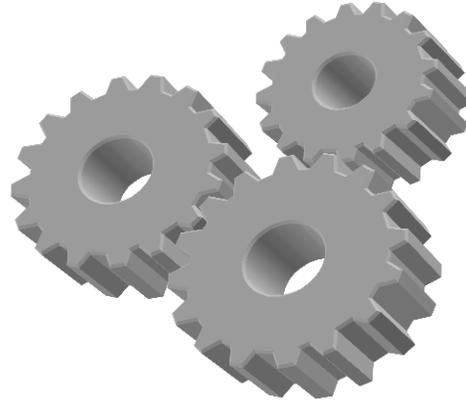


**OREGON
DEPARTMENT
OF
TRANSPORTATION**



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DT391 Tablet Introduction

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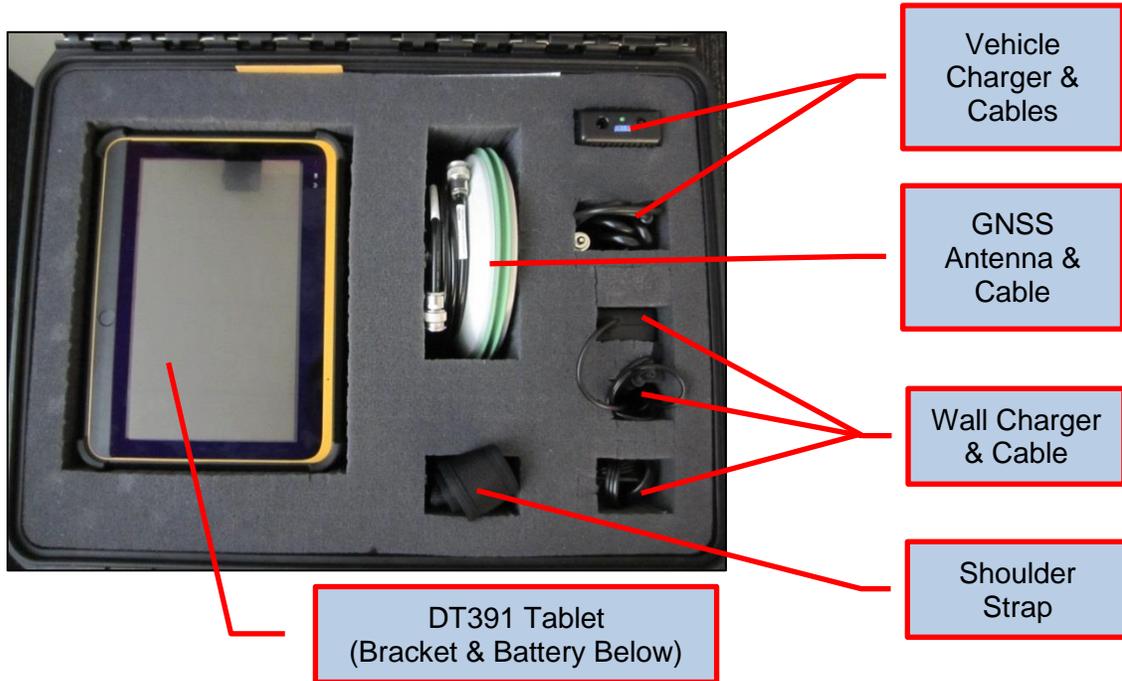
*Geoff Paull, LSI
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Title	DT391 Introduction
	DT Research
Model	DT391-P303
Date	August 17, 2015
Author	Geoff Paull
Overview This document will give a general overview of the Tablet and components included with the inspector gadgets.	

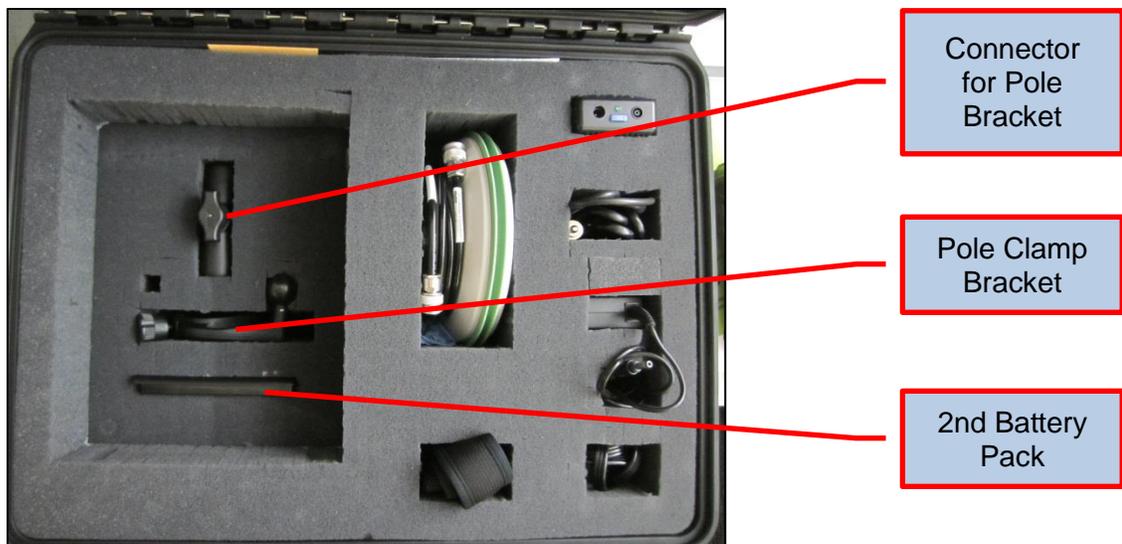
Inspector Gadgets Tool Kit

This section will cover the general contents and description of the Inspector Positioning tools that are being assigned to your crew. It will cover all of the components in the case and a few components that do not fit in the case.

- Base Pelican Case and Basic Equipment Locations.

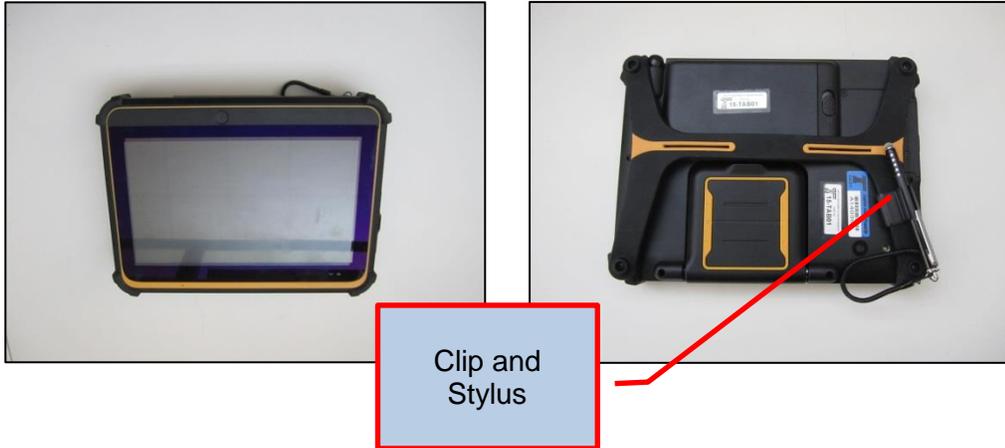


- Inside Case Below DT391.



Equipment Components

- DT391 Tablet front & rear



- Tablet Bracket & Pole Mount



- Leica AS10 GNSS Antenna & Leica GEV141 Antenna Cable



- Vehicle Charger & 2 Cables



- Standard Wall Charger & 1 Cable



- Shoulder Strap for DT391



- 2-Bay External Battery Charger With Standard Power Supply



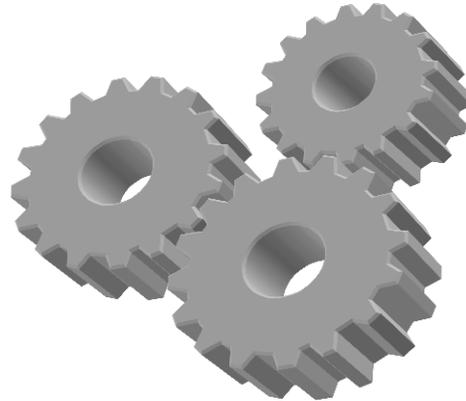
- 2 meter Fixed Height Rod



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FieldGenius Create a New Project

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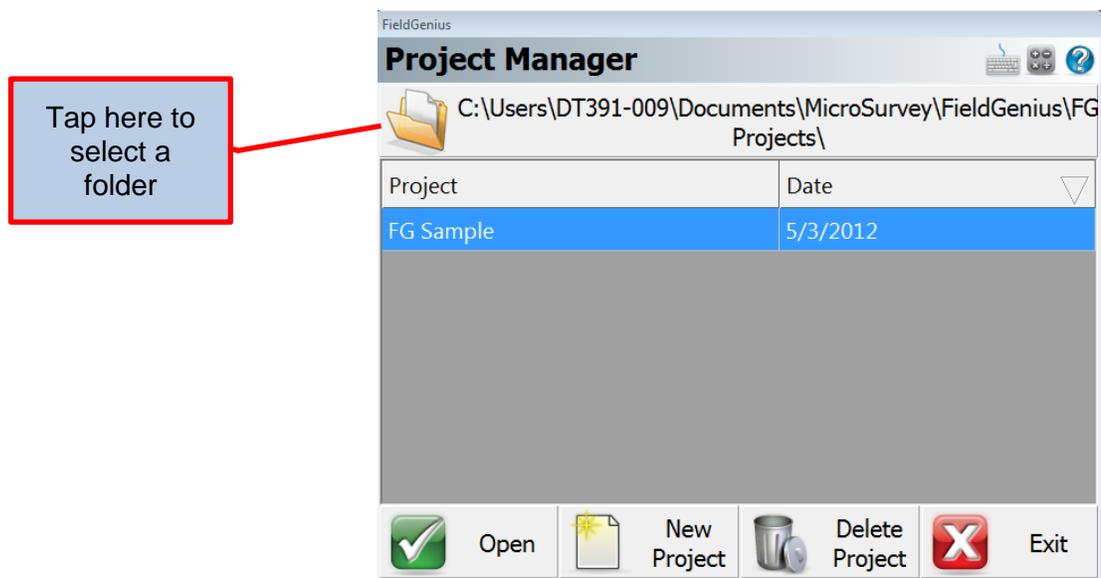
Title	Field Genius Create a New Project
Version	8.0
Date	September 1, 2015
Author	Chris Pucci
Overview This document will cover creating a new project and basic setup of FieldGenius 8.0.	

Creating a New Project and Project Settings

- From the Windows desktop, tap on the FieldGenius 8 icon. FieldGenius 8 will open and an option of Full Screen, Landscape or Portrait will be available.
- For the initial setup choose “Full Screen” and uncheck the “Use Windows File Explorer” as shown.

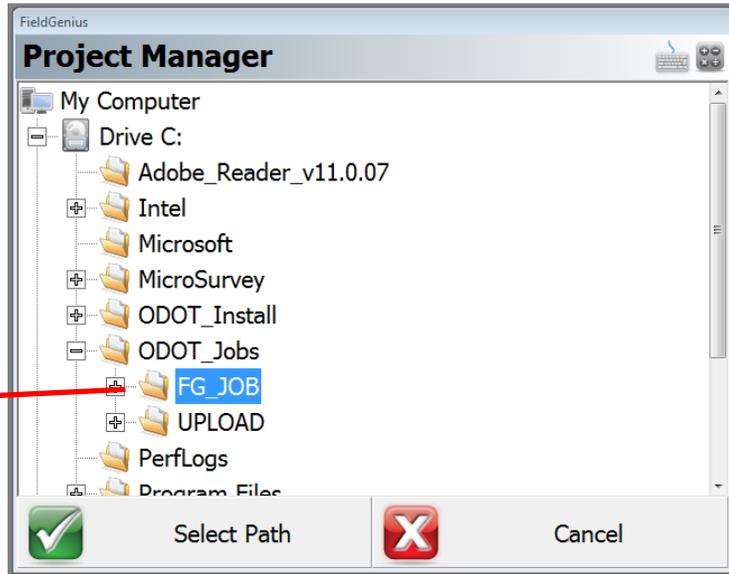


- The Project Manager dialog box will open. Choose where the new project will be saved by tapping on the file folder at the top and selecting a path. Opening a project is done by navigating back to this same path.

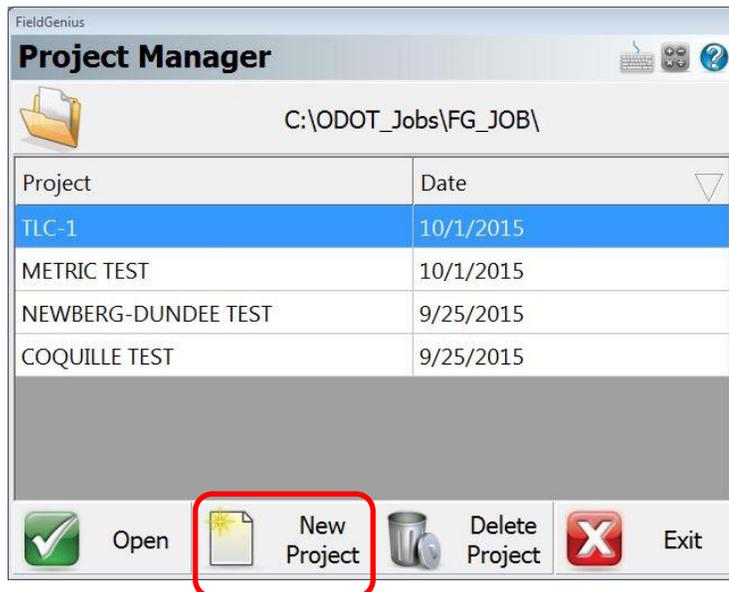


- Highlight the FG_JOB folder from within the ODOT_Jobs folder located on Drive C. Then tap Select Path.

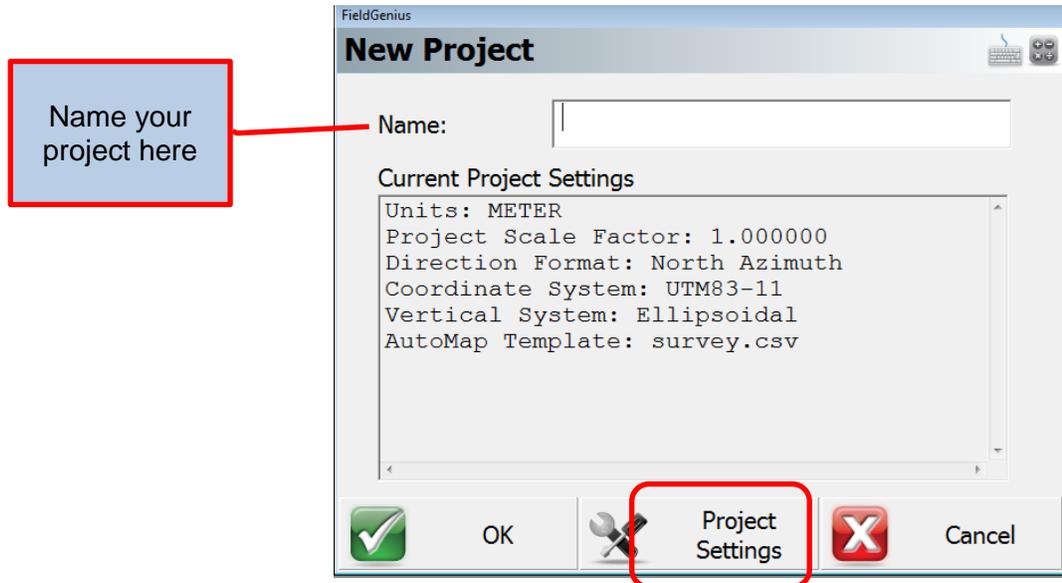
Select this folder for all jobs



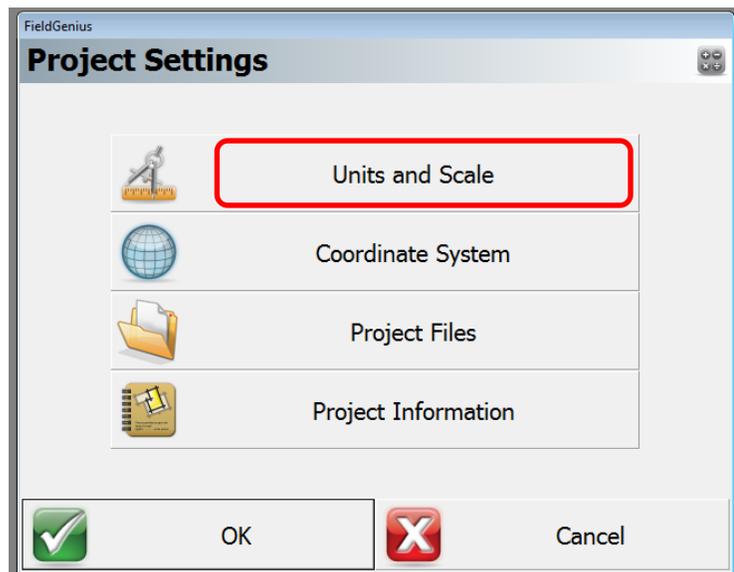
- With the correct path selected, tap the New Project icon to create a new job.



