



January 25, 2010

06_02_0110

Advanced Devices

Introduction

This bulletin covers the procedure required to update firmware of the Resolution T to v1.17. This firmware version was published to correct the signal tracking outage every 12.5 minutes due to the change in the GPS signal structure by the DoD.

The following application table shows which versions of hardware and firmware that can be updated.

Table 1

PRODUCT	BOARD ASSEMBLY	FIRMWARE
52664-05	52830-00-C	1.14
52664-05	52830-00-D	1.14
52664-05	52830-00-E	1.14

To update the firmware application on your Resolution T please use the following process in the order specified. Please note that the Boot Rom does not require any update.







Stage 1 Pre Update Preparation

The procedures that follow in this note include use of the Trimble GPS Studio application. If you cannot use this software with your installation, Trimble can also supply sample source code and a Firmware Loading Interface Document for programming the Resolution T flash.

Important note about communication to the target system.

If there is no direct connection to the Resolution T by either Trimble GPS Studio or any custom software then the target system should allow a pass through that allows communication between them.

If no pass through is available then the customer system application must follow the steps documented in the Firmware Loading Interface Document.

Please note that the flash process will require a change of the communication port settings to 115200 baud, 8 data bits, 1 stop bit and no parity which your installation must support. The new firmware cannot be downloaded to the Resolution T without these settings.

Remaining steps.

- Download and uncompress the latest version of Trimble GPS Studio (TGS) and the new v1.17 binary zip file from the Firmware Update directory here... <u>http://www.trimble.com/timing/resolution-t.aspx?dtID=support</u>
- 2. Print out this bulletin.







Stage 2 Use the TGS Application to Connect to the Resolution T

Prerequisites:

- Stage 1 requirements have been met.
- Trimble GPS Studio is running on PC
- PC has been attached to Resolution T via a serial connection.

Process

- 1. From the Trimble GPS Studio menu bar select *Connections > New Connection*
- 2. In the New Connection pop up window select *GPS Receiver* in the Device pull down.
- 3. In the *Com Port* pull down select the correct com port for the serial connection from your PC to the Resolution T.
- 4. Check the *Auto-detect* settings tick box.
- 5. Click the OK button.

Trimble GPS Studio				
File Connections Tools Window Help				
TGS v1.01.7 💋 Connect to Device	New Connection	💌 🗹 Data Logger 🚺	Data Converter	🗹 Preferences 🗐 Exit
Monitor				
Monitor	Status Almanac DOPs New Connection PDOP Device: GPS Receiver COM Port: USB Serial Port (G Firmware Infi Auto-detect settings. If not Application Checking for	MU Az. Elev.		
Tx @ Rx @	In Parity: None Data Bits: 8 Stop Bits: 1	* *		
		OK Cancel		
			Monitoring OFF	Logging OFF 1:29 PM





6. TGS will connect to the Resolution T and display its current status as shown below. You are ready to proceed to the next stage.

v1.01.7 / Connect to Device Resolution T GPS Timing Receiv	ver Monitor [COM 31]			ata Logger	Data	Converter 🗹 Preferenc	es 🛓
Monitor • Receiver • COM Time Fri 21:37:25 Time Fri 21:37:25 Date January 22, 2010 Week Is67 TOW 509845 Velocity m/s Soged m/s Monitor m/s Speed m/s m/s Monitor m/s Speed Monitor m/s Position Latitude N 37° 23.07629' Longitude W 122° 0.37772' Altitude -4.47 m HAE X ● Rx ● Monitoring Resolution T GPS Monitoring Resolution T GPS	Receiver Mode & Status Mode O-D, Manual (11 SV) Status over-determined dock Almanac complete & current DOPs Status PDOP RTC HDOP RTC YDOP 1355.84 Firmware Info Application Application 1.14.2 Oat TSIP Out TSIP	Az. 26.6 242.9 267.4 42.0 98.9 78.0 164.3 Timin GPS Sta Self-Su Rcvr M GPS Sta Self-Su Rcvr M GPS Sta Self-Su Bias: Bias Ra	64.7 17.0 20.5 59.8 42.9	rer Status an guration 9 Overdet Clock (0) Doing Fixe -330662.63 1355.84 14.0 15 seco 31.52 ° C	(Time) es ns ppb ns	Status Antenna Open Antenna Short Satellite Tracking Self-Survey Active Stored Position Leap Second Pending Test Mode Position Questionable Almanac PPS Generated PPS Good	

Exit Status

• PC is connected and able to communicate with the Resolution T







Stage 3Use TGS to Check the Current Hardware and FirmwareVersions

Prerequisites:

- Trimble GPS Studio is running on PC
- Trimble GPS Studio can communicate to Resolution T

Process

- 1. In the Resolution T GPS Timing Receiver Monitor window select *Monitor > View Receiver Version*.
- 2. Check that the Product Name is Resolution T
- 3. Check that the Version number is 1.14
- 4. If either of the fields in the above two steps do not match DO NOT PROCEED ANY FURTHER and contact your local Trimble sales representative.







