 2 Plus
3856	0	SW, LCMY20, System Code, AOER
3869		Forerunner 55
3888	0	Instinct 2
3889	0	Instinct 2S
3890	0	Instinct 2, Sensor Hub
3890	1	Instinct 2S, Sensor Hub
3891	0	Instinct 2/2S, BLE/ANT
3905	10	fenix 7S
3906	10	fenix 7
3907	10	fenix 7X
3934	0	Approach S42
3943	10	EPIX (Gen 2)
3946	0	SW, LTDM20, System Code, AOER
3946	1	SW, LTDM20, UMWI, System Code, AOER
3946	3	SW, LTDM20, TAM, System Code, AOER
3966	1	aera 760 China
4047	0	Alpha 200 US (all Alpha200* firmwares are identical and use HWID 3433)
4048	0	Alpha 200 WW (all Alpha200* firmwares are identical and use HWID 3433)
4049	0	Alpha 200 EU Harmonized (all Alpha200* firmwares are identical and use HWID 3433)
4050	0	Alpha 200 France (all Alpha200* firmwares are identical and use HWID 3433)
4051	0	Alpha 200 Nordic (all Alpha200* firmwares are identical and use HWID 3433)
4068	1	SW, LTDM21, TAM, System Code, AOER
4069	0	SW, LAIN21, TAM, System Code, AOER
4094	0	SW, LWIN21, TAM, System Code, AOER
4103	0	Alpha Dog Collar GPS
4173	0	T 5, TT 15 OnSemi
4176	0	SW, LYIN20, TAM 965B, System Code, AOER
4177	0	SW, LTDM21, TAM D26B, System Code, AOER
4178	0	SW, LFIN20, TAM 655B, System Code, AOER

HWID	Nr	Device
4183	0	T5/ TT15 Mini OnSemi
4200	0	T5X/TT15X
4285	0	SW, LIIN22, TAM, System Code, AOER
4298	0	SW, LWIN21, TMV, System Code, AOER
4411	1	SW, TWIN23 OTA, TAM, AOER
4412	0	SW, LWIN21, UMWT, System Code, AOER

## References

### Used sources of information

- [1] <https://sourceforge.net/projects/garminidaloader/>
- [2] GetGarminUpdates <https://www.gpspower.net/garmin-receivers-firmwares/329909-garmin-devices-their-related-hwid-numbers-software-update-pages-links-table.html>
- [3] <http://mirgarmin.com.ua/content/1124.html>

### Standards and specifications

- [4] ARMv7-M Architecture Reference Manual  
<http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.ddi0403e.b/index.html>

### Sources of sample files

See the documents on GCD and RGN firmware update file format.