

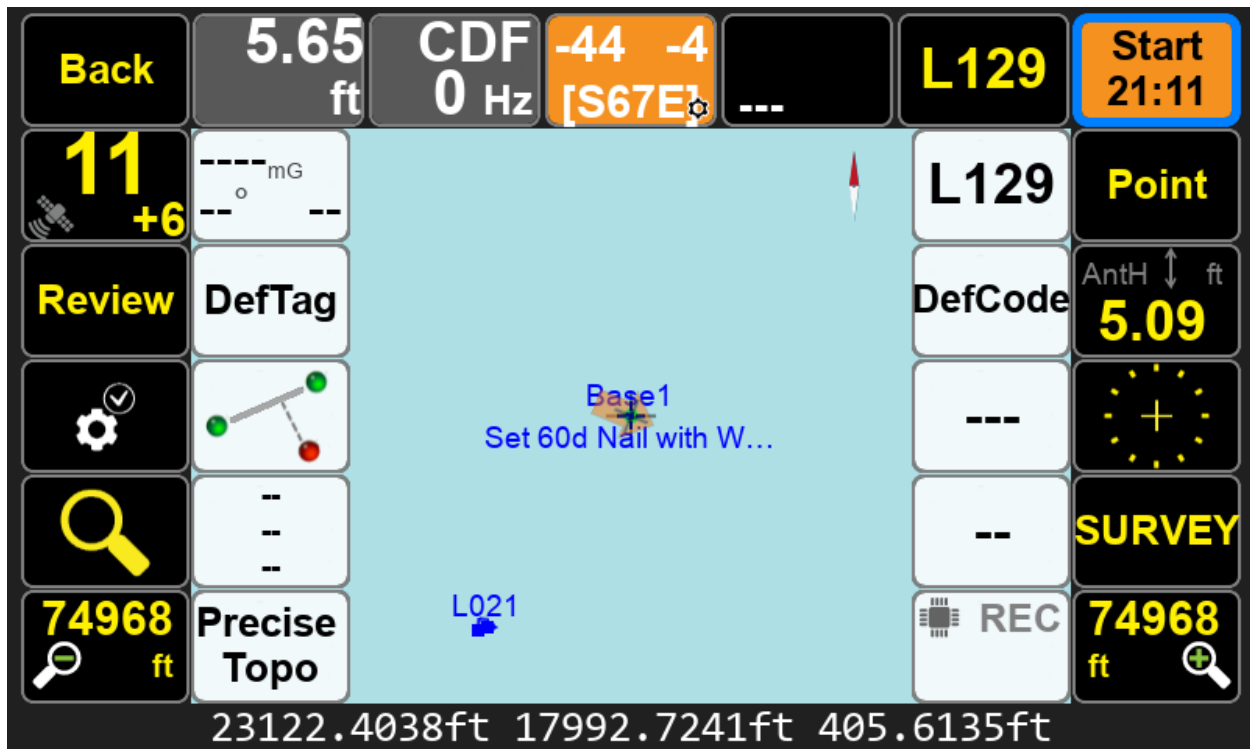
RTPK

What is it? RTPK is a new application in J-Field. While the RTK engines are working to provide you with a real time solution, the Triumph-LS stores raw data and also stores the corrections being received from your base, which are then made into a raw data file. When the RTPK option is turned on, at the Accept/Reject prompt in Collect and in Stake Out, **RTPK begins processing the vector from the base to the rover from the raw data**, just as DPOS does with its PPK solution, but entirely onboard the LS/LS Plus with no need for an internet connection. Once the RTPK solution is acquired, a note appears indicating if the solution is fixed or float and shows the solution on the horizontal and vertical scatter plots so the user can immediately see if the RTK solution agrees with the post-processed solution. This is done within a matter of seconds. While the solution is being computed, the user can take pictures and type in information for the description, etc. If you don't care about the RTPK solution, you can simply click on Accept or Reject to store or cancel the point without the RTPK solution. This application will work on the Triumph-LS Plus and the standard Triumph-LS. Personally I've only used it with multi-constellation (GPS + Glonass + Galileo + Beidou), but I've heard from reliable sources that it is proving helpful to those still using GPS + Glonass only. It works with a Javad base as well as corrections from other brands and even with RTN corrections. What I'm finding with multi-constellation data and the Triumph-LS Plus is that even in moderate canopy, I can usually get a handful of RTK fixes from phase 1 of verification, then allow the receiver to log 2-3 minutes of raw data, manually stop the observation, at which point RTPK begins processing. Once the processing is complete, I can