

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.

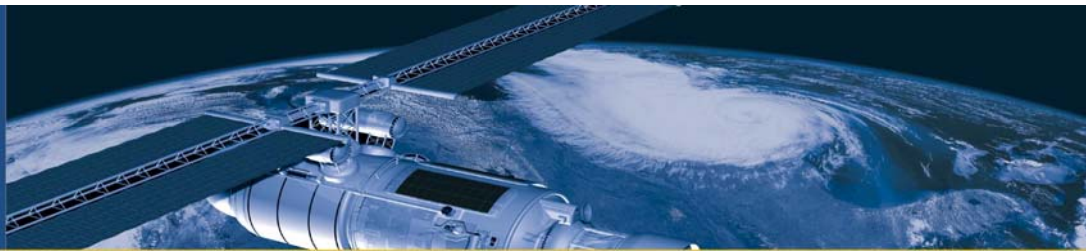
If there is no direct connection to the Resolution T by either Trimble GPS Studio or any custom software then the target system should allow a pass through that allows communication between them.

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.

1. 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...
<http://www.trimble.com/timing/resolution-t.aspx?dtID=support>
2. Print out this bulletin.



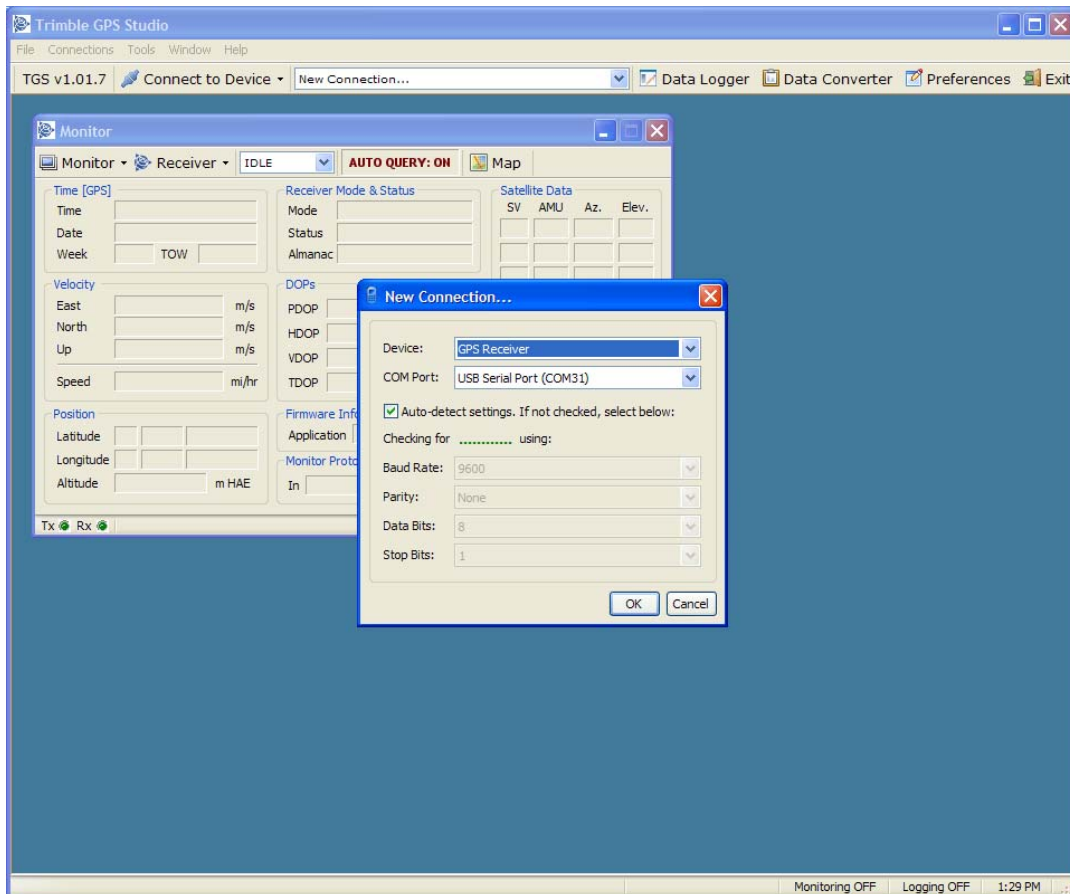
Stage 2 Use the TGS Application to Connect to the Resolution T

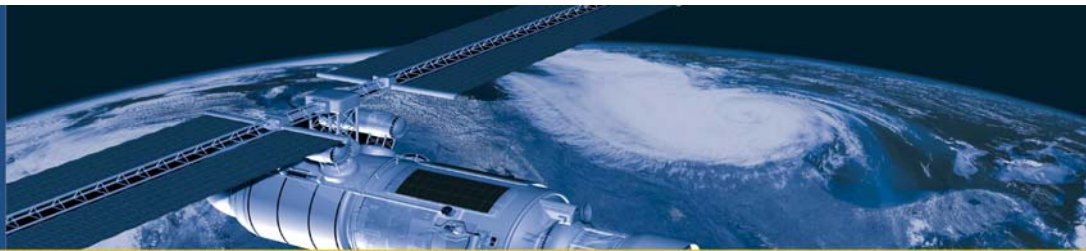
Prerequisites:

- 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.