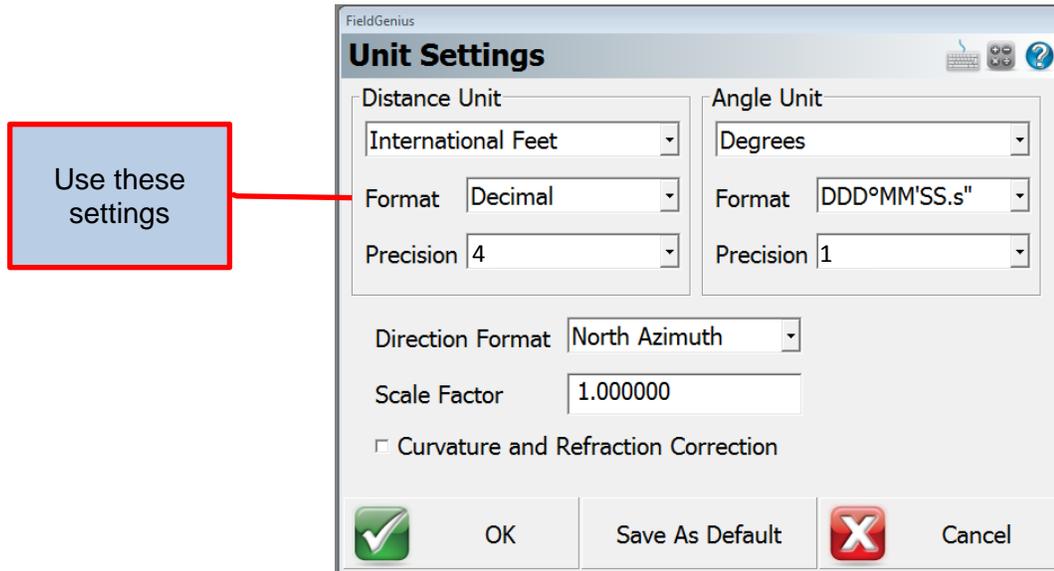
- The New Project dialog box will open. Name your project by double tapping in the white space next to Name. After you have typed in a name tap Project Settings.



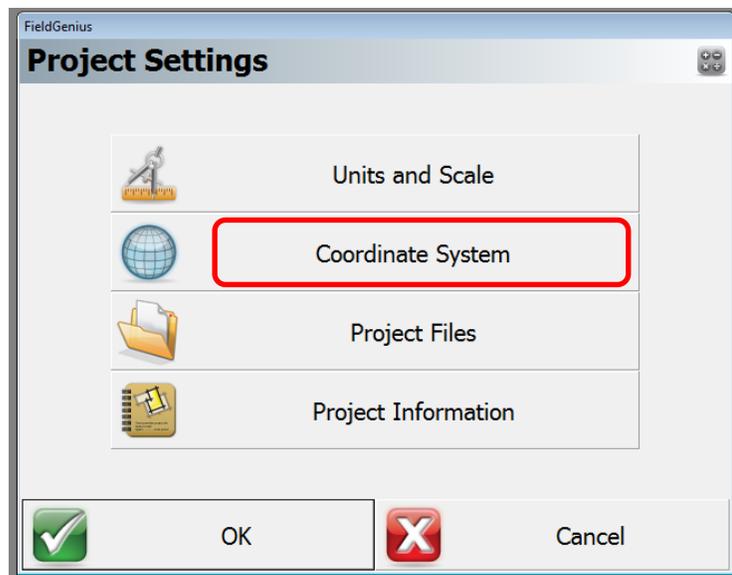
- The Project Settings menu will appear. Tap Units and Scale to continue.



- The Unit Settings menu will open. Use the pull down tabs and choose the settings as shown below. Then tap Save As Default. Then tap OK to continue.

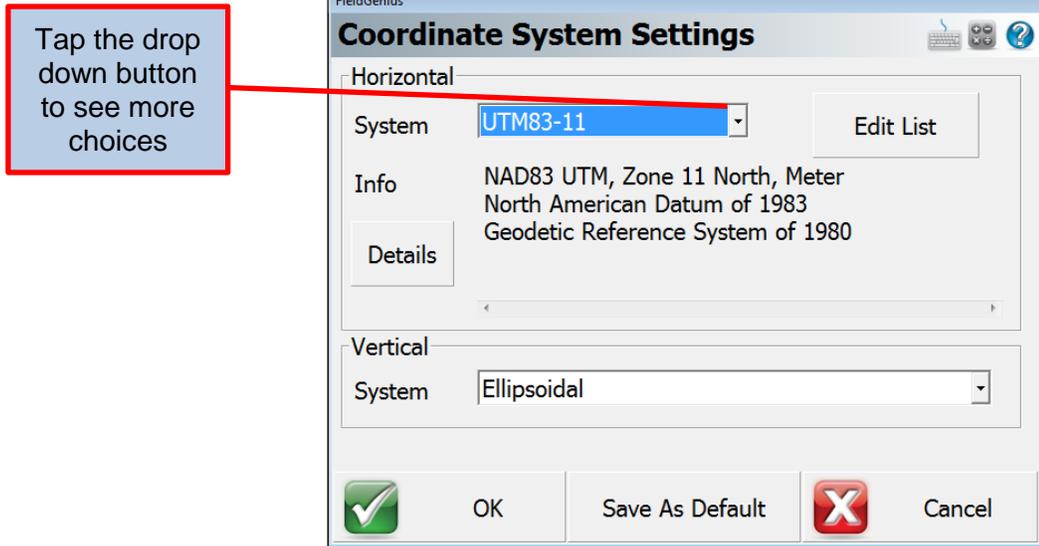


- The Project Settings will come up again. Now, tap on Coordinate System.

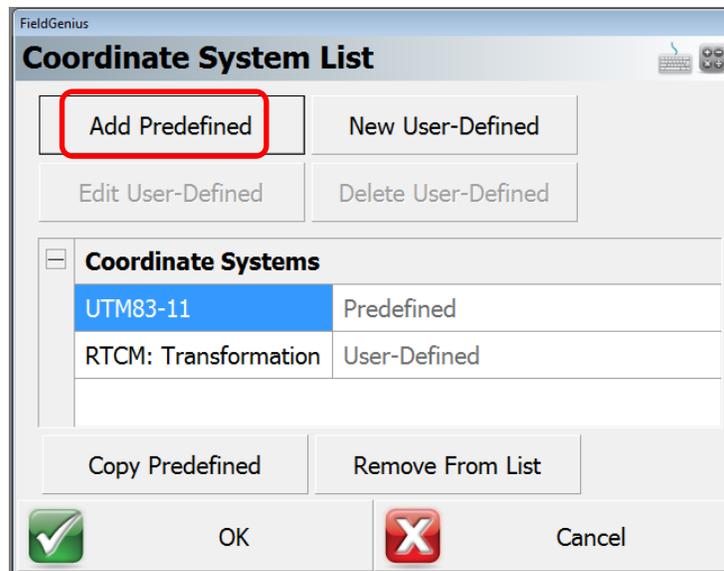


Setting your Horizontal Coordinate System

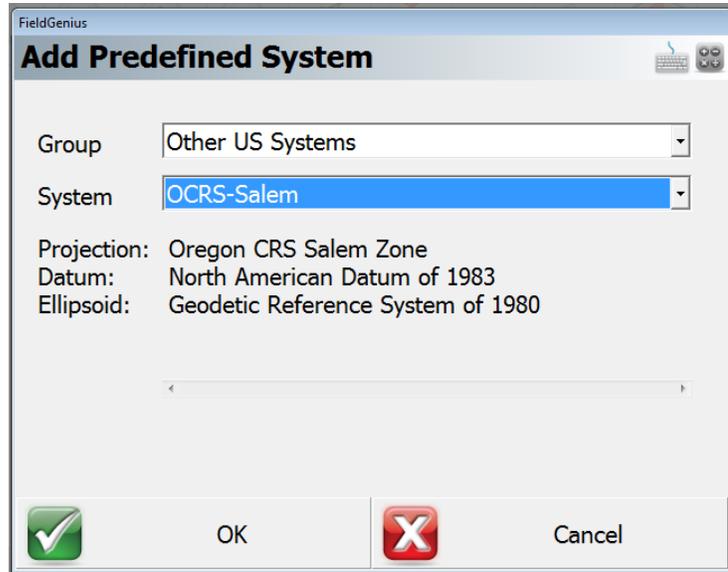
- The Coordinate System Settings dialog box will open. If your Horizontal project system has already been added to the list you can select it from the drop down button and proceed to **Setting your Vertical System** as shown below. If your Horizontal system is not on the list tap Edit List to add your required system.



- If you selected Edit List the Coordinate System List dialog box will open. Tap the Add Predefined button to continue.

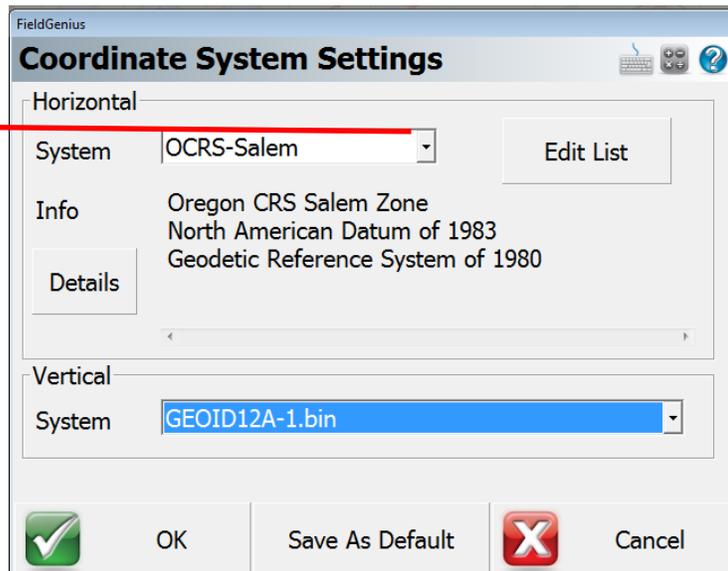


- The Add Predefined menu will open. By Group choose “Other US Systems” and by System choose the OCRS coordinate system for your project. Then tap OK. At the Coordinate System List dialog box the new coordinate system will be shown. Tap OK again.



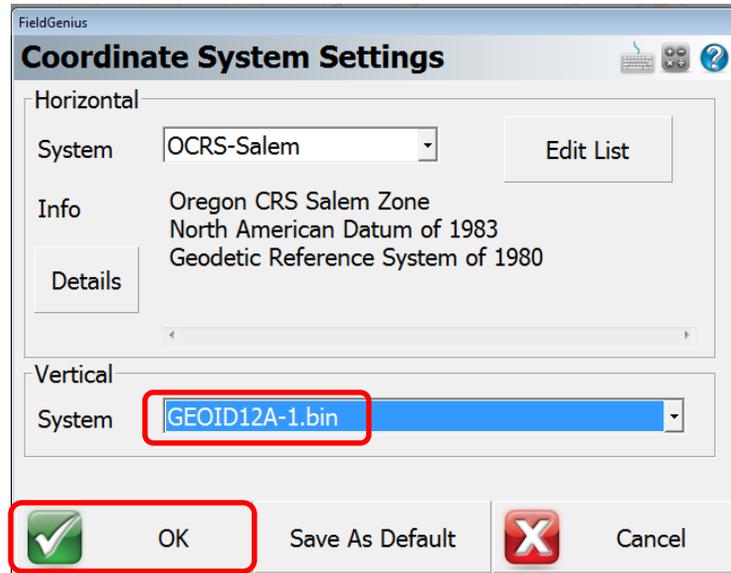
- Back at the Coordinate System Settings menu change the Horizontal System to the chosen OCRS system using the drop down button. With your Horizontal system select proceed to **Setting your Vertical System** below.

Tap the drop down button to select your system

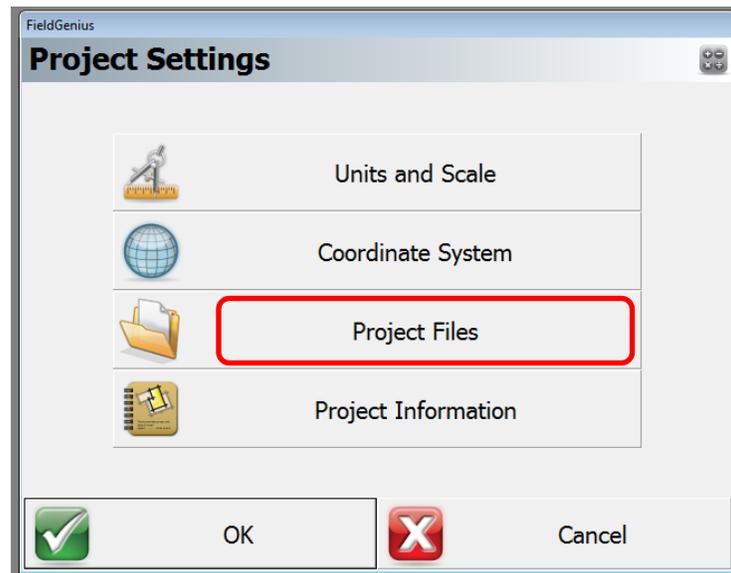


Setting you Vertical System

- On the Coordinate System Settings menu change the Vertical System to “GEOID12A-1.bin”. Tap OK to continue.

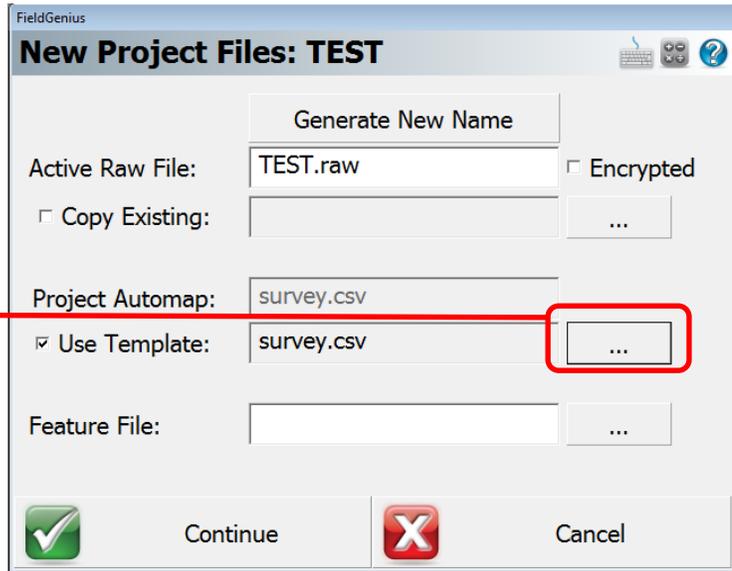


- The Project Settings dialog box will return. Now tap on the Project Files tab.

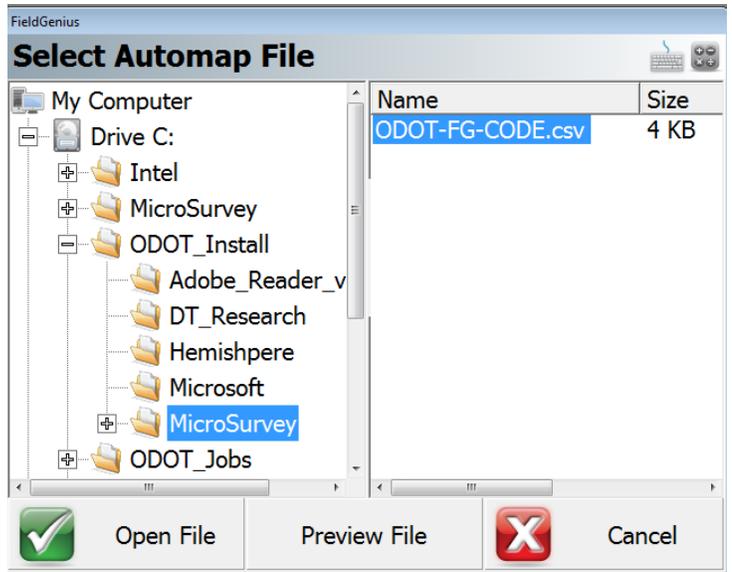


- On the New Project Files menu uncheck the box next to Use Template and import ODOT-FG-CODE.csv by tapping the browse button to the right of the field.

