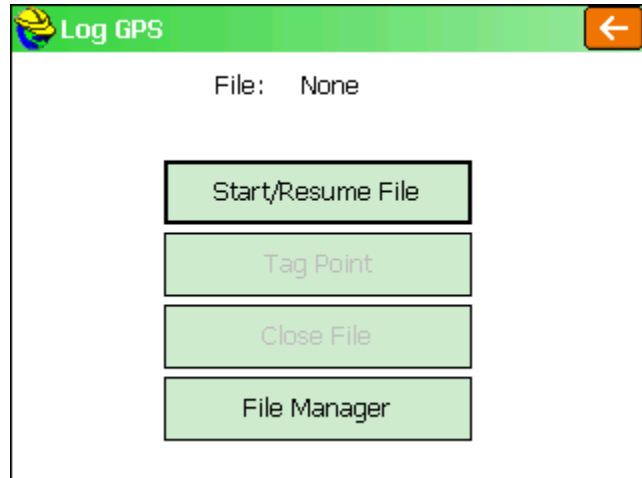


This is in regards to using a Carlson GPS pack and logging Static Files of anything from 15 minutes on up to 2 hours or more on a single Point where you convert this file from SurvCE into RINEX and submit it to the NGS OPUS website to get a coordinate solution for the occupied point.

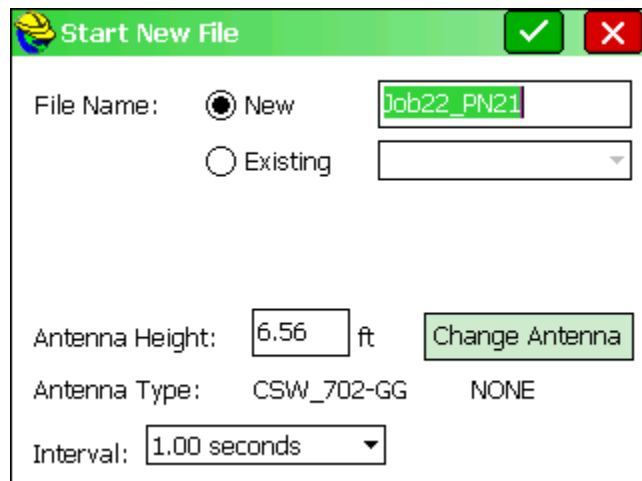
Step #1) Create the Raw Static file in your data collector

To create the Raw Static data you would run SurvCE 2.52 or higher on a Surveyor+ which has an attached Carlson GPS pack on the back.

- a. To begin recording you would plumb up your GPS Antenna over a control point you want to solve and go into Survey / Log Raw and tap the “Start/Resume File” button.



- b. Fill out the File Name and set your GPS antenna height and Interval. It is recommended to name this file with the Point name of the control point you are occupying like JOB22_PN21 for a jobname of Job22 and a Point # 21. Tap the Green Check to begin recording the Raw Static file.



*****Please Note: Its CRITICAL that you do not interrupt this recording process.**

You need to leave the data collector powered on and leave the GPS antenna plumbed up over the control point. Do not Exit SurvCE or change Jobs or use any Equip tab routines such as GPS Rover or GPS utilities until after you have completed your recording and closed the file using the step below.

- c. At the end of your Static Recording session make sure you go into Survey / Log Raw and **tap the “Close File” button** to safely close out your Static Log file.

For performing Rapid Static the NGS OPUS website requires files greater then 15 minutes but less then 2 hours. If you want to do process it as a Static solution you will need an occupation time greater then 2 horus and less then 48 hours.

Step #2) Convert your raw *.LOG file to a Rinex format

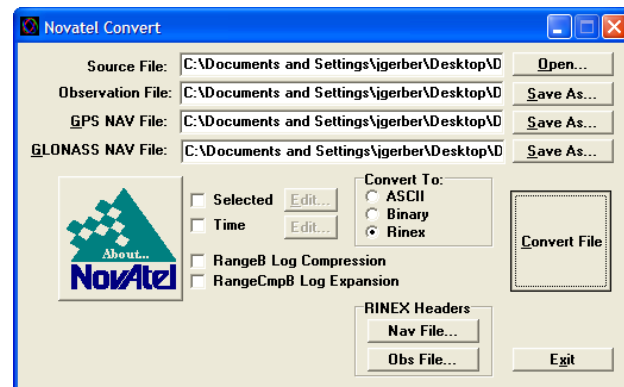
After you've completed your Raw Static recording in the data collector you will need to copy the *.LOG file that we created in step #1 to your computer {i.e. – Job22_PN21.log}. You can connect to your computer with a USB cable or use a USB Flash Memory stick to transfer the file from the Surveyor into your laptop or desktop computer.