compare the results of the RTPK and RTK fixes. Usually the two agree, at which point I store and move on. If not, I press the resume button and log more RTK and raw data for RTPK. I'll collect another minute or two and repeat, usually allowing me to see agreement between RTK and RTPK. As you might imagine this provides a substantial increase in productivity in difficult environments over waiting for 20-30 minutes (or more) to verify the fix through validation.

What is the cost? Ultimately RTPK will be a chargeable upgrade. The cost will be **\$1000**. It is a software upgrade and will not require you to send in your Triumph-LS to activate it. Javad GNSS has said the application will be made available for free through the month of August. I highly recommend that you give this application a try to see if it might be something that could benefit you in your business.










How is it activated?


From the Action Screen, select the Compass Button (top center) which is a shortcut to the settings for the current Action Profile



From the Action Setup screen, select Options

Action Setup (Precise Topo)

Start with Start Button 	Stop After 10 epochs 
Only RTK Fixed 	Verify [2] with engines reset
 Options	 What To Record
 Level Offset	 Survey Tones
Activate DPOS option after Never	 Recall
Show Inner Buttons 	Reset Buttons To Default

Esc OK 






Under Options, check the box for “Enable Post-Processing on the device”

Options


Revert Code to ShapeTag default	<input type="checkbox"/>	Remember Last Attribute Value	<input checked="" type="checkbox"/>
Correct for Tilts	<input type="checkbox"/>	Flashlight Blink	<input type="checkbox"/>
Show '(prime) instead of "ft" in whiteboxes	<input checked="" type="checkbox"/>	Stop if Reference Station changed	<input type="checkbox"/>
Enable Post-Processing on the device	<input checked="" type="checkbox"/>		