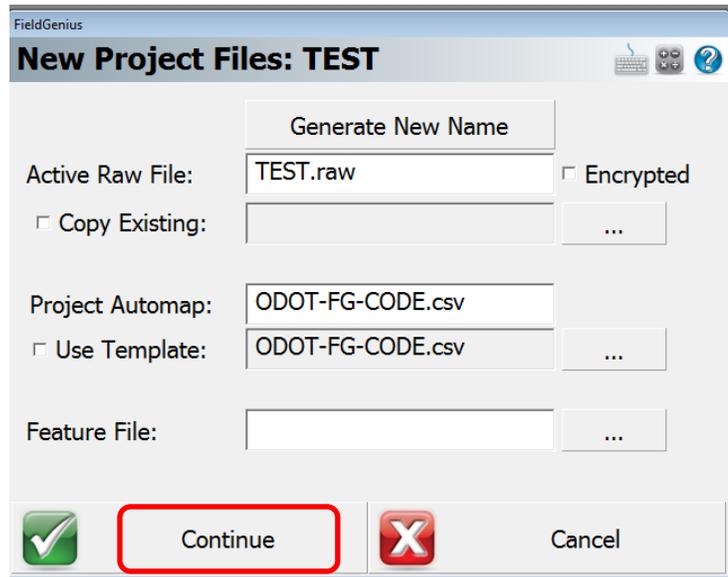
Tap the browse button to select the correct file



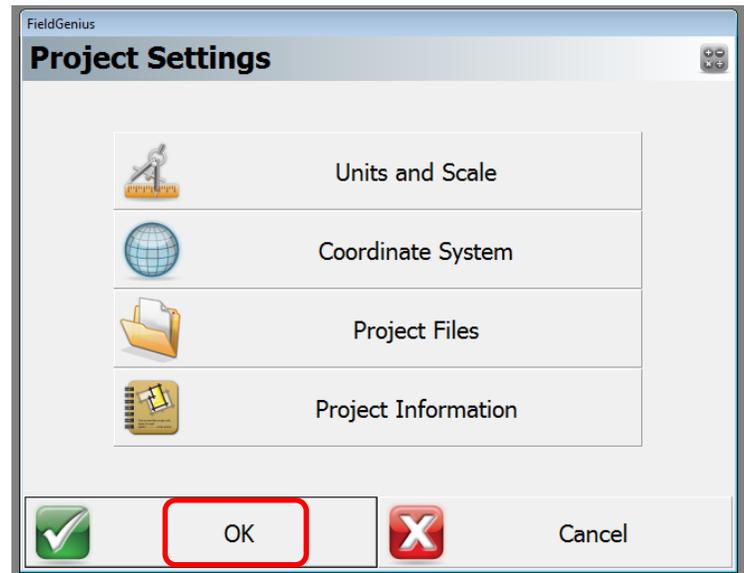
- From the browse menu navigate to “C:\ODOT_Install\MicroSurvey\ODOT-FG-CODE.csv” Tap Open File.



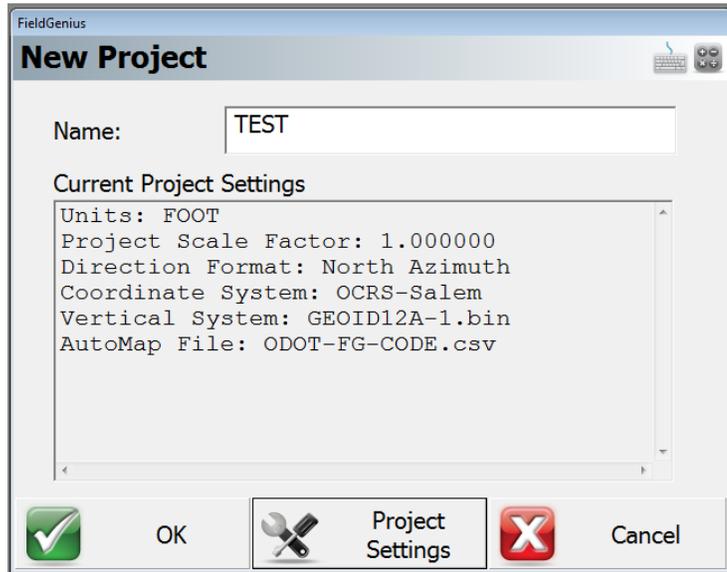
- With the correct ODOT file shown tap Continue.



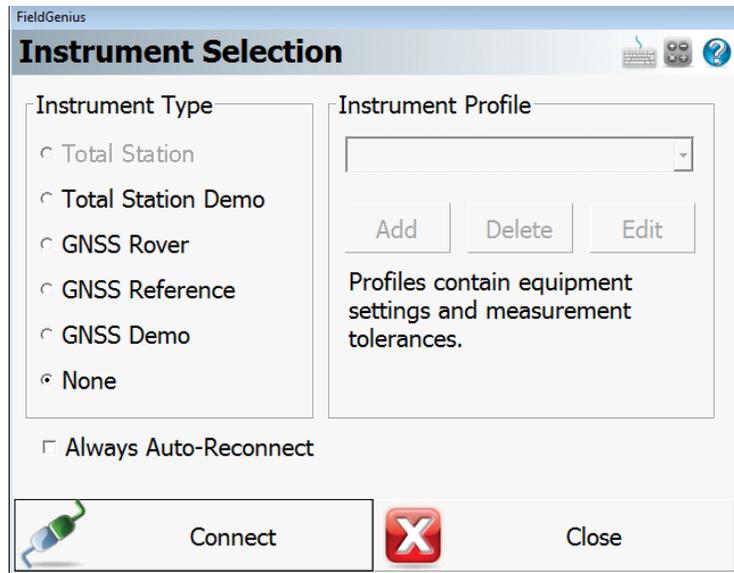
- Tap OK at the Project Settings menu to continue



- The New Project menu will be displayed showing all of the settings you have selected. If they are correct Tap OK, if not go back to Project Settings to correct them.



- The Instrument Selection menu will be displayed. Tap Close to continue with the project setup.



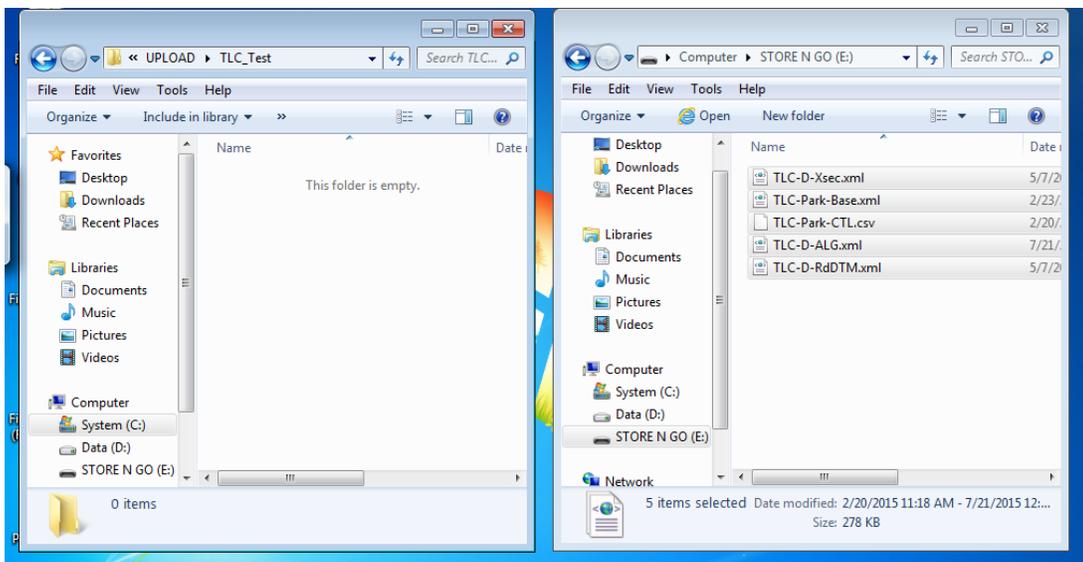
Loading Construction Files

.xml files

- Project files such as .csv and .txt need to be loaded onto the USB drive and uploaded to the tablet.
- Project files such as .dtm and .alg need to be converted to .xml and then loaded onto the USB drive to be uploaded to the tablet. Copy the files to **..\ODOT_Jobs\UPLOAD**
- Insert the USB drive that contains the desired files to be loaded into the tablet.



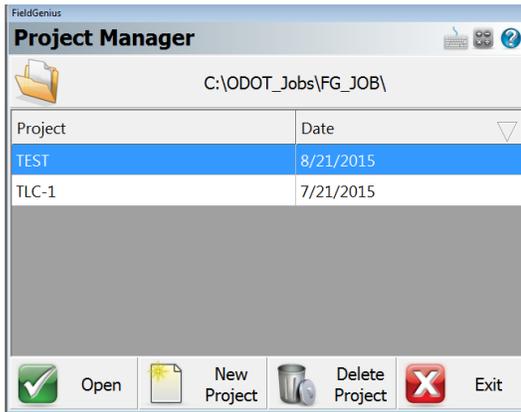
- Tap on the windows icon located on the bottom left of the tablet screen.
- Tap on Computer to open Windows Explorer and navigate to **C:\ODOT_Jobs\UPLOAD**. At this location creating a new folder that is titled the same name as the project it is for is recommended.
- Open another Windows Explorer and navigate to the inserted USB located under Devices with Removable Storage.



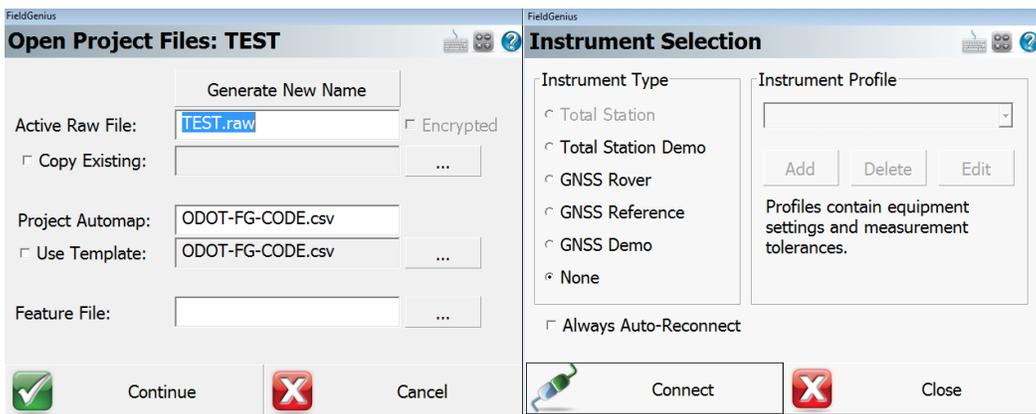
- Either drag and drop the desired files or copy and paste from the USB (pictured right) to the C drive on the tablet (pictured left).



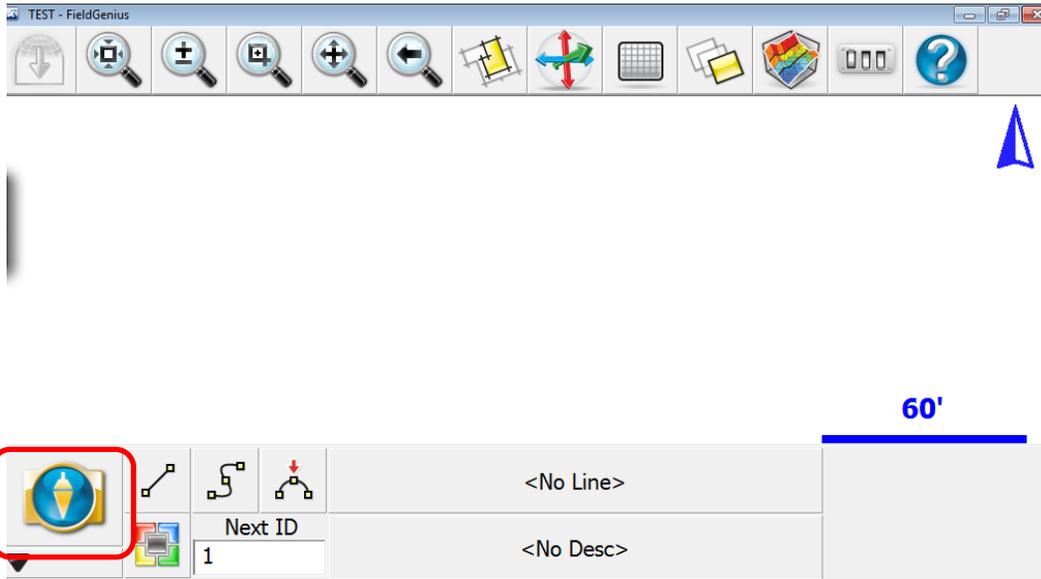
- Open FieldGenius 8 by tapping the icon on the tablet’s desktop.
- After tapping on Full Screen, Project Manager will open. Highlight the desired project and tap Open. Note: If needed, navigating to the desired project can be done by tapping the folder at the top.



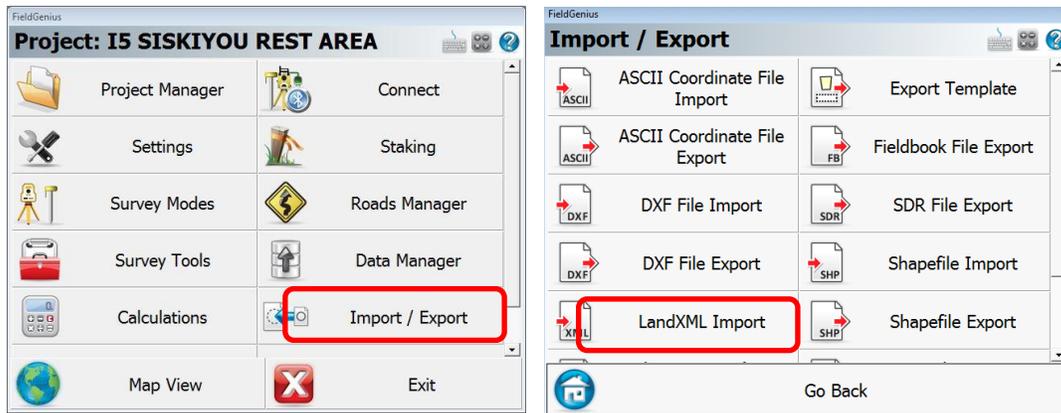
- Tap Continue when the Open Project Files dialog box opens.
- For this tutorial tap Close when the Instrument Selection dialog box opens. Connecting to a GPS receiver will be covered in another section.



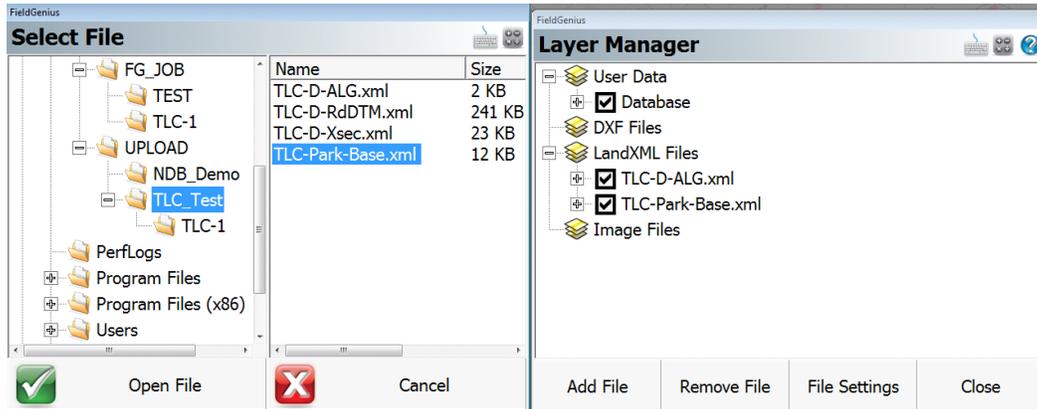
- The main screen of FieldGenius 8 will appear with the project opened in the top left corner. This screen and its icons are covered in depth in another section.
- To load the files from your C drive tap the main menu icon .