a. Click the link below to download and install the Novatel Utilities. You can Uncheck everything except the “Convert” option during the install:

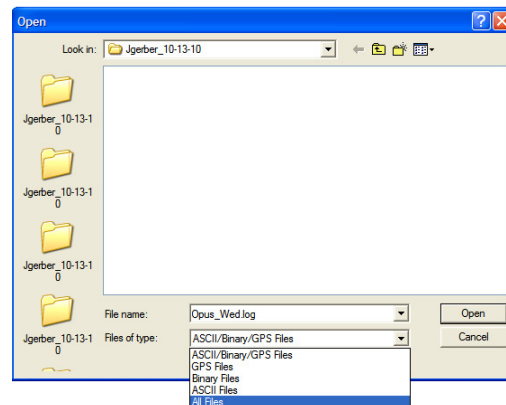
http://www.novatel.com/assets/Documents/Downloads/CDU_Inst_3.9.0.7.exe

b. After installing the Novatel “Convert4” program into your computer you can double-click the new “Convert4” icon on your desktop to run the free Novatel Conversion utility.

c. Click the “Open” button in the upper right to set the Source File.



d. Click the “Files of Type:” pull down at the bottom of this window and change it from “ASCII / Binary / GPS Files” to “All Files” then browse to the *.LOG file you copied to your Computer in Step # 1c



e. Click to highlight your *.LOG file then click Open in the bottom right to return you to the Novatel Convert screen.

f. Under the “Convert to:” box change it from Ascii to Rinex by clicking to the left of “Rinex” so it displays a black dot next to Rinex.

g. Click the big “Convert File” button to the right

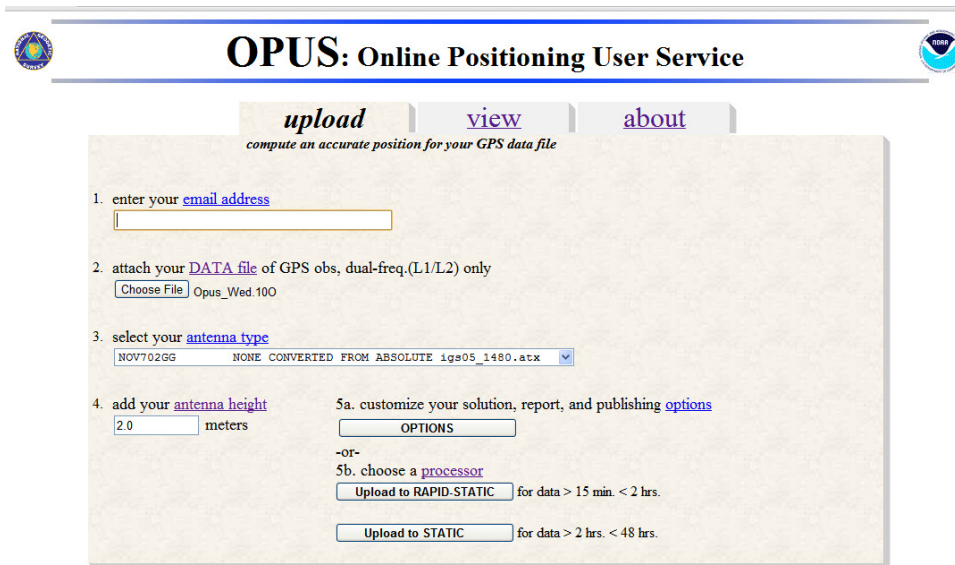
h. After the status bar goes across click OK to complete the process.