Esc **OK** ⁺

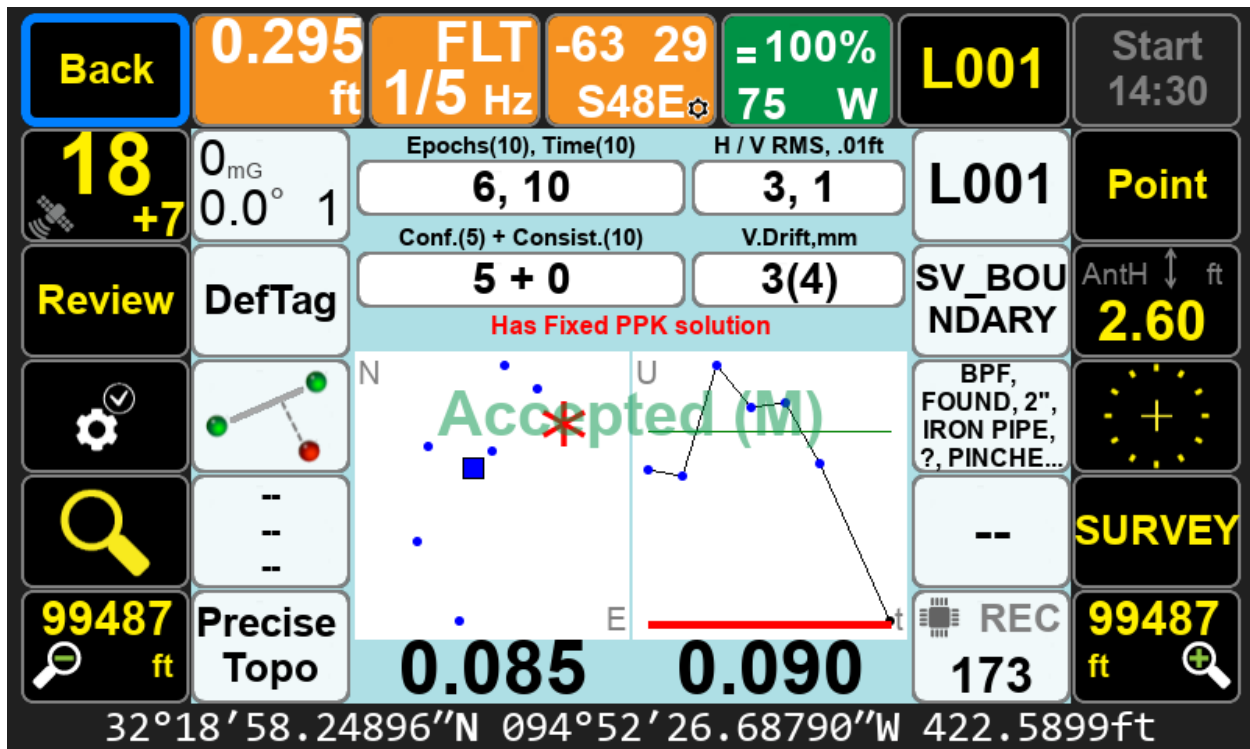
Also in the Action Setup screen, select the “What To Record” button and make sure that RAW GNSS Data is checked on.

	On/Off	Settings	Record in	Share
RAW GNSS Data	<input checked="" type="checkbox"/>	1 Hz	 Internal Memory	
Front Camera	<input type="checkbox"/>	S[A]	 Internal Memory	
Bottom Camera	<input type="checkbox"/>	S[A]	 Internal Memory	
Voice	<input type="checkbox"/>	3 Sec E	 Internal Memory	
Screenshots	<input checked="" type="checkbox"/>	A2	 Internal Memory	No