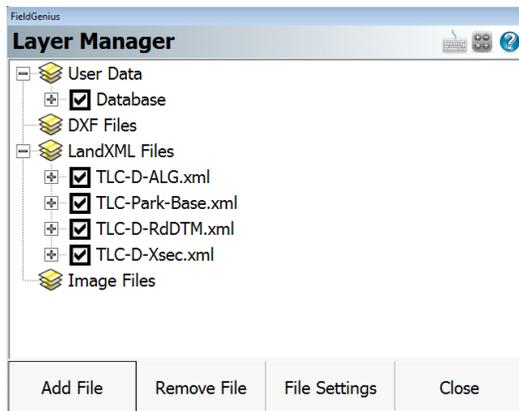
- This dialog box contains numerous applications that will be used often. Tap on Import / Export and then LandXML Import to import the project files.



- Navigate to the location on the C drive where the files were saved from the USB and highlight the file that will be imported.
- In the Layer Manager dialog box the file will be listed under the LandXML Files layer.



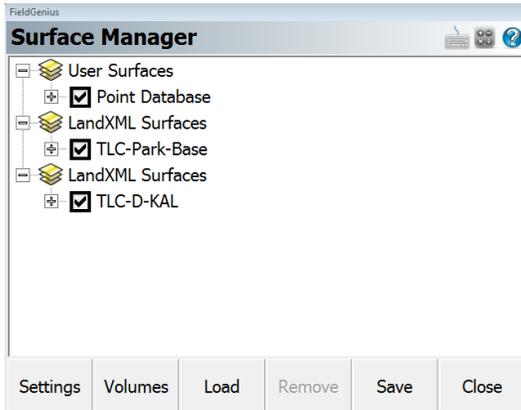
- Tap on Add File and then navigate to your next file and continue to add the files until all of the desired files are listed in the Layer Manager.



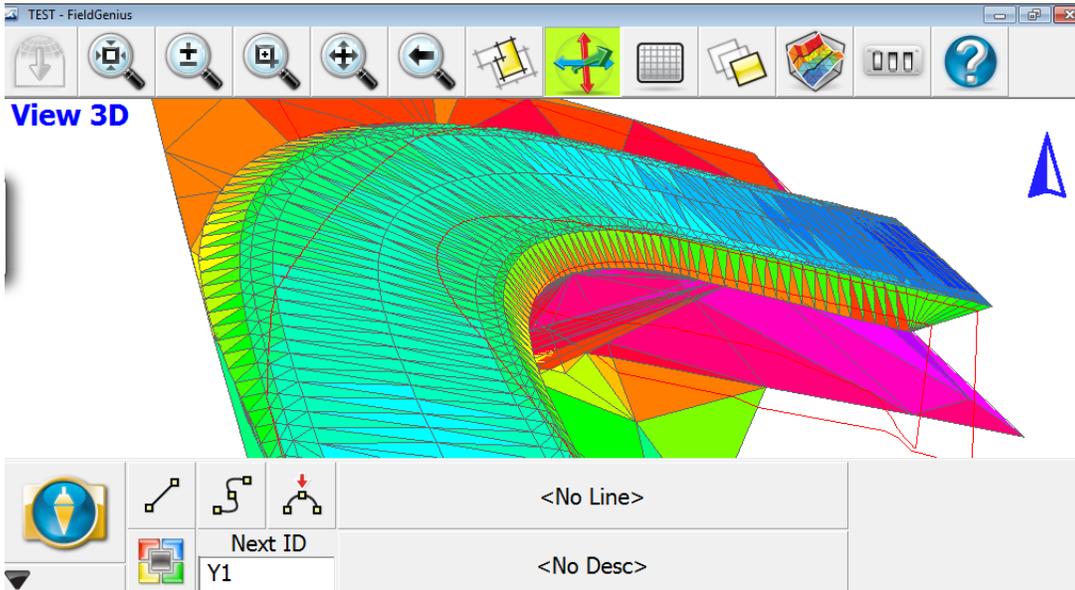
- The Layer Manager can also be opened by tapping on the  icon located on the main screen. Unchecking the boxes will turn that layer off.



- Imported surfaces can be viewed by tapping the  icon on the main screen.
- Check the surfaces that want to be viewed. Unchecking the boxes will turn that surface off.

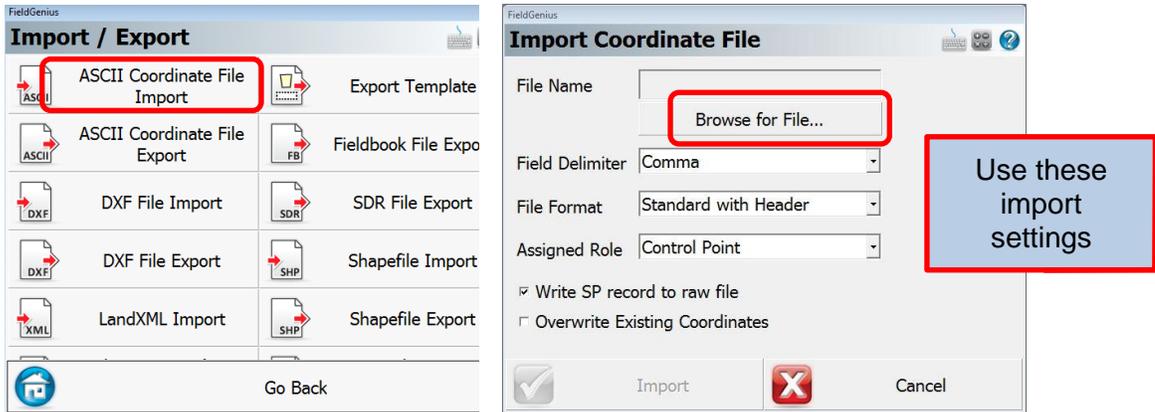


- The surface can now be viewed on the main screen's map.

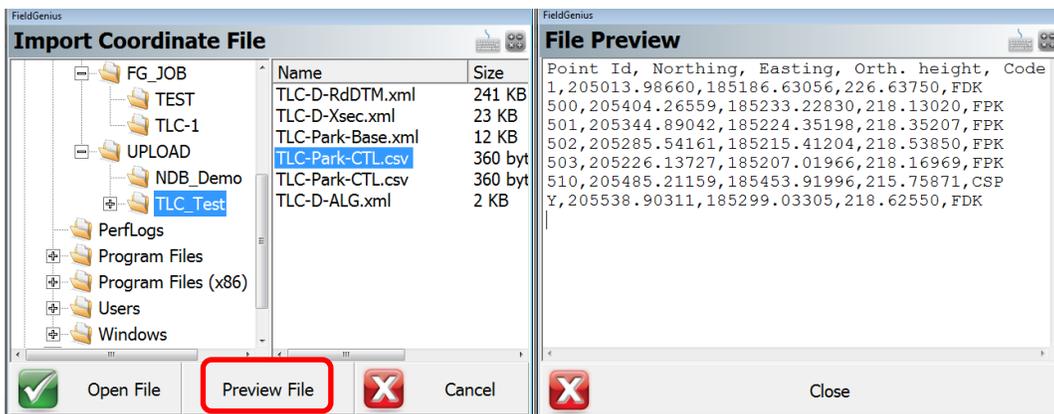


ASCII files

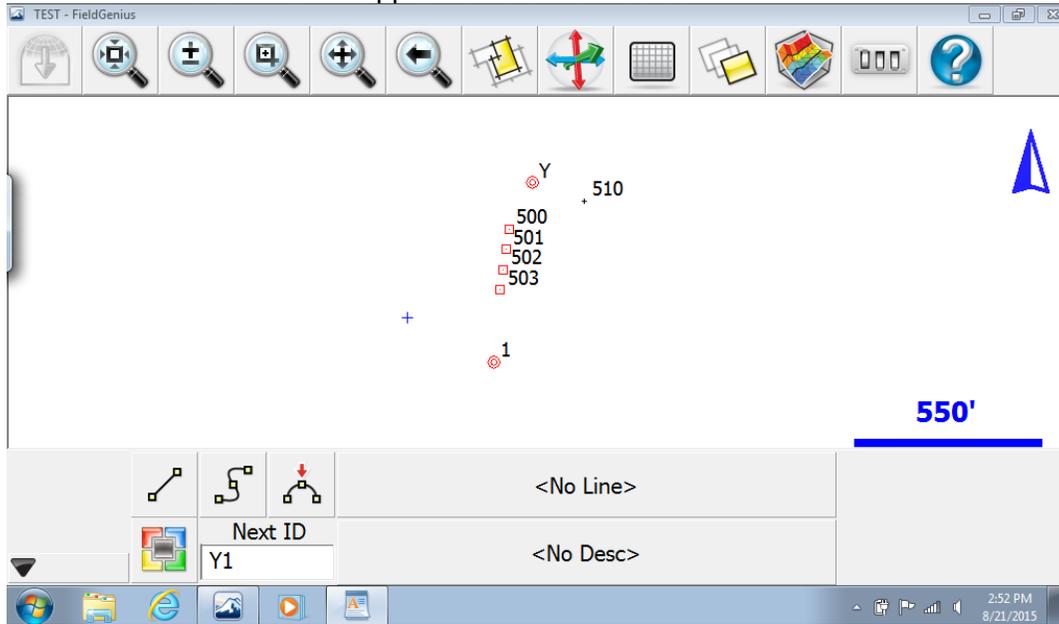
- Loading text files such as control points can be loaded using a similar method. Navigate back to the Import / Export dialog box and tap on ASCII Coordinate File Import.
- Tap on Browse for File in the Import Coordinate File dialog box.



- Navigate to the desired file and tap on Preview File to view and check the delimitation.
- Tap Open File and set the Import Coordinate File fields (above) appropriately.



- Points from the text file will appear on the main screen.



- Coordinates can be checked by tapping the  icon.

Point ID	Northing	Easting	Elevation	Description	Code	Role
1	205013.987'	185186.631'	226.637'	FDK		User Entered
Y	205538.903'	185299.033'	218.625'	FDK		User Entered
500	205404.266'	185233.228'	218.130'	FPK		User Entered
501	205344.890'	185224.352'	218.352'	FPK		User Entered
502	205285.542'	185215.412'	218.539'	FPK		User Entered
503	205226.137'	185207.020'	218.170'	FPK		User Entered
510	205485.212'	185453.920'	215.759'	CSP		User Entered

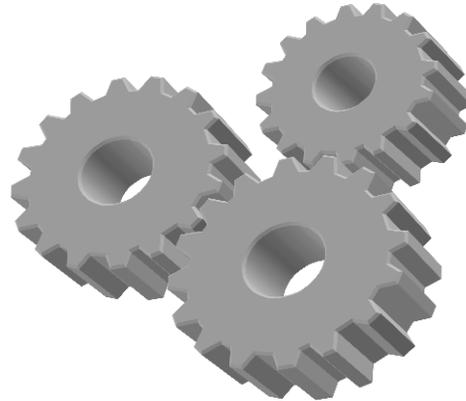
For more info and help see the [FieldGenius Online help videos](#)

- <http://helpdesk.microsurvey.com/index.php?/Knowledgebase/Article/View/149#GPS>

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Inspector Tablet GNSS/ORGN Setup

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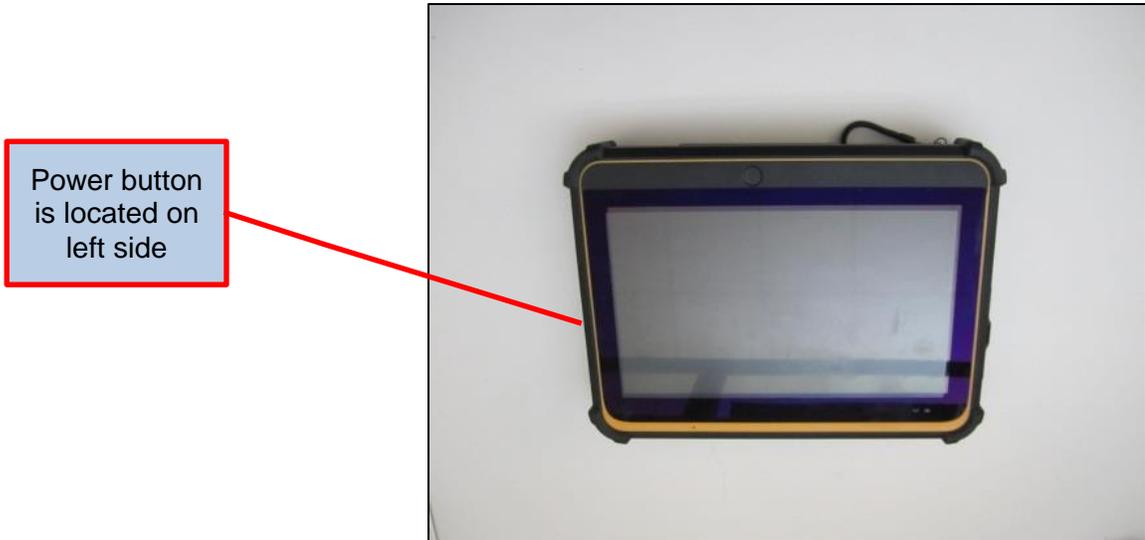
*Chris Pucci, PLS
Const. Automation Surveyor
(503) 986-3542*

*Geoff Paull, LSI
Survey Crew Chief
(503) 986-3024*

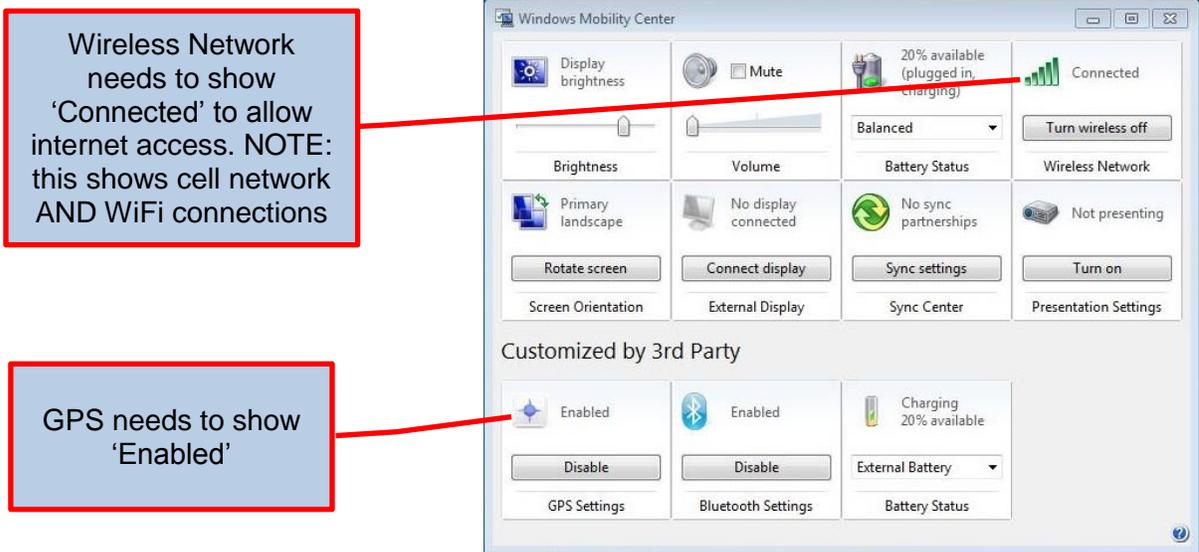
Title	GNSS/ORGN Setup
	FieldGenius 8.1
Model	DT391-P303
Date	November 6, 2015
Author	Chris Pucci
Overview This document will give instructions for setting up the GNSS and connecting the tablet to the ORGN.	

Initial setup

- Turn the unit on and flip up the internal antenna.