Step #3) Submit your Rinex file to the OPUS website for processing

a. Click the link below to go to the OPUS website:

<http://www.ngs.noaa.gov/OPUS/>

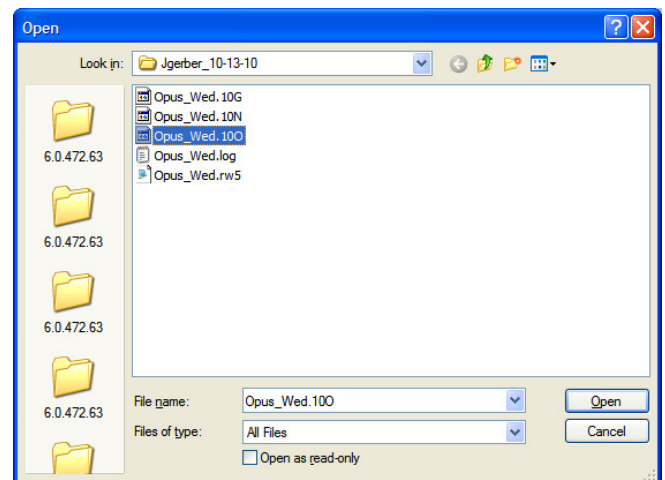


b. Fill out your email address

c. Click the “Choose File” button to set your Data File and browse to the folder where your *.LOG was originally copied to in Step # 1c.

d. Click on the *.100 Rinex File we created in Step # 2 to select it then click Open in the bottom right

e. Set your Antenna Type to the “Nov702GG” if you are using the GPS Antenna that came with your Surveyor+ GPS pack and fill out your **Antenna Height** in meters



g. Click the appropriate button for “**Upload to Rapid-Static**” or “**Upload to Static**” based on the length of time you occupied the point during your Raw Static session in Step #1

After your file is uploaded a summary page is displayed. You should receive an email containing an NGS OPUS Solution Report similar to the Sample on the next page.

Carlson Software does not operate the OPUS webpage or offer Technical Support for OPUS.

If you have questions on how OPUS works or if you need further support please click the link below:
<http://www.ngs.noaa.gov/OPUS/about.html>



FILE: Opus_Wed.100 000097722

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: <http://www.ngs.noaa.gov/OPUS/about.html#accuracy>

USER: test@email.com DATE: October 13, 2010
RINEX FILE: opus286m.10o TIME: 16:16:41 UTC

SOFTWARE: page5 1009.28 master2.pl 1009103 START: 2010/10/13 12:13:00
EPHEMERIS: igu16053.eph [ultra-rapid] STOP: 2010/10/13 14:49:00
NAV FILE: brdc2860.10n OBS USED: 6212 / 6363 : 98%
ANT NAME: NOV702GG NONE # FIXED AMB: 32 / 34 : 94%
ARP HEIGHT: 2.0 OVERALL RMS: 0.021(m)

REF FRAME: NAD_83(CORS96)(EPOCH:2002.0000) ITRF00 (EPOCH:2010.7824)

X:	1523842.487(m)	0.013(m)	1523841.715(m)	0.013(m)
Y:	-4467271.759(m)	0.047(m)	-4467270.327(m)	0.047(m)
Z:	4275361.982(m)	0.082(m)	4275361.918(m)	0.082(m)

LAT:	42 21 41.77002	0.041(m)	42 21 41.80352	0.041(m)
E LON:	288 50 6.55176	0.022(m)	288 50 6.54003	0.022(m)
W LON:	71 9 53.44824	0.022(m)	71 9 53.45997	0.022(m)
EL HGT:	-8.551(m)	0.078(m)	-9.780(m)	0.078(m)
ORTHO HGT:	19.293(m)	0.133(m)	[NAVD88 (Computed using GEOID09)]	

	UTM COORDINATES	STATE PLANE COORDINATES
	UTM (Zone 19)	SPC (2001 MA M)
Northing (Y) [meters]	4692195.724	901287.848
Easting (X) [meters]	321727.188	227609.000
Convergence [degrees]	-1.45907291	0.22513206
Point Scale	0.99999104	0.99996849
Combined Factor	0.99999239	0.99996983

US NATIONAL GRID DESIGNATOR: 19TCG2172792195(NAD 83)

BASE STATIONS USED				
PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
AF9520	WES2 WESTFORD CORS ARP	N423647.975	W0712935.968	38874.4
DI0964	FMTS MTS FRAM COOP CORS ARP	N421800.171	W0712630.865	23837.2
DI0966	XMTS MTS FOX COOP CORS ARP	N420350.018	W0711501.669	33816.2

NEAREST NGS PUBLISHED CONTROL POINT				
PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
MY3329	WATERTOWN ARSENAL LARGE STACK	N422142.205	W0710956.005	60.0