5. If the values in fields under Product Name and Version are correct then click on the *Manufacturing Info* tab of the Receiver Version window.

Date January 23, 2010 Status over-determined clock 26 11.8 44.9 Week 1567 TOW 521241 Amanac complete & current 22 15.4 81.0 Velocity DOPs Status BBOAM 31 15.4 154.8 19 8.4 236.7 North Image: Complete & current Image: Complete & current 19 8.4 236.7 Up Product Info Manufacturing Info Diagnostic Info 14 15.8 37.9 Speed Product Info Manufacturing Info Diagnostic Info 11 11.8 305.8 Position Labitude N Manufacturing Configuration 11 11.8 305.8 Longitude W Serial Number: 84606490 32 8.4 292.8 Altitude Product P/N: RESOLUTION T 0:09:15 COM 31: 9600 Week S2830-00-C S12 COM 31: 9600 11 13: 9600	GPS Status Self-Survey Progress: 0% Rcvr Mode: (7) Overdet Clock (Time) GPS Status: (0) Doing Fixes Timing Blas: 244565.55 Blas Rate: 1347.59 ppb	Status Antenna Open Antenna Short Satellite Tracking Self-Survey Active Stored Position Leap Second Pending
Query Cose	PPS Quant Error: -13.5 ns Miscellaneous UTC Offset: 15 seconds	 Test Mode Position Questionable Almanac PPS Generated PPS Good

- 6. Check that the field for Hardware ID matches one of the numbers in the Board Assembly column of Table 1.
- 7. If the Hardware ID does not match one listed in Table 1 DO NOT PROCEED ANY FURTHER and contact your local Trimble sales representative.
- 8. If the Hardware ID is correct you are ready to proceed to the next stage.

Exit Status

• You have confirmed that the Resolution T Hardware and Firmware versions are suitable for updating to v1.17





Stage 4 Use FlashLoader to Update the Resolution T Firmware. FlashLoader is an application that resides in TGS enabling new firmware to be flashed to Trimble GPS receivers.

Prerequisites:

- Trimble GPS Studio is running on PC.
- Trimble GPS Studio can communicate to Resolution T.
- You have completed Stage 3.

Process

1. From the Trimble GPS Studio menu bar select *Tools > Flash Loader*

Trimble GPS Studio					
File Connections Tools Window Help					
TGS v1.01.7 💋 Connect to Device 🗸	New Connection		👻 📝 Data Loggei	r 📋 Data Converter [🖉 Preferences 🗐 Exit
Monitor					
Monitor - 🖗 Receiver - IDLE	AUTO QUERY: ON	Мар			
	ceiver Mode & Status	Satellite Data	Timing Receiver Sta	tur and Control	
	atus			(I	
	manac		Timing Configuration		
Velocity DO	Ps Status		SPS Status Self-Survey Progress:	Status	nna Open
	BBRAM O		Sell-Survey Progress:		nna opert
	DOP RTC ANT C Flas	n Loader			Tracking
	DOP Osc 👰 Men	u •			vey Active
Speed mi/hr TD	DOP Firmwa	re File			Position
	mware Info		Brow	se Start	cond Pending
	pplication Com Po	rt Selection Load	ng Status	Loading Progress Time	Questionable
	Out	rt Selecuorr Loau	ng status	Loading Progress Time	
		DM1	0		herated
Tx 👁 Rx 🖷		DM3 🖌	0		bd
		DM4 🖌	0		
		oms 🖌	0		
		ома 🔛	0		
		OM10 🖌	0		
		DM11 🖌	0		
		DM12 🔍	0		
			0		
				Monitoring OFF L	ogging OFF 6:16 PM
				Monitoring OFF L	

- 2. Use the *Browse* button to navigate to the new firmware file "ResolutionT_1_17_0_FW_ROM_ONLY.rom".
- 3. Check one of the *Com Port Selection* options. If necessary you can change one of the port numbers by using the adjacent pull downs.





Monitor • 🖗 Receiver • IDLE 🔍 AUTO QUERY: ON 📓 Map	le Connections Tools Window Help TGS v1.01.7 COnnect to Device New Connection		ogger 📋 Data Cor	nverter 🗹 Preferences 🗐 Ex
Position	Monitor • & Receiver • IDLE • AUTO QUERY: OF Time [GPS] Time GPS] Time GPS] Veck TOW Adde & Status Mode Status Almanac Velocity East m/s North m/s Up m/s VOP SBRAM RTC ANT OSC (ppl	Satellite Data SV AMU A Timing Receive Timing Configu GPS Status Self-Survey Progres Rcvr Mode: GPS Status:	s:	Status Antenna Open Antenna Short Satellite Tracking Self-Survey Active
	Position Latitude Latitude Altitude Tx ♠ Rx ♠ Com Port Selection Loading Com Set Com	L1_17_0_FW Browse Start Status Loading Progress Time	ns ppb ns seconds	Leap Second Pending Test Mode Position Questionable Almanac PPS Generated

4. Select the *Start* button the upload process will begin. DO NOT DISCONNECT the PC and DO NOT REMOVE the Resolution T power supply during this period.