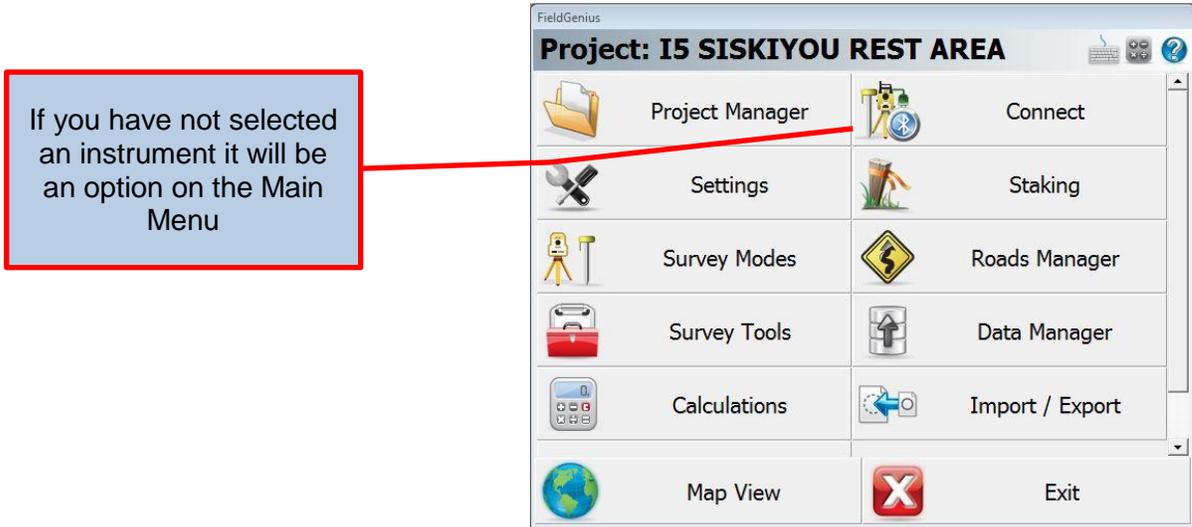


- From the Windows desktop you need to make sure that the internal GNSS unit and internet access is enabled before continuing to FieldGenius. In the Windows Control Panel open the **Windows Mobility Center** to check their status.

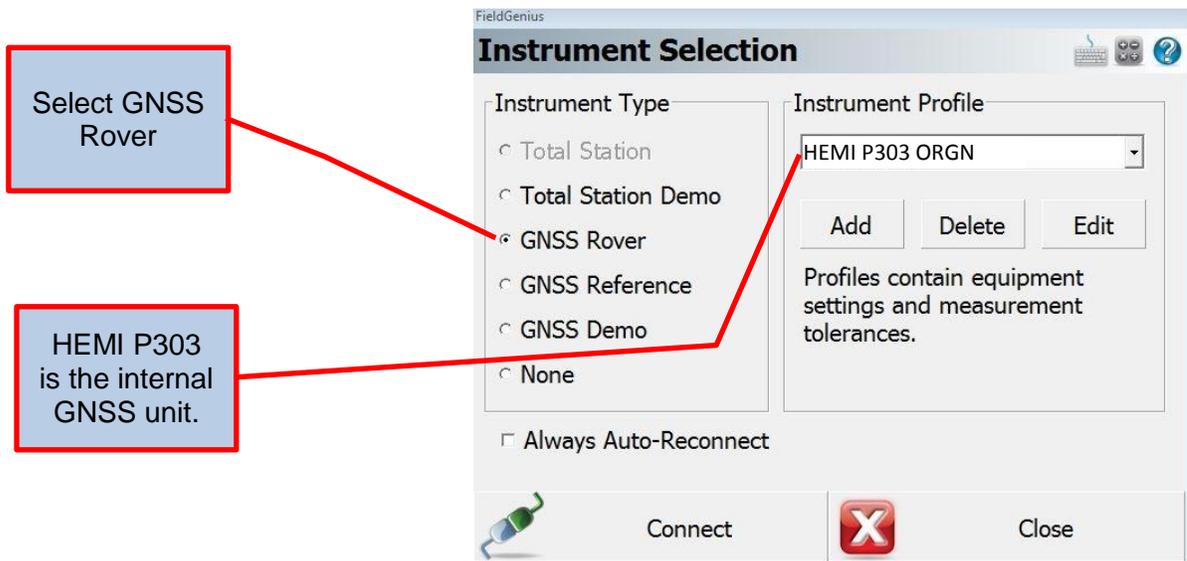


FieldGenius GNSS setup

- From the Windows desktop tap on the FieldGenius 8 icon. FieldGenius will open.
- You can get to the Instrument Selection menu in many ways. Either as a step in setting up a job or if you did not connect to an instrument when setting up the job, Connect will be an option on the Main Menu screen. Tap Connect to select an instrument.



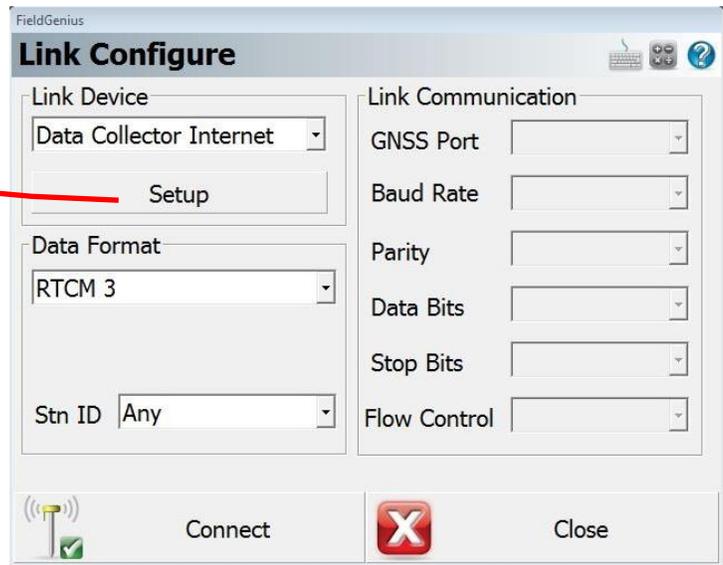
- From the Instrument Selection screen, select “GNSS Rover” and select the HEMI P303 ORGN from the drop down in the Instrument Profile menu. Tap Connect to start the HEMI P303 ORGN Connection.



FieldGenius ORGN setup

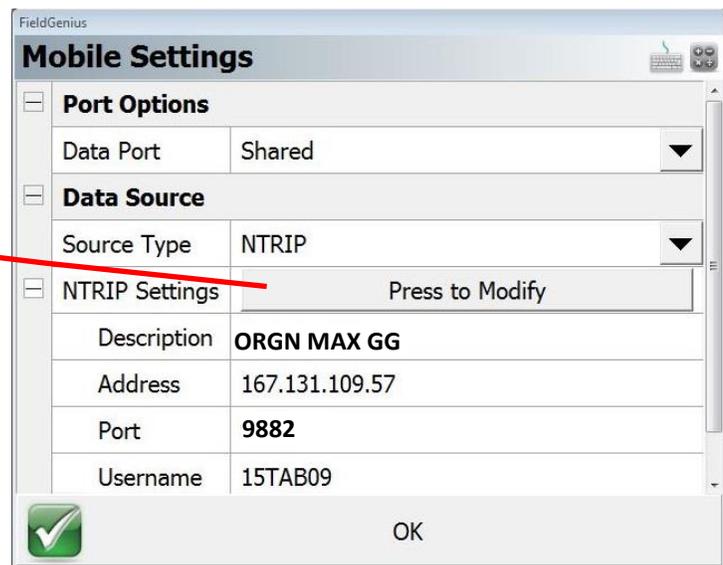
- The Link Configure screen will popup automatically after you have connected the GNSS unit. The Link Configure screen will allow you to connect to the ORGN via the internet to get a real time corrected GNSS position. You will use the Data Collector Internet with a Data Format of RTCM 3 to make the connection.

Tap Setup to access the Mobile Settings menu shown below



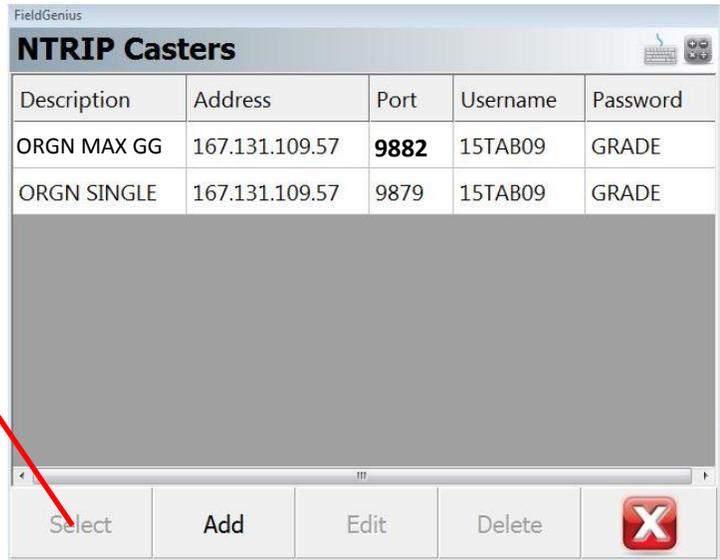
- If you select Setup from the Link Configure menu you can select how you use the ORGN. There are two main choices, a Network solution (ORGN MAX GG) or a Single Base solution (ORGN SINGLE). Depending on your location one may work better than the other.

Press to Modify will allow you to select ORGN MAX GG or ORGN SINGLE



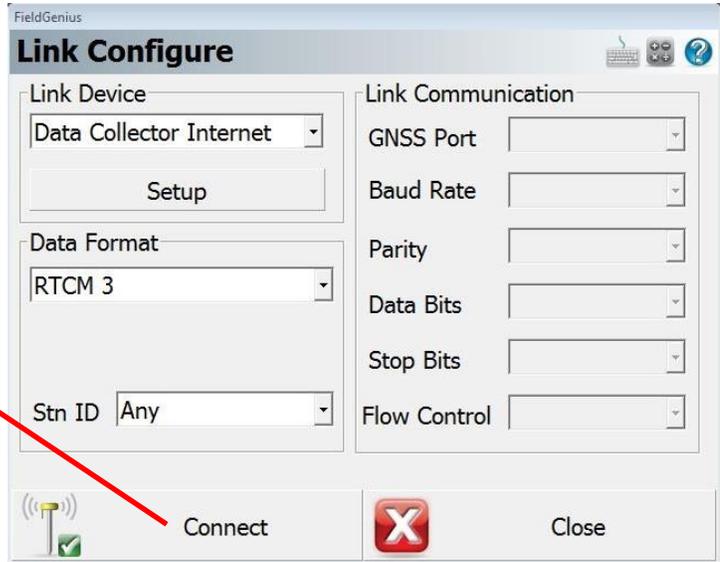
- If you Press to Modify from the Mobile Settings menu the NTRIP Casters menu will popup. This is where you select the type of solution that will be used.

Highlight your choice and tap Select

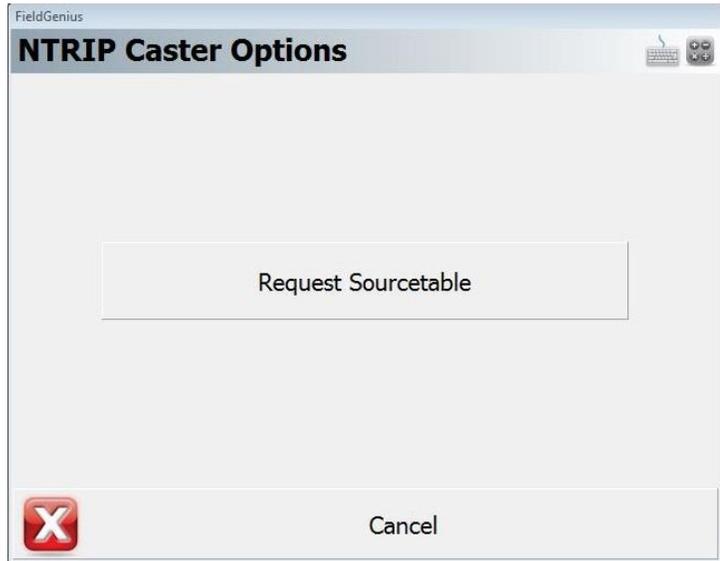


- The Mobile Settings menu will return and if your selection is listed correctly tap OK to continue. The Link Configure screen will then popup.

Tap Connect to establish an internet connection with the ORGN

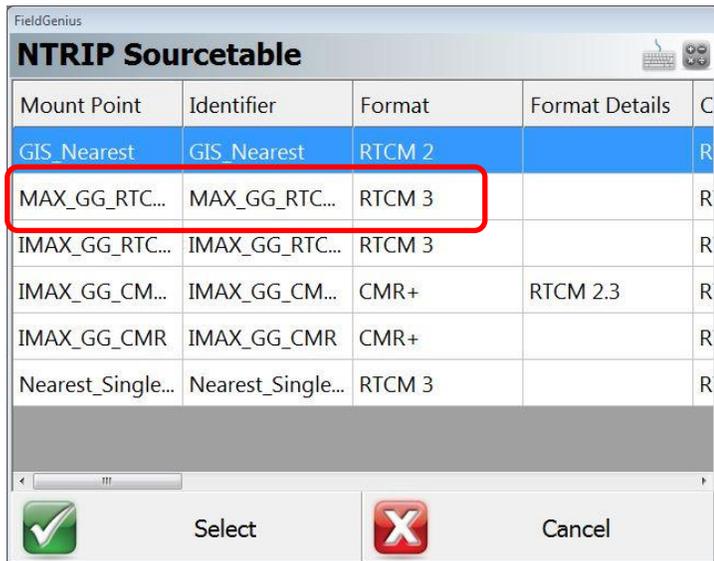


- The NTRIP Caster Options menu will then appear. Tap Request Sourcetable to continue.



- The NTRIP Sourcetable will then appear. For an ORGN MAX GG solution, highlight MAX_GG_RTCM3 and tap Select.

ORGN MAX GG
Sourcetable



- You will then be prompted to confirm the settings for MAX_GG_RTCM3. They should appear as below. Tap Select to continue.

ORGAN MAX GG
Mountpoint Settings

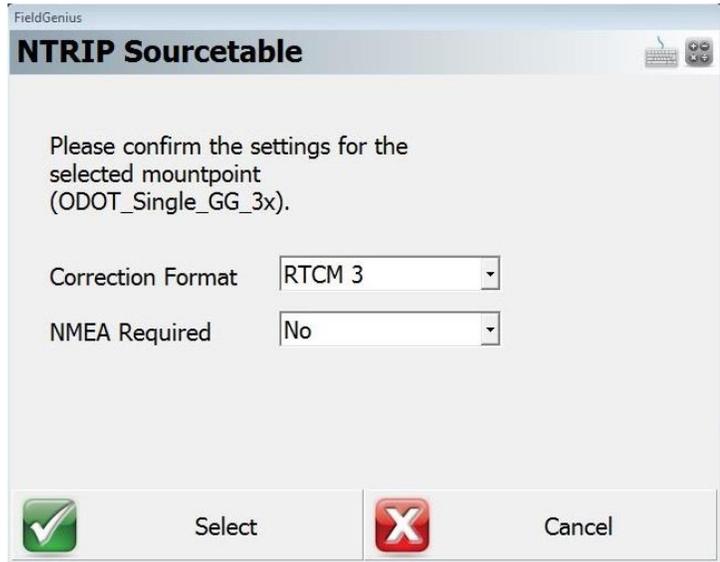
- If you had selected ORGN SINGLE your NTRIP Sourcetable would show you all of the available ORGN stations and you would need to select the one most appropriate for your location. Highlight your choice and tap Select.

ORGAN SINGLE
Sourcetable

Mount Point	Identifier	Format	Format Details
P412_CMR	P412_CMR	CMR+	
JIME_Single	JIME_Single	RTCM 2	
VCWA_Single	VCWA_Single	RTCM 2	
ODOT_Single_...	ODOT_Single_...	RTCM 3	
WAMC_CMR	WAMC_CMR	CMR+	
TDLS_CMR	TDLS_CMR	CMR+	
GRAS_CMR	GRAS_CMR	CMR+	

- The ORGN SINGLE settings are slightly different, NMEA is not required. Tap Select to continue.

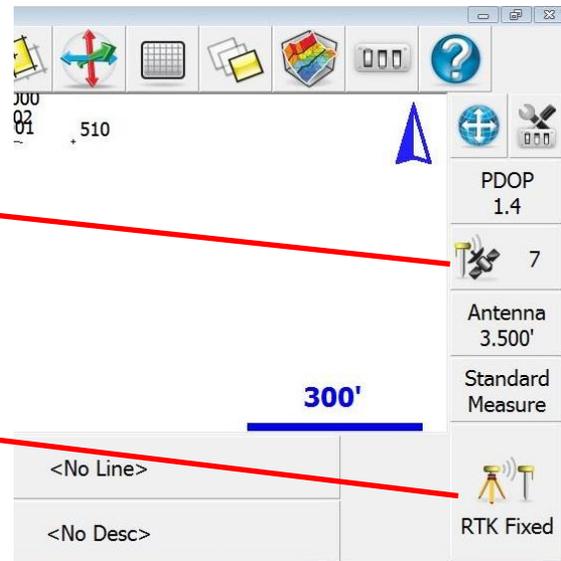
ORGN SINGLE
Mountpoint Settings



- You should now be connected. If you are outside and receiving enough GNSS signals you should have an RTK FIXED solution.