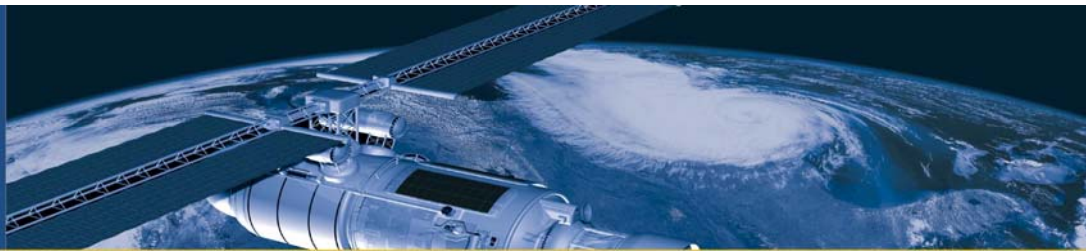


- TGS will connect to the Resolution T and display its current status as shown below. You are ready to proceed to the next stage.

The screenshot shows the Trimble GPS Studio interface. The main window is titled 'Resolution T GPS Timing Receiver Monitor [COM 31]'. It features several panels: 'Time [GPS]' showing the current time and date; 'Velocity' with fields for East, North, Up, and Speed; 'Position' with Latitude and Longitude; 'Receiver Mode & Status' showing Mode (O-D, Manual (11 SV)), Status (over-determined clock), and Almanac (complete & current); 'DOPs' (PDOP, HDOP, VDOP, TDOP); 'Firmware Info' (Application 1.14.2, 03/02/06); and 'Satellite Data' with a table of SV, AMU, Az., and Elev. A 'Timing Receiver Status and Control [COM 31]' dialog box is open, displaying 'GPS Status' (Self-Survey Progress: 0%, Rcvr Mode: (7) Overdet Clock (Time), GPS Status: (0) Doing Fixes), 'Timing' (Bias: -330662.63 ns, Bias Rate: 1355.84 ppb, PPS Quant Error: 14.0 ns), 'Miscellaneous' (UTC Offset: 15 seconds, Temperature: 31.52 °C), and a 'Status' list with indicators for Antenna Open, Antenna Short, Satellite Tracking, Self-Survey Active, Stored Position, Leap Second Pending, Test Mode, Position Questionable, Almanac, PPS Generated, and PPS Good.

Exit Status

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



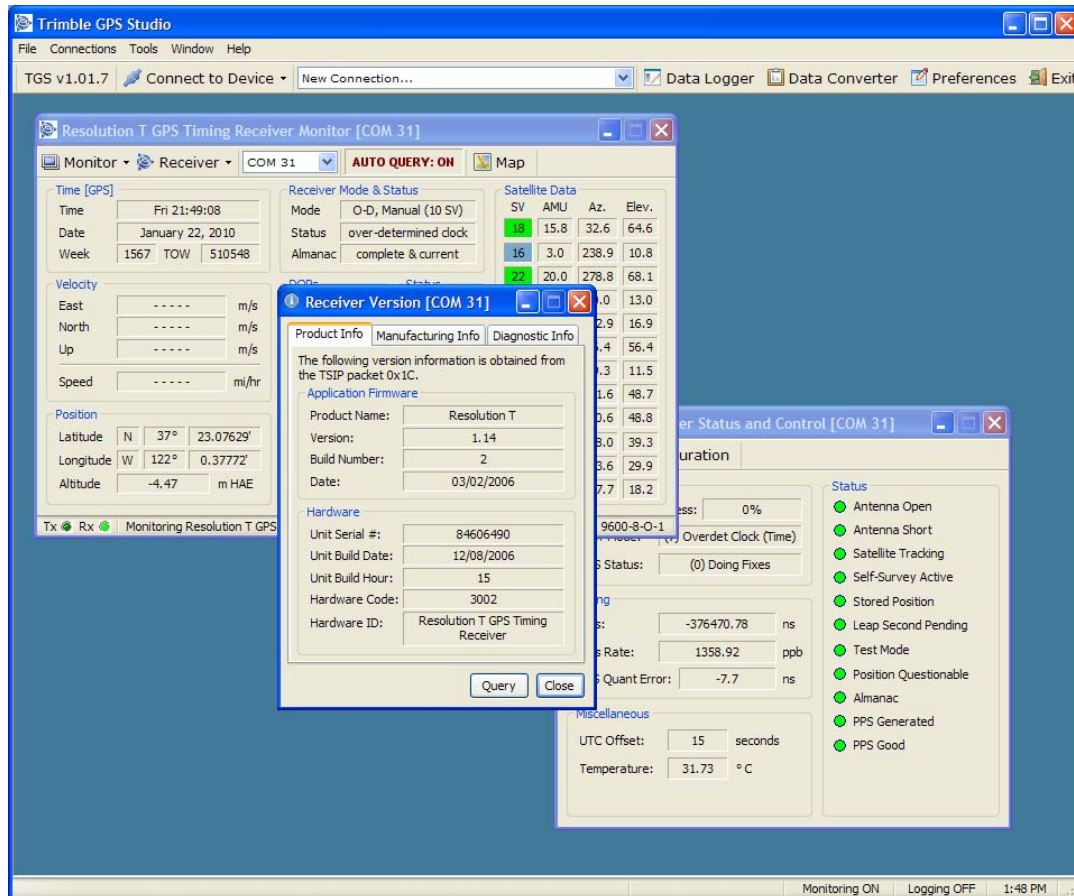
Stage 3 Use TGS to Check the Current Hardware and Firmware Versions