Trimble GPS Studio				
File Connections Tools Window Help				
TGS v1.01.7 🔎 Connect to Devi	Ce - New Connection	💌 🔽 Dat	ita Logger 📋 Data Converter	🖉 Preferences 🗐 Exit
🖗 Monitor				
🔲 Monitor 🔹 📚 Receiver 🔹 IDLE	AUTO QUERY: ON	I 💹 Map		
Time [GPS]	Receiver Mode & Status	Satellite Data		
Time	Mode		eceiver Status and Control	
Date TOW	Status Almanac	Co	onfiguration	
Velocity	DOPs Status		Status	
East m/s		o ey Pi		enna Open enga Short
North m/s	RTO	Flash Loader		Tracking
Up m/s	AIN	Menu •		vey Active
Speed mi/hr	TDOP	Firmware File		Position
Position	Contract of the second s	17-0\ResolutionT_1_17_0_FW_ROM_ONLY.ro	om Browse Abort	cond Pending
Latitude	Application			de
Longitude		om Port Selection Loading Status	Loading Progress Time	Questionable
Altitude m HAE	In Out	COM31 COM31 Coading in progress	42% 00:38	e herated
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		COM4 V	0	
		COM5 V		
		COME		
		COM10 😪		
		COM11	0	
		COM12 💌	0	
			Monitoring OFF I	ogging OFF 5:52 PM

6. If any errors occur at this point please contact Trimble.





7. Wait for the "Loading Successful" message in the Loading Status field.

Primble GPS Studio				
File Connections Tools Window Help				
TGS v1.01.7 🏓 Connect to Devi	CE - New Connection	V V C	Data Logger 📋 Data Converter	🖉 Preferences 🗐 Exit
Monitor				
🔲 Monitor 🔹 除 Receiver 👻 IDLE	AUTO QUERY:	ON 💹 Map		
Time [GPS]	Receiver Mode & Status	Satellite Data	Receiver Status and Control	
Time Date	Mode Status		201 22 31	
Week TOW	Almanac		Configuration	
Velocity	DOPs Statu		Status	enna Open
East m/s	PDOP BBRA	am o		enna Open enga Short
North m/s	HDOP RTC	🔗 Flash Loader		Tracking
Up m/s	and the second se	🖗 Menu 🝷		vey Active
Speed mi/hr		Firmware File		Position
Position	Firmware Info	17-0\ResolutionT_1_17_0_FW_ROM_ONLY	Y.rom Browse Start	cond Pending
Latitude	Application			Questionable
Altitude m HAE	Monitor Protocols	Com Port Selection Loading Status	Loading Progress Time	Questionable
	In Out	COM31 V Loading successful!	100% 01:28	herated
Tx 🔹 Rx 🛎		Сомз 🖌		pd
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		COM5 😺		
		Соме У		
			0	
		COM12 💌	0	
	L			
			Monitoring OFF	Logging OFF 5:53 PM

- 8. Close the Flash Loader window.
- 9. We now want to check that the update has worked by reconnecting the Monitor window to the Resolution T. Repeat the steps in Stage 2 of this document.





10. Check the Firmware Info in the Application fields. It should read "1.17.0 01/21/10".

👺 Resolution T GPS Timing Receiver Monitor [COM 31]				
📃 Monitor 🔹 👺 Receiver 👻 Сом	31 🕑 AUTO QUERY: ON 💹 Map			
Time [GPS] Time [GPS] Time [GPS] Time [GPS] Date January 23, 2010 Week 1567 TOW 528853 Velocity East m/s North m/s Up m/s Speed m/s Speed m/s Latitude N 37° 23.07504' Longitude W 122° 0.37881' Altitude -6.79 m HAE	Receiver Mode & Status Satellite Data Mode O-D, Manual (7 SV) Status Status over-determined clock SV Almanac complete & current 16 DOPs Status 16 PDOP BBRAM 11 HDOP RTC ANT VDOP Osc (ppb) 11 TDOP 1.00 Success! Firmware Info Application 1.17.0 Monitor Protocols I1 TSIP In TSIP Out			
Tx				

11. The firmware update process is complete.

Exit Status

• You have confirmed that the Resolution T Firmware version has been updated to v1.17

If you have any further questions please call your local Trimble sales representative.