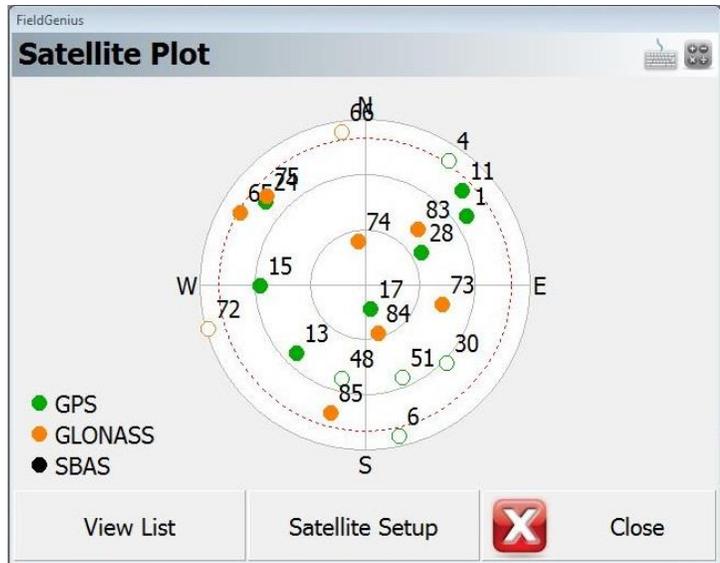
Satellite icon

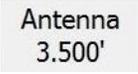
Icon showing you have an RTK Fixed solution



- Tapping the Satellite icon  will bring up the Satellite Plot menu showing how many satellites are being tracked. Only GPS satellites are counted on the small icon, but all satellites are shown on the Plot screen.

Filled circles are satellites locked and used. Empty circles are tracked but not used in the solution.

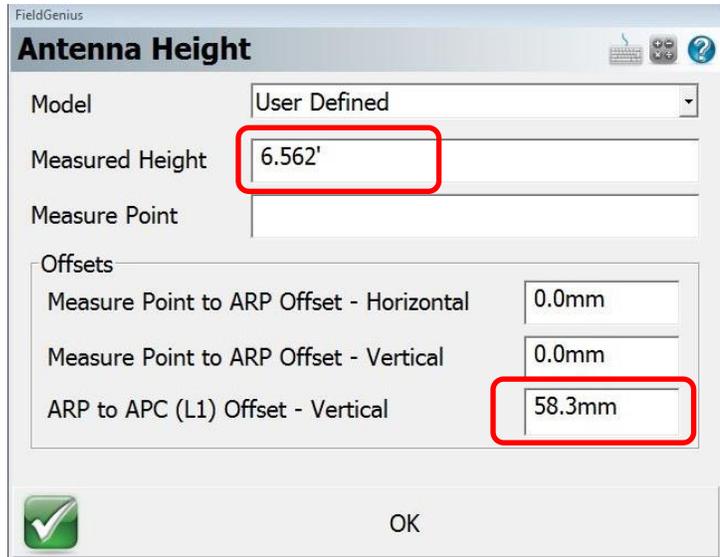


- Tapping the Antenna Height icon  will bring up the Antenna Height menu allowing you to change your antenna height which is the height the GNSS antenna is above the point you want to measure. It is critical to enter the correct antenna height if you wish to get an accurate vertical reading.

If you are using the P303 internal antenna, the Measured Height is how far above the ground you are holding the tablet

- If you have attached the external Leica AS10 antenna and mounted it to the fixed length rod you need to change the antenna model and height to get correct readings. You do not need to make any other changes in the unit. It automatically switches to the external antenna when the cable is connected.

Select User Defined for the Model, 6.562' for the Measured Height and set the ARP to APC offset to 58.3mm



- Once you have everything setup and you are working in a job you will not need to go through all of the steps each time you turn on the unit. After starting FieldGenius and selecting a job you will be prompted with the Reconnect menu. You can tap Reconnect and it will connect the GNSS unit and jump you to the Link Configure menu where you can tap Connect to use the ORGN settings from the previous session.

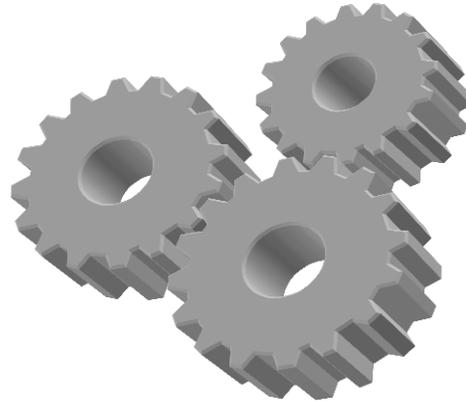
Reconnect using the previous settings



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Inspector Tablet GNSS GS14 Radio Setup

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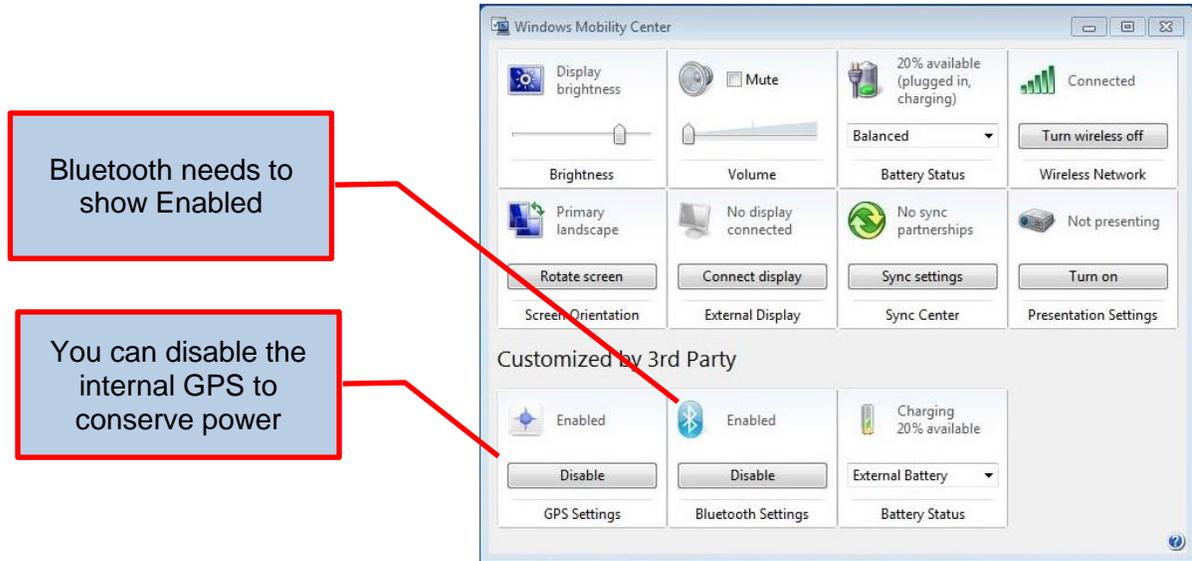
*Chris Pucci, PLS
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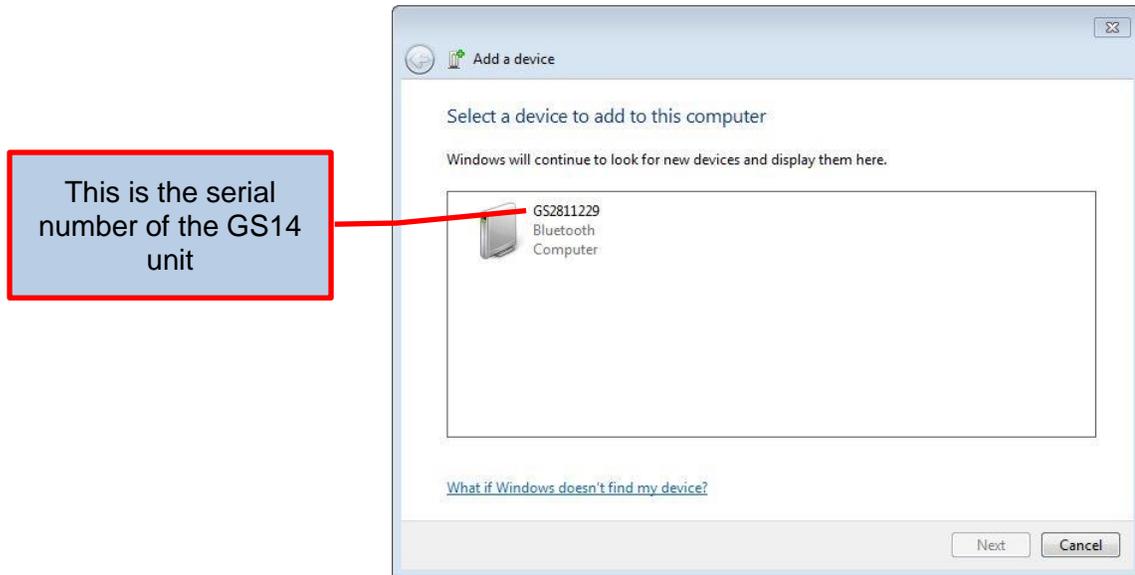
Title	Inspector tablet GNSS GS14 Radio Setup
Version	8.0
Model	DT391 w/GS14
Date	October 5, 2015
Author	Chris Pucci
Overview This document will give instructions for setting up the Leica GS14 as an RTK rover and using a local radio base station.	

Initial setup

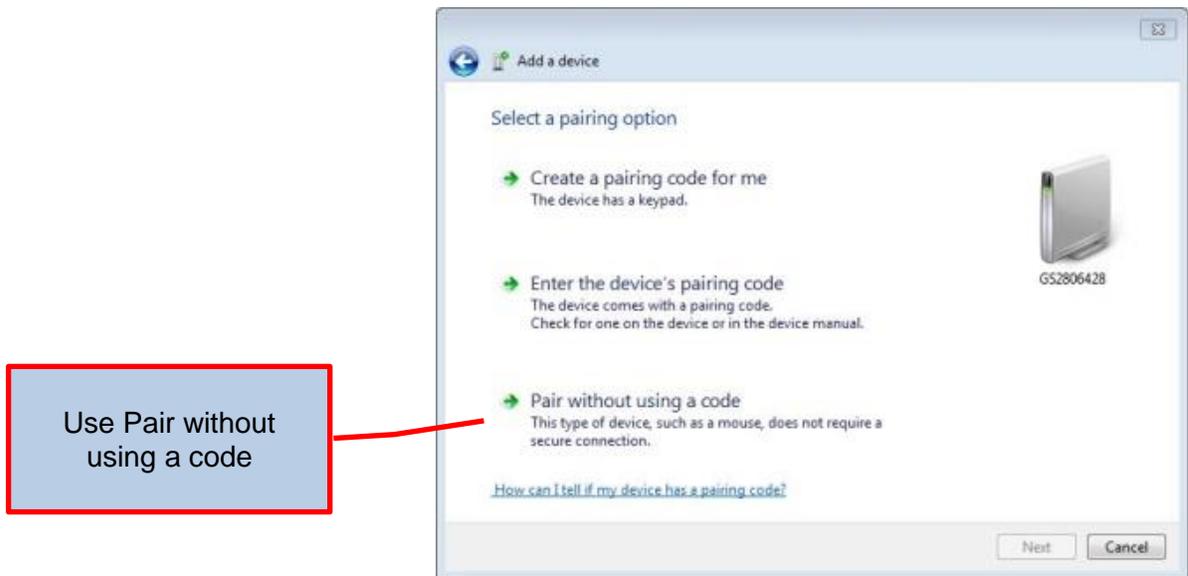
- From the Windows desktop you need to make sure that Bluetooth is enabled and before continuing to FieldGenius. In the Windows Control Panel open the Windows Mobility Center to check on the Bluetooth status.



- If you tap the Bluetooth Icon in the lower right hand portion of the Windows Main screen it will allow you to “Add a Device”. If you have the GS14 unit turned on Windows should show it in the list of devices. Highlight the device and tap Next. Note: Make sure other Bluetooth devices are deactivated or move to an area without other Bluetooth sources.



- Windows will ask you to select a pairing option. Select "Pair without using a code".



- When the GS14 has been added it will show the following screen. Select Close.



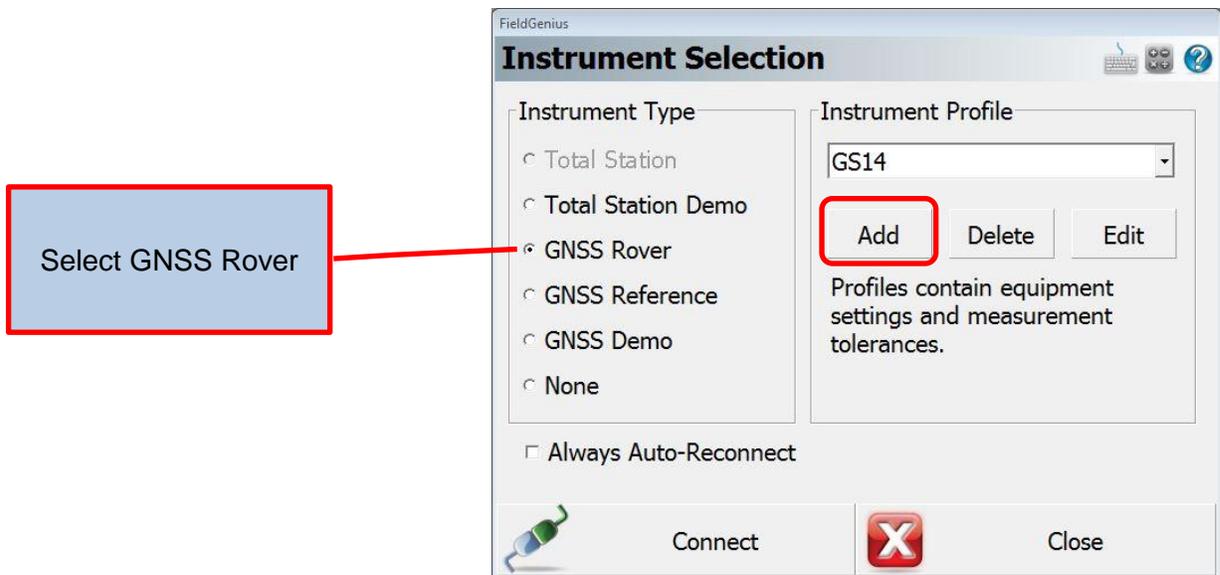
FieldGenius GNSS setup

- From the Windows desktop tap on the FieldGenius 8 icon. FieldGenius 8 will open. Open your job as normal and when prompted to Reconnect, tap Select Instrument

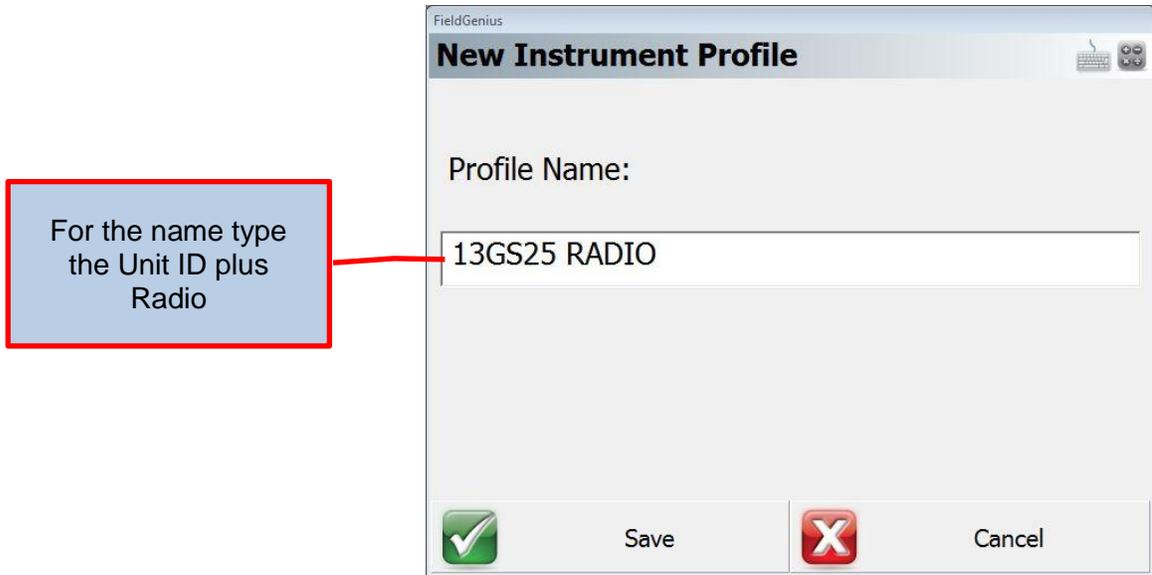


GNSS Rover setup

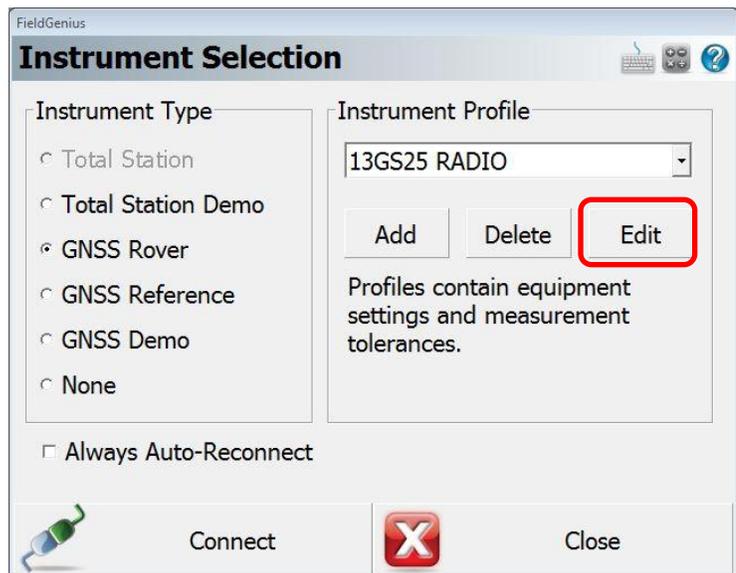
- The first time you setup a GS14 unit as a Rover you will need to follow these steps. From the Select Instrument screen pick “GNSS Rover” as your instrument type and tap Add to create a profile for your unit.