Prerequisites:

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

Process

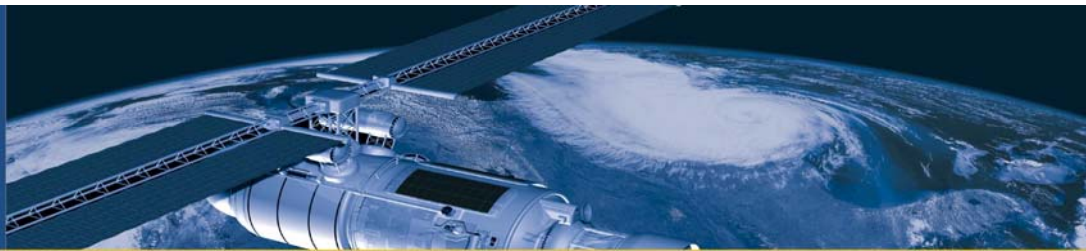
1. In the Resolution T GPS Timing Receiver Monitor window select *Monitor > View Receiver Version*.
2. Check that the Product Name is Resolution T
3. Check that the Version number is 1.14
4. If either of the fields in the above two steps do not match DO NOT PROCEED ANY FURTHER and contact your local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



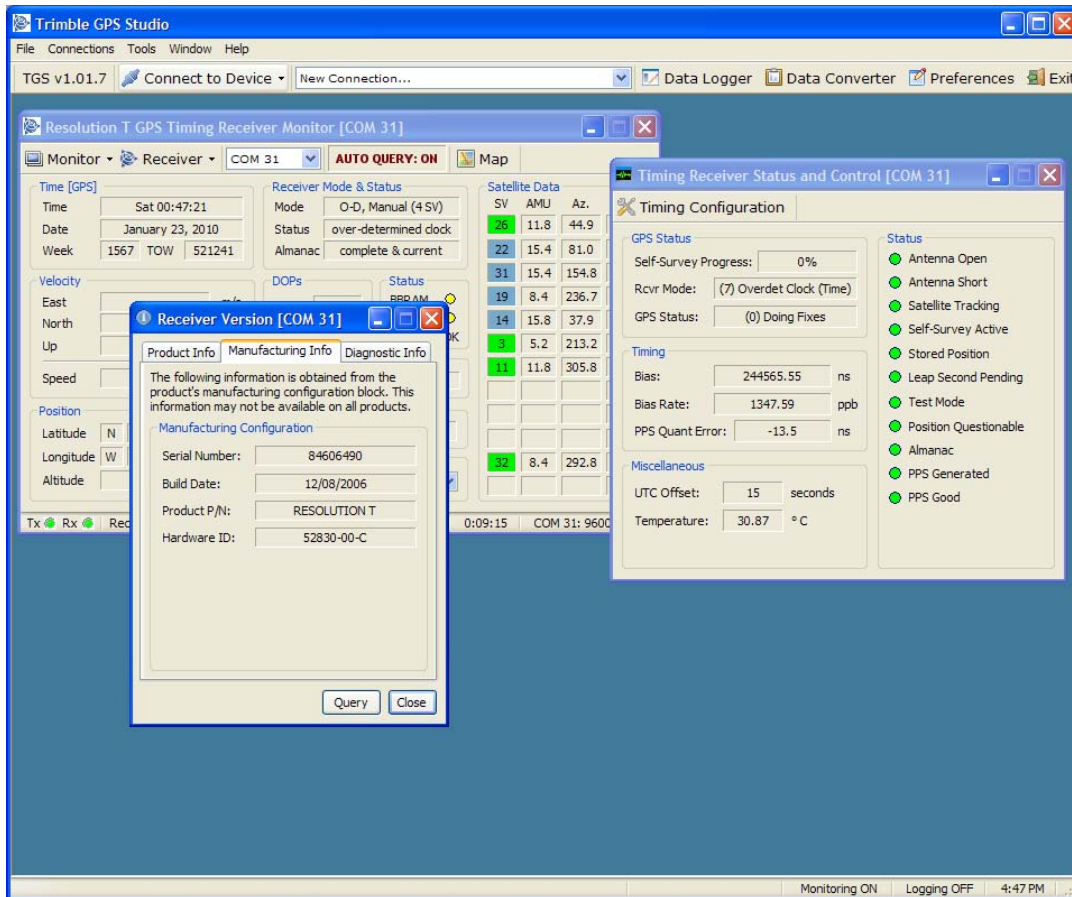
The screenshot shows the Trimble GPS Studio interface. The main window is titled "Resolution T GPS Timing Receiver Monitor [COM 31]". It displays various data fields including Time (GPS), Receiver Mode & Status, Satellite Data, Velocity, Position, and Hardware. A pop-up window titled "Receiver Version [COM 31]" is open, showing the following information:

Section	Field	Value
Application Firmware	Product Name:	Resolution T
	Version:	1.14
	Build Number:	2
	Date:	03/02/2006
Hardware	Unit Serial #:	84606490
	Unit Build Date:	12/08/2006
	Unit Build Hour:	15
	Hardware Code:	3002
Hardware ID:		Resolution T GPS Timing Receiver

The background window also shows a "Satellite Data" table with columns for SV, AMU, Az., and Elev. The status bar at the bottom indicates "Monitoring ON" and "Logging OFF" at 1:48 PM.



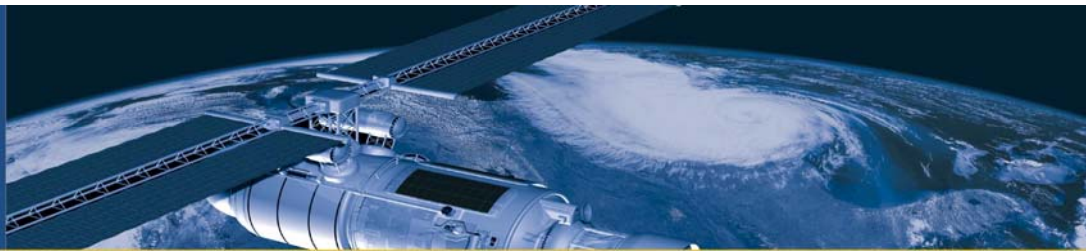
- If the values in fields under Product Name and Version are correct then click on the *Manufacturing Info* tab of the Receiver Version window.



- Check that the field for Hardware ID matches one of the numbers in the Board Assembly column of Table 1.
- If the Hardware ID does not match one listed in Table 1 DO NOT PROCEED ANY FURTHER and contact your local Trimble sales representative.
- 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.

