



Time-Tagging Raw Data on the iG8 GNSS Rover

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The iG8 receivers have 27-Gigabytes of flash memory for storing observation data. By default both Base and Rover are programmed to automatically open a file and record 1 Hz data, every time they are powered up.

The GNSS engine in the iG8 generates about 5 megabytes of data per hour for an average constellation in the USA. So the iG8 will store about 225 days of continuous 24-hour per day data.

It is common to use the file in the Base to submit to OPUS to get an accurate BASE location.

It is also relatively straightforward to use the file that is recorded on the Rover, with time-tagging which is initiated by SurvCE when points are stored to post-process the vector for every RTK shot against the base.

This document describes how to implement time-tagging.

Time-Tagging vs. Static File

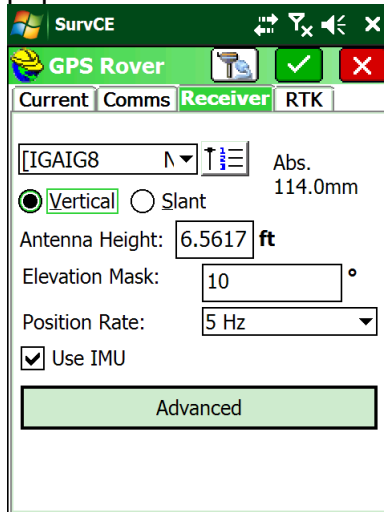
It is possible to close the recording file and open a new file for every shot, however there is a distinct advantage to Time-Tagging. Time-tagging is analogous to a 'Stop-and-Go' occupation. When the file is post-processed, every epoch of data in the file can be evaluated (like PPK) for position. So if you hold the receiver upright and in clear-sky as you move between shots, the entire file can be post-processed. Each epoch of data in the occupation file will have a known vector back to the base.

With Time-Tagging it is possible for a 2-second occupation to have the same accuracy as a 10-minute occupation.

Another advantage of Time-Tagging is the Point ID from Carlson is stored into the RINEX file so that the points in the post-processed stream will exactly match those in the RTK job.

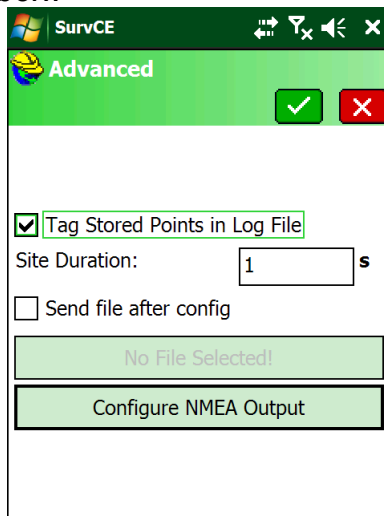
Enable Point Tagging in SurvCE

You must first enable point tagging in SurvCE when configuring the Rover. From the 'Equip: GPS Rover: Receiver (tab)':



2

Click on the 'Advanced' button and check the 'Tag Stored Points in Log File' checkbox:



Also set the Site Duration to an appropriate period. There are many possibilities, however since the site duration is added to the Averaging time, you may want to set it to 1 second for shots that are triggered by pressing 'S' or Enter as you typically won't be backing them up with post-processing. Then you can use the 'A' (Average) button to trigger shots intended for post-processing.

Once you enable Tagging, when you store a point, a corresponding entry will be made in the RINEX file.

Here is an example of the marker information added to a RINEX file for a 1-second shot:

1001
A

3 4

MARKER NAME
MARKER NUMBER



```

-1802366.4898 -4492696.2899 4141120.1507          APPROX POSITION XYZ
*** NEW SITE OCCUPATION FOLLOWS ! ***          COMMENT
17 10 3 22 59 57.0000000 0 12G08G10G14G18G21G24G27G32R06R07R21R22
22963203.250 120672511.846          44.000 22963209.387
94030504.991          31.000
20468007.617 107560073.339          50.000 20468012.391
83813094.217          44.000
22202693.188 116675987.427          46.000 22202695.973
90916333.712          35.000
21337863.328 112131100.429          46.000 21337867.160
87374994.908          38.000
22515199.477 118318212.652          44.000 22515201.801
92195989.093          30.000
22822255.984 119931556.895          36.000 22822262.301
93453345.046          18.000
22353860.422 117470551.655          46.000 22353865.898
91535339.280          40.000
21206183.039 111439288.593          51.000 21206187.820
86835797.039          44.000
19721068.695 105235392.854          46.000 19721066.688
81849747.790          41.000
20958328.055 112191577.958          49.000 20958329.285
87260111.275          47.000
19886851.711 106418715.115          50.000 19886852.156
82769990.994          47.000
20666283.141 110318030.045          50.000 20666283.738
85802901.217          48.000
17 10 3 22 59 58.0000000 0 12G08G10G14G18G21G24G27G32R06R07R21R22
22963104.227 120671992.542          44.000 22963110.711
94030100.335          31.000
20467937.875 107559704.678          51.000 20467942.023
83812806.951          43.000
22202118.391 116672969.749          46.000 22202121.207
90913982.279          36.000
21338038.305 112132021.556          46.000 21338042.066
87375712.662          38.000
22515621.313 118320429.209          44.000 22515623.633
92197716.267          29.000
22822305.461 119931820.810          36.000 22822311.914
93453550.688          17.000
22354167.664 117472166.735          46.000 22354172.969
91536597.780          40.000
21205739.984 111436960.837          51.000 21205744.645
86833983.202          44.000
19721192.398 105236054.576          47.000 19721190.543
81850262.464          40.000
20957913.203 112189358.577          49.000 20957915.098
87258385.089          47.000
19887229.836 106420741.725          50.000 19887231.191
82771567.241          47.000
20665836.680 110315644.909          50.000 20665836.914
85801046.110          48.000
          2 1
*** START MOVING ANTENNA ! ***          COMMENT
17 10 3 22 59 59.0000000 0 12G08G10G14G18G21G24G27G32R06R07R21R22
22963005.711 120671473.648          43.000 22963011.840

```



Once you have tagging in a RINEX file, you can post-process the file and extract the point in nearly all software packages.

Here is an example of importing a RINEX file with two observations (a 1-second and a 30-second occupation) into TBC:

Receiver Raw Data Check In

Point View							
Import	Point ID	File Name	Start Time	End Time	Duration	Feature Code	Send to RTX-PP
<input type="checkbox"/>	Roving Segment	___276w.170	10/3/2017 4:56:06 PM	10/3/2017 4:59:38 PM	00:03:32		<input type="checkbox"/>
<input checked="" type="checkbox"/>	1001	___276w.170	10/3/2017 4:59:39 PM	10/3/2017 4:59:40 PM	00:00:01		<input type="checkbox"/>
<input type="checkbox"/>	Roving Segment	___276w.170	10/3/2017 4:59:41 PM	10/3/2017 4:59:56 PM	00:00:15		<input type="checkbox"/>
<input checked="" type="checkbox"/>	1002	___276w.170	10/3/2017 4:59:57 PM	10/3/2017 5:00:30 PM	00:00:33		<input type="checkbox"/>
<input type="checkbox"/>	Roving Segment	___276w.170	10/3/2017 5:00:31 PM	10/3/2017 5:06:25 PM	00:05:54		<input type="checkbox"/>

Antenna model: Automatic [Reset] [OK] [Cancel]

Processing these observations against a nearby CORS station:

Vectors																	
Vecto	From	To Poi	Solutio	Statu	GNSS Verti	P	H. Precisi	V. Precisi	Sate	Ep	Vector	From	To H	Start Time	Tilt Di	Tilt Comp	Tilt Dir
PV4	RBUT	1001	Fixed	Enable	0.000	2.66	0.027	0.049	7	2	6584.585	0.000	2.000	10/3/2017 4:	?	<input type="checkbox"/>	?
PV5	RBUT	1002	Fixed	Enable	0.000	2.66	0.019	0.035	7	34	6584.595	0.000	2.000	10/3/2017 4:	?	<input type="checkbox"/>	?

Results in two coordinates with fixed coordinates.

Processing could have also been completed against the Base Station (however, in this case the base was a VRS network mount.)