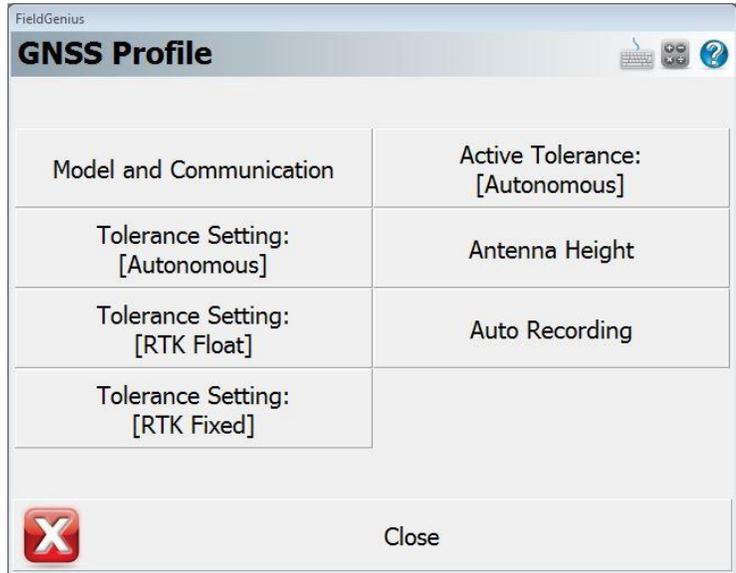
- Type a Profile Name in the box. You should name the instrument profile the Unit ID number that is on the ODOT stickers for the unit. Tap Save to continue.



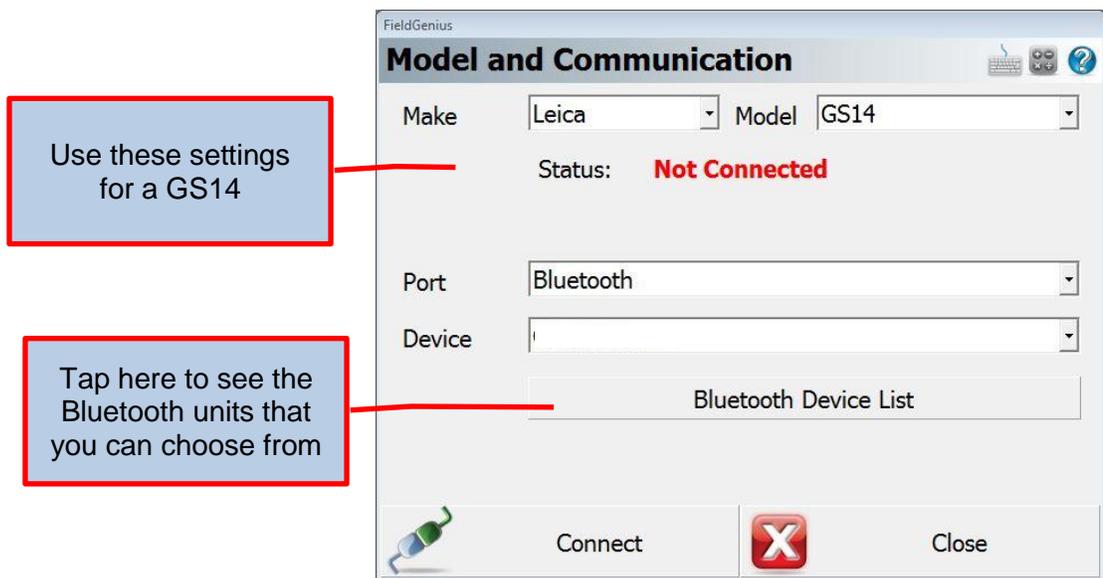
- You will be returned to the Instrument Selection menu. If the profile name is correct tap Edit to continue setting up the GS14.



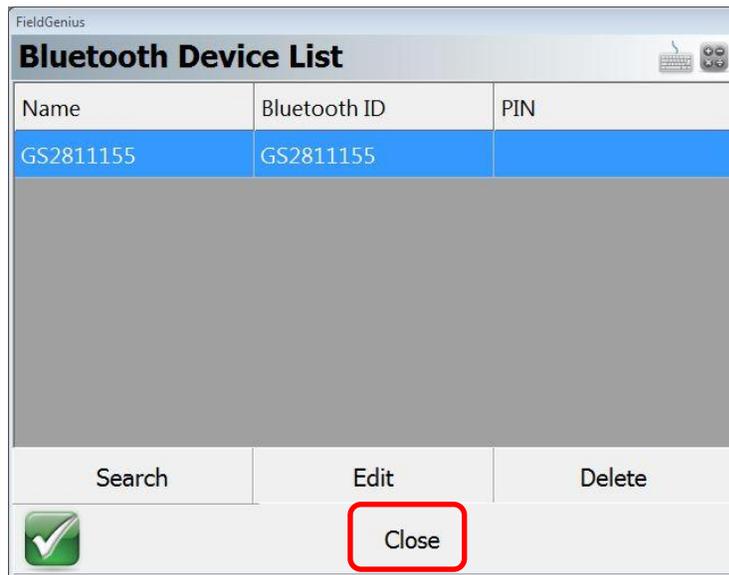
- With the GNSS Profile menu displayed tap the Model and Communication button to set the GS14 rover.



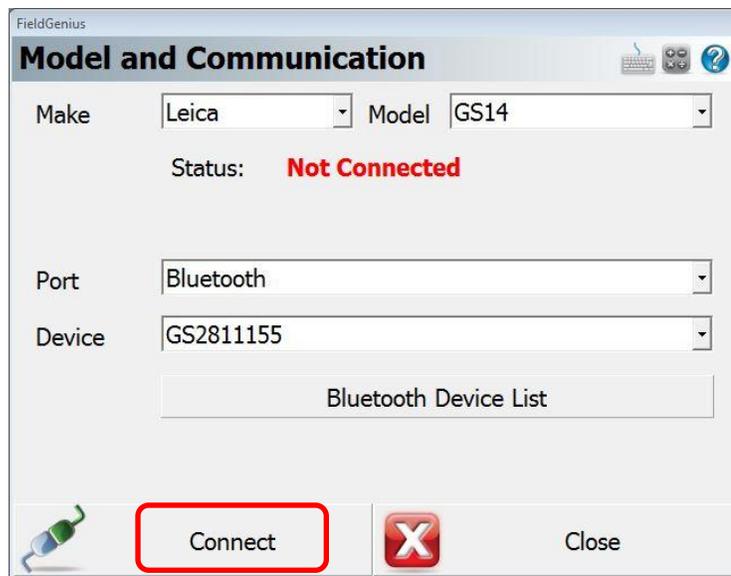
- From the Model and Communication menu, set Make to Leica, Model to GS14, Port to Bluetooth. Tap Bluetooth Device List to see a list of available units.



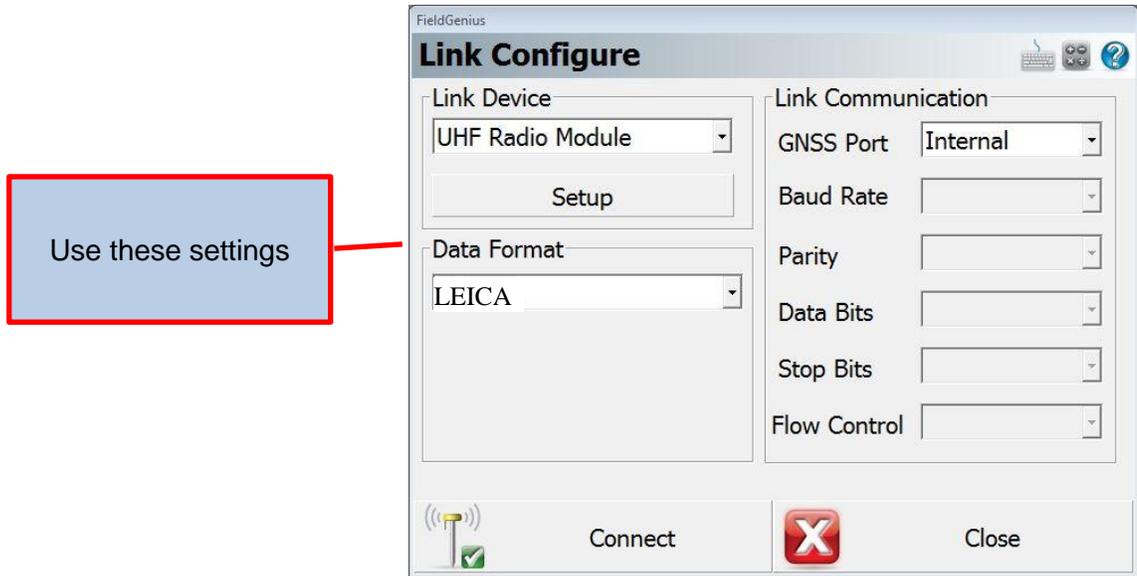
- From the Bluetooth Device List highlight the correct unit and tap Close to continue.



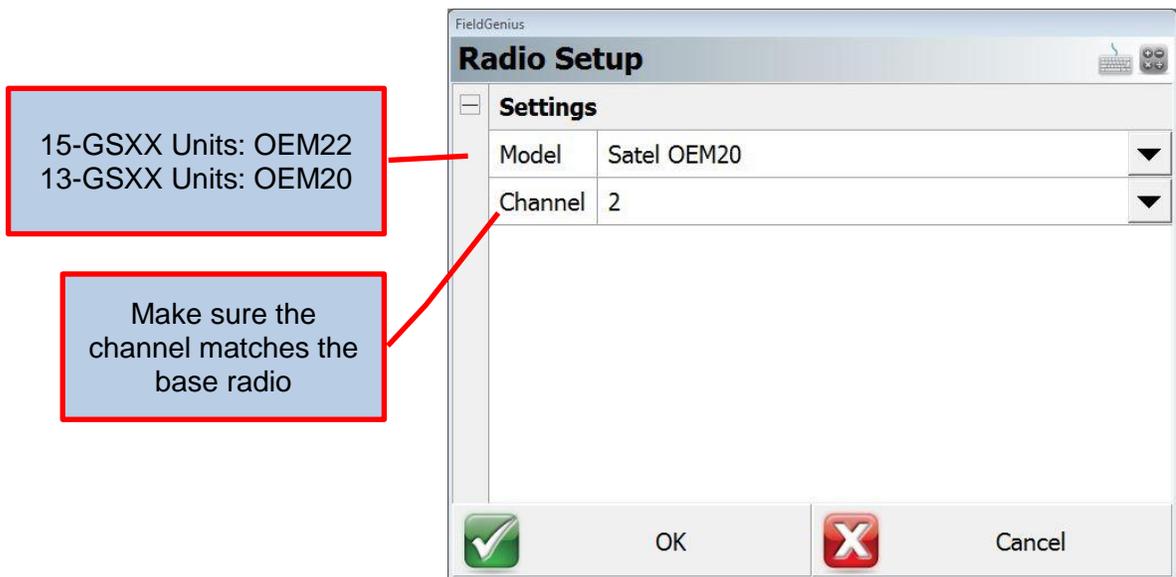
- If all the settings are displayed correctly, tap Connect. You should now be connected to the GS14 unit.



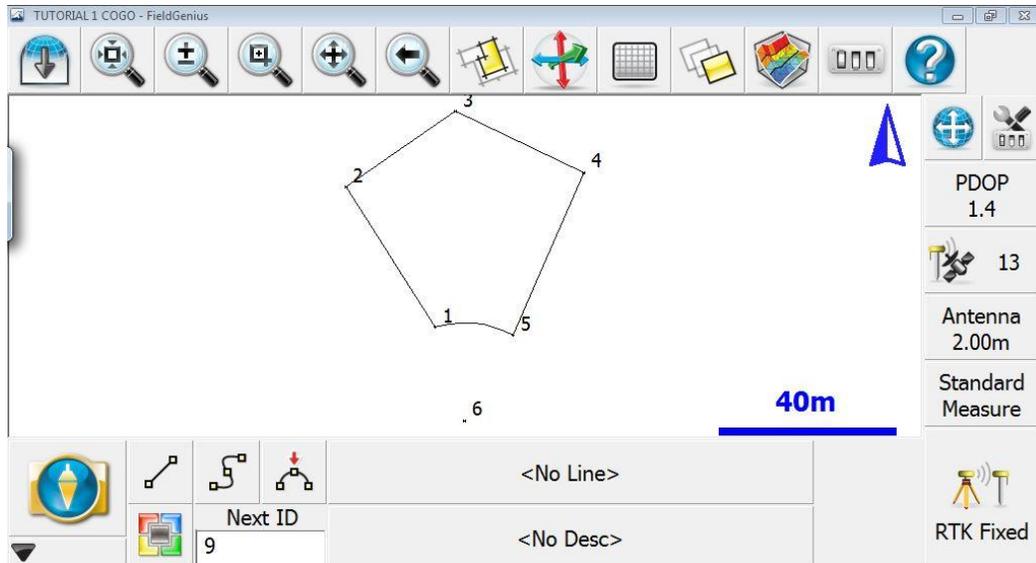
- The Link Configure menu will popup. Set the settings to match those shown below and tap Setup to check the Rover radio settings.



- From the Radio setup menu set 2015 Model year GS14's to OEM22 and prior year models to OEM20. In this example we are using a 2013 model year GS14 with an OEM20 radio. Tap OK when you have the correct settings and the radio will connect and you will return to the Map View menu.



- If all has gone correctly, you will be connected to the base radio, receiving correction information and have an RTK Fixed solution and ready to measure points.

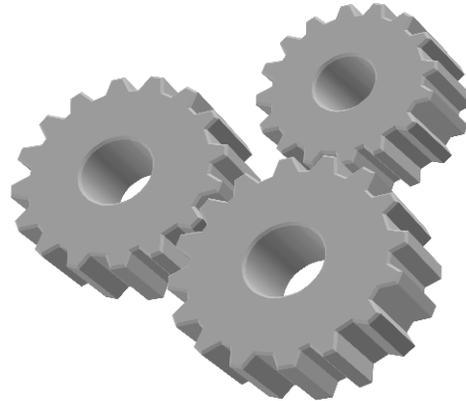


- After completing the initial setup you will not have to go through all of the above steps each time you need to use a GS14. To use the GS14 in the future you will be able to select it from the Instrument Selection menu by using the Instrument Profile drop down button and tapping Connect and then Connect again on the Link Configure screen.