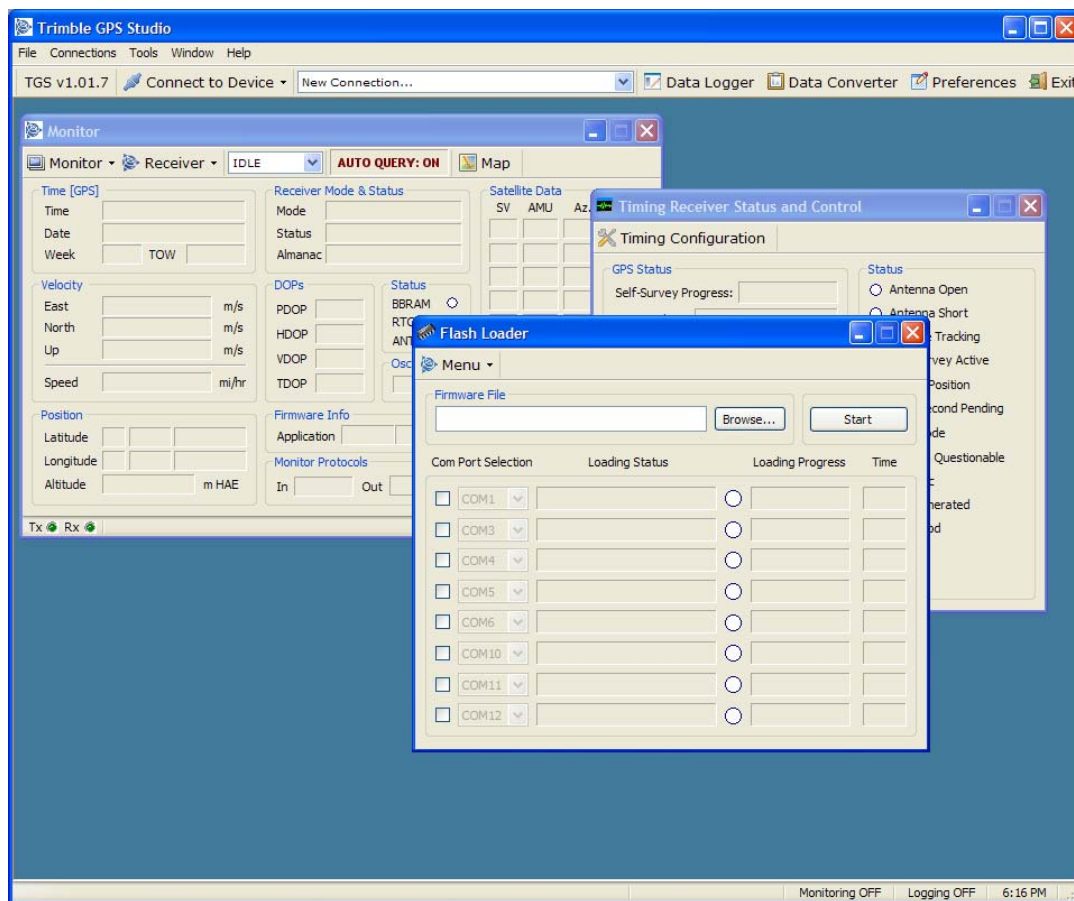
FlashLoader is an application that resides in TGS enabling new firmware to be flashed to Trimble GPS receivers.

Prerequisites:

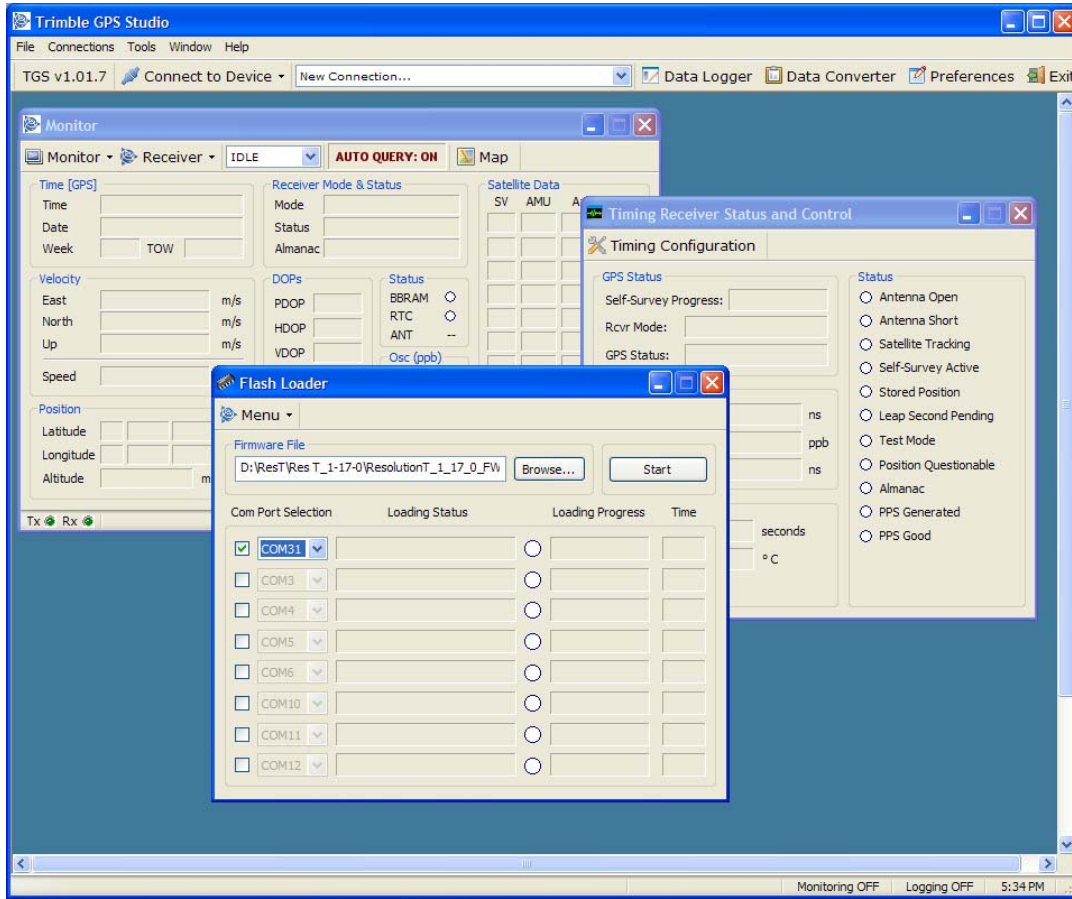
- Trimble GPS Studio is running on PC.
- Trimble GPS Studio can communicate to Resolution T.
- You have completed Stage 3.