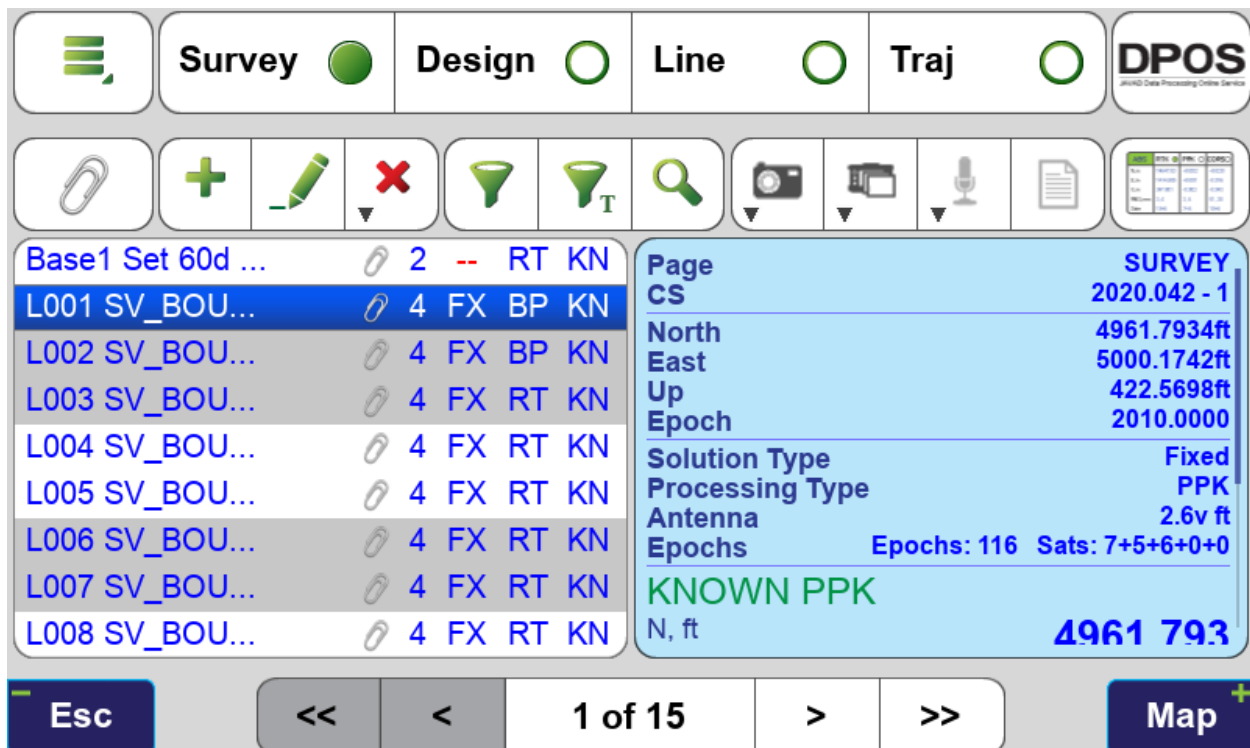
Record RTN Base Point ☐

Esc
OK 

As described above, once the RTK observation is completed or is manually stopped, the RTPK application processes the data. In a few seconds, you will see a note above the scatter plot boxes that indicates if the application was able to find a solution and if the solution was fixed or float. Also the PPK solution will show on the screen along with the RTK solution. Currently Accept will always select the RTK position, but the RTPK solution can be selected in the points screen.



In the points screen, select the Processed Point Information Screen button (looks like a chart) located just below the DPOS button



In the Processed Point Information Screen you can select the PPK solution derived from RTPK to supersede the RTK coordinates.

L001, SV_BOUNDARY		Base1 4.21mi	L002 38.2ft
KNOWN	RTK Fixed	PPK Fixed	
N, ft	+0.023	4961.793	
E, ft	-0.014	5000.174	
U, ft	+0.020	422.569	
HRMS, ft	0.03272	0.03882	
VRMS, ft	0.01447	0.03970	
Epochs / s	6 / 10	116 / 171	
Sats	0+0+6+6	7+5+6+0	
Stat	5 / 0		
Back			

Eventually this process will be made more smooth, allowing users to select between RTK and RTPK at the accept/reject prompt. Despite all of the future enhancements we have in mind for this utility, it is already extremely robust. As you can see from the collect action screen capture above, I had a handful of RTK fixes that agreed with the RTPK solution at only 173 seconds of observation time. I stored the point with confidence. Even though this point was in moderate canopy with a wall of mature pine trees 40 feet to the South and numerous mixed trees overhead, the coordinates checked extremely well with the record measurements from a precise modern survey I was following.

If you use RTPK, I would recommend that in DPOS, you turn off “Process All raw GNSS Points” (accessible by pressing the gear button at the top center of the DPOS screen) since this will have already been done in the field and you will have already made your selection between RTK and RTPK solutions.

To have access to RTPK, you will need to update your Triumph-LS software to the latest Pre-Release version. From the Software Update screen, select the gear button on the top of the screen and select “PreRelease”. The current Pre-Release version of J-Field is 3.0.8.403. This version will have some changes to the internal database, so any projects opened or created in this version will not be reverse-

compatible with the current release version of the software. So once you go to Pre-Release, you won't be able to go back down to Release and still work on the same project you used in Pre-Release. You can go back to Release if you like, but you will not be able to open any projects from the current Pre-Release in the current Release. I usually would not recommend for customers to use Pre-Release, but I've been using it for weeks and it has been very stable. Once Release catches up to Pre-Release and both are using the same database, you'll be able to switch back to Release without penalty.