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FieldGenius Overview Map View

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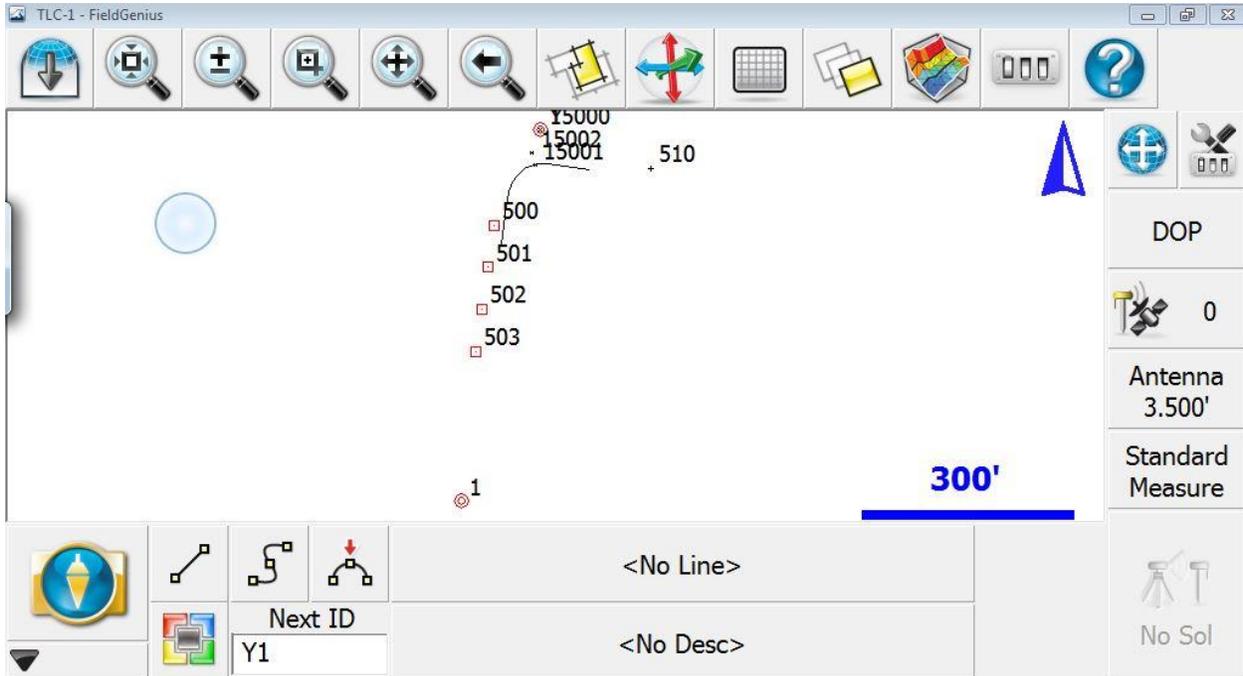
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Title	FieldGenius Overview
	Map View
Version	8.0
Date	September 3, 2015
Author	Chris Pucci
Overview This document will cover the Map View screen in FieldGenius 8.0.	

Map View Screen Overview

- For FieldGenius the map view is the main screen for positioning tasks.



Major Button



Main Menu, Will open the Main Menu which contains all the settings, tasks and information

Display Toolbar Buttons (Top Bar)



Opens or closes the Observation Toolbar (Lots of tasks use this window)



Zoom Extents (Will show the full map)



Dynamic Zoom



Zoom Window



Dynamic Pan



Zoom Previous (Will go back up to 10 views)



World Button (Hides unrelated points/layers when staking)



3D View



Grid View (Allows you to place a grid over your view)



Layer Manager (Allows you to turn layers/data on and off)



Surface Manager (Allows you to import and display DTM surfaces)



Point label Options (Controls the label settings for points)



Help Button (Provides help on visible toolbars)

Instrument Toolbar Buttons (Right Bar)



Auto-Center (Moves the map to center on your location)



Instrument Settings Menu

DOP	OR	PDOP 1.4	DOP Values or SD/Point Quality Value
0.09' 0.19'			Cycles through PDOP, HDOP, VDOP and SD Only shows a number when you have a sensor connected

 0	OR	 7	Satellite Plot/List
---	----	---	---------------------

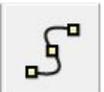
Antenna 3.500'	Antenna menu (Allows you to select which antenna and set the height values)
-------------------	---

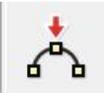
Standard Measure	Measurement Modes menu (Allows you to select the type of measurement)
---------------------	---

 No Sol	OR	 RTK Fixed	Measure Button / Solution Type, this button will take a shot/position and shows the current solution.
--	----	---	---

Topo Toolbar Buttons (Bottom Bar)

	Draw line	<No Line>	Active line type description
---	-----------	-----------	------------------------------

	Draw best fit curved line
---	---------------------------

	Draw three point arc
---	----------------------

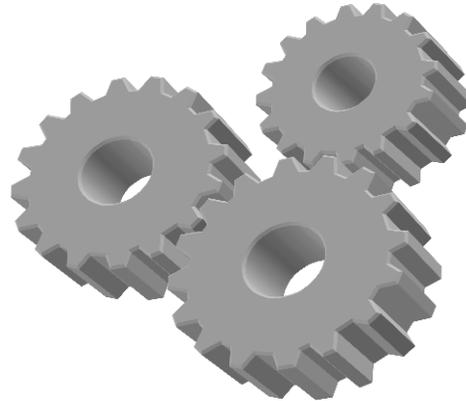
	Point Database	<No Desc>	Active point description
---	----------------	-----------	--------------------------

Next ID	
Y1	Next available point ID

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FieldGenius Data Collection

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Title	FieldGenius Data Collection
Info	Inspector Tablet
Version	8.1
Date	November 6, 2015
Author	Chris Pucci
Overview This document will cover basic data collection using FieldGenius 8.0.	

Data Collection

- FieldGenius 8.0 has virtually unlimited features for collecting field data. This guide will cover some of the features that may be the most useful.
- Most survey data begins with points. You need points to make lines, curves, arcs, etc.
- To collect a point in FieldGenius you should have an RTK Fixed solution, tap the RTK Fixed icon and hold the sensor still until the shot is complete. The GNSS Measurement screen will show you a count down and prompt you to Store Position when a solution has been computed.



Tap Store Position to collect the point

A screenshot of the FieldGenius GNSS Measurement screen. The screen displays the following information: Solution: RTK Fixed (in green), Satellites: 5 (in green), PDOP: 3.40 (in green). Under the Real Time section, Status: Accepted (in green), Horizontal StdDev: 2.136', and Vertical StdDev: 3.644'. Under the Post Process section, Status: and Total Time: are visible. At the bottom, there are two buttons: "Store Position" with a green checkmark icon and "Cancel" with a red X icon. A red arrow points from the "Store Position" button to the text box on the left.

FieldGenius	
GNSS Measurement	
Solution:	RTK Fixed
Satellites:	5
PDOP:	3.40
Real Time	
Status:	Accepted
Horizontal StdDev:	2.136'
Vertical StdDev:	3.644'
Post Process	
Status:	
Total Time:	
<input checked="" type="checkbox"/>	Store Position
<input type="checkbox"/>	Cancel

- After you have collected the position the Store Point menu will popup. You will have the ability to set the point ID, point description, make it part of a line, change/set your antenna height and make special notes about the point.

- If you tap List next to the point Description it will pop up the ODOT code list of predefined codes. You can pick a descriptor or add your own code as needed.

Automap Library: ODOT-FG-CODE.csv

Enter Description

Description	Summary	Layer
<input checked="" type="checkbox"/> ARC	ARCH PIPE	E_HYD_PIPE
<input checked="" type="checkbox"/> BAR	CONC BAR FACE	E_ROAD_BAR
<input checked="" type="checkbox"/> BC	BRIDGE COLUMN	E_BRIDGE
<input checked="" type="checkbox"/> BDW	BUILDING WALL	E_ROAD_BLDG
<input checked="" type="checkbox"/> BH	TEST BORE HOLE	E_GEO_BH
<input checked="" type="checkbox"/> BL	TERRAIN BREAKLINE	E_TERR_BL
<input checked="" type="checkbox"/> BLN	BRUSH LINE	E_VEG_BRUSH
<input checked="" type="checkbox"/> BM	BENCHMARK	E_SURV_CTL

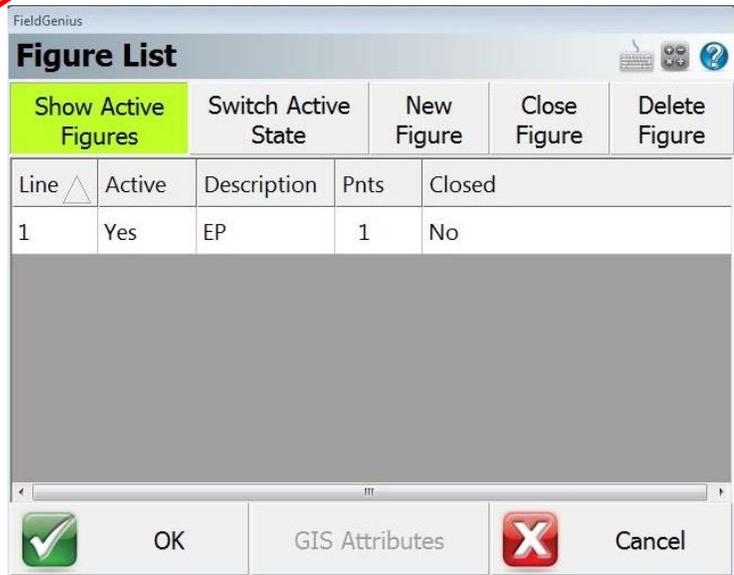
Show descriptions in use only

Add
 Edit
 Delete

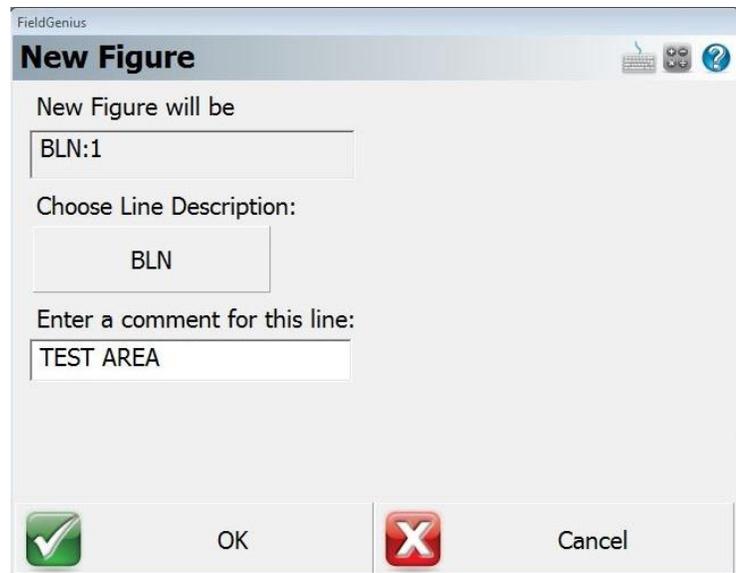
- To make a line select one of the line types Straight, Curvy or Arc. Then tap Start Line which will pop up the Figure List menu.



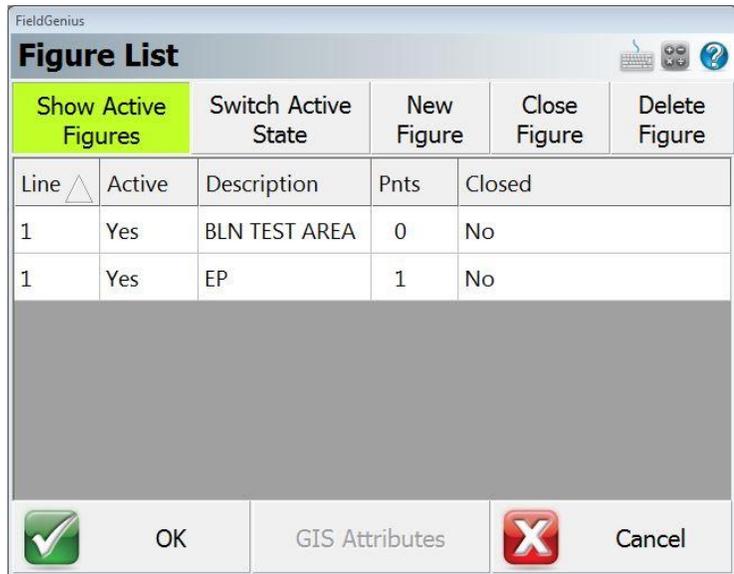
Tap Start Line to add a new figure



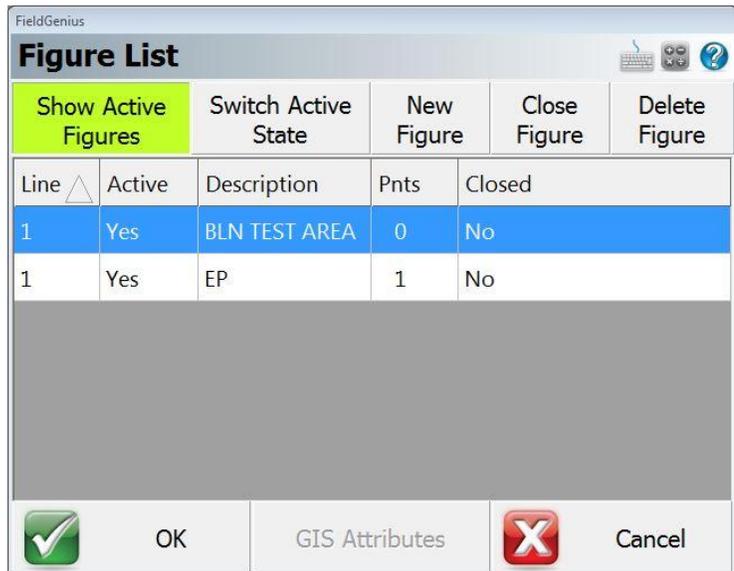
- To start a new line tap New Figure. You will be able to add a description to the line and enter a comment. The line descriptions will be from the same code list you used for points.



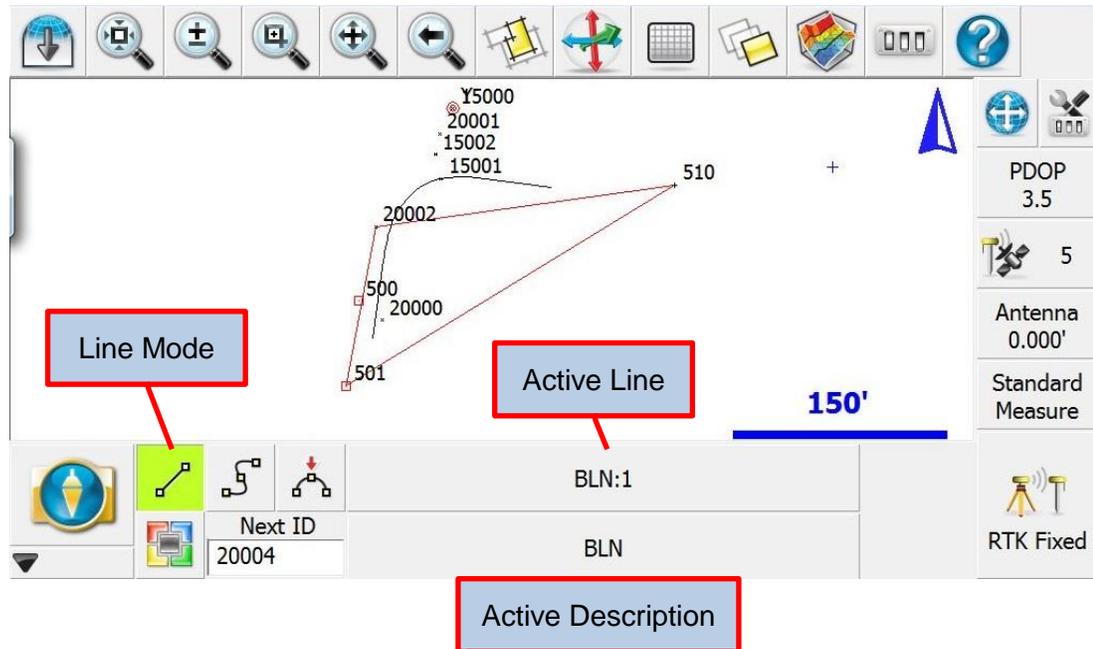
- Once you have created a new line tap **OK** and your line will be active in the drawing and ready to for adding points.