Process

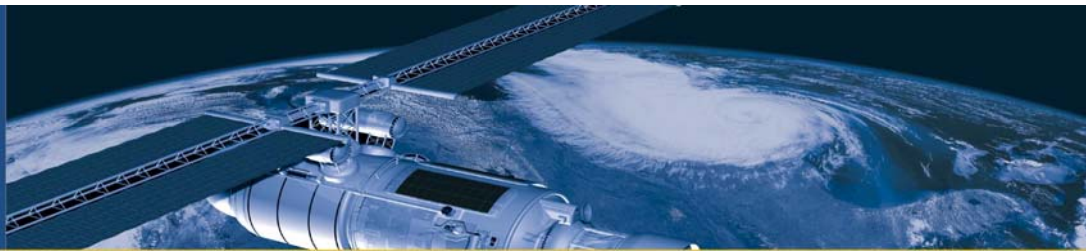
1. From the Trimble GPS Studio menu bar select *Tools > Flash Loader*



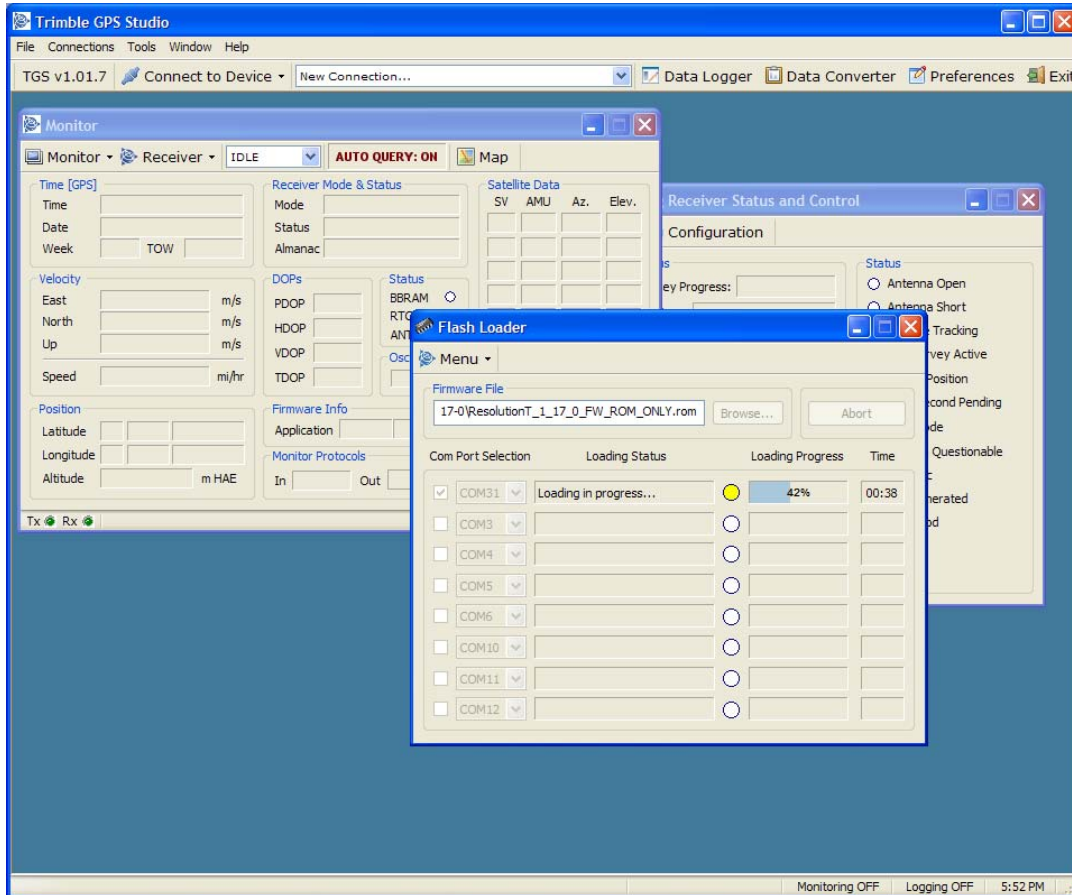
2. Use the *Browse* button to navigate to the new firmware file "ResolutionT_1_17_0_FW_ROM_ONLY.rom".
3. Check one of the *Com Port Selection* options. If necessary you can change one of the port numbers by using the adjacent pull downs.



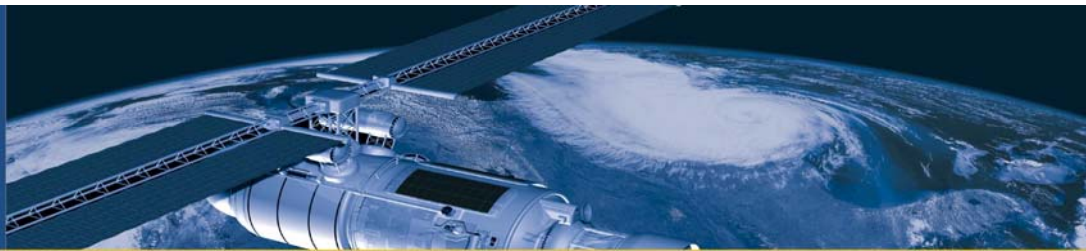
4. Select the *Start* button the upload process will begin. DO NOT DISCONNECT the PC and DO NOT REMOVE the Resolution T power supply during this period.



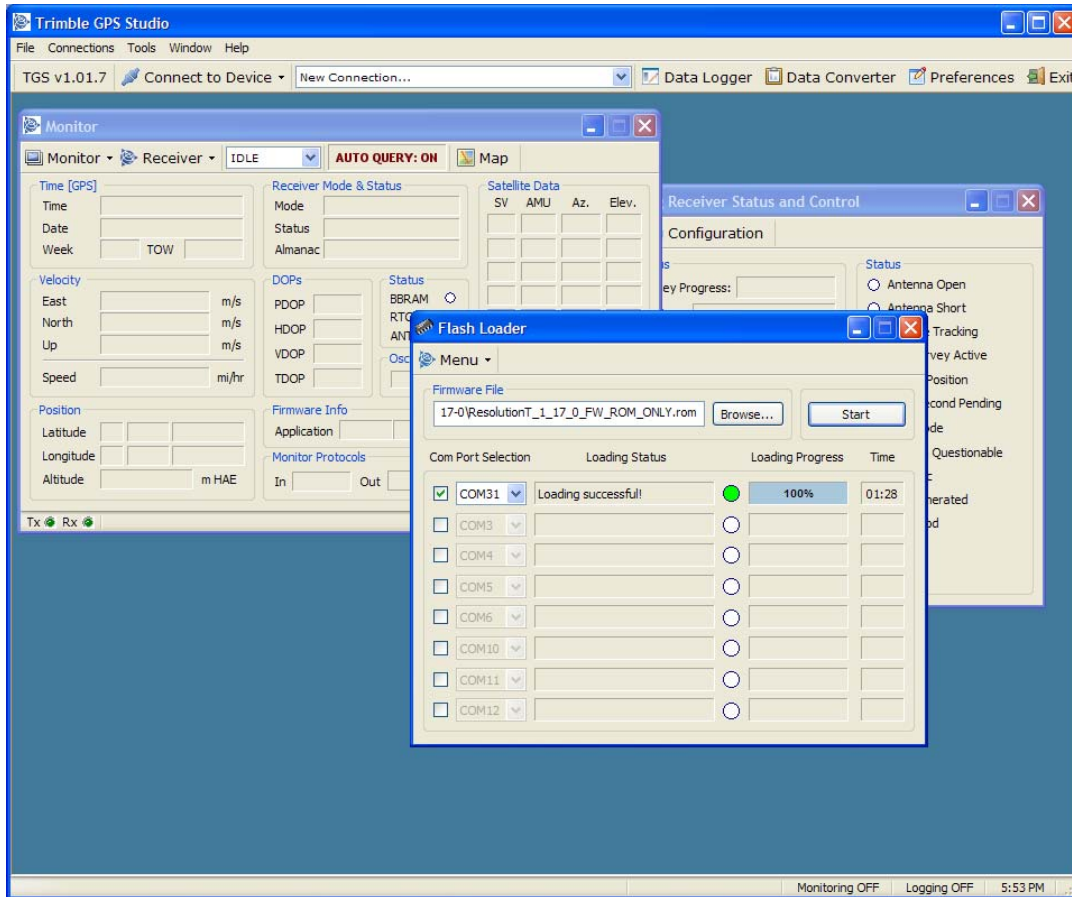
5. Monitor the Loading Status field, after a short initialization period it will say “Loading in progress”.



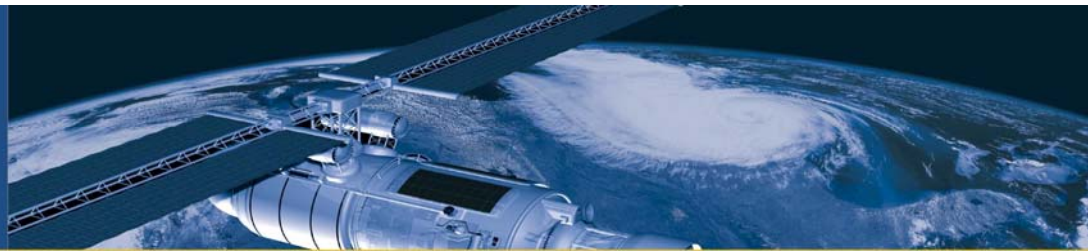
6. If any errors occur at this point please contact Trimble.



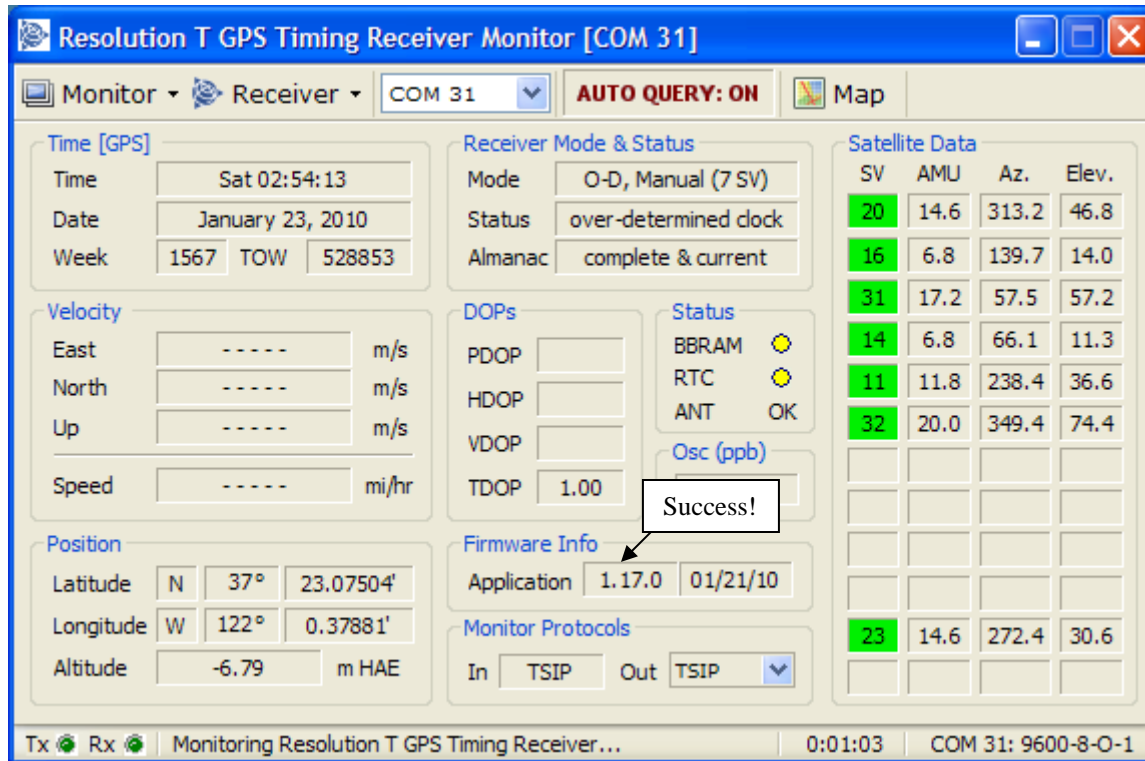
7. Wait for the “Loading Successful” message in the Loading Status field.



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”.



SV	AMU	Az.	Elev.
20	14.6	313.2	46.8
16	6.8	139.7	14.0
31	17.2	57.5	57.2
14	6.8	66.1	11.3
11	11.8	238.4	36.6
32	20.0	349.4	74.4
23	14.6	272.4	30.6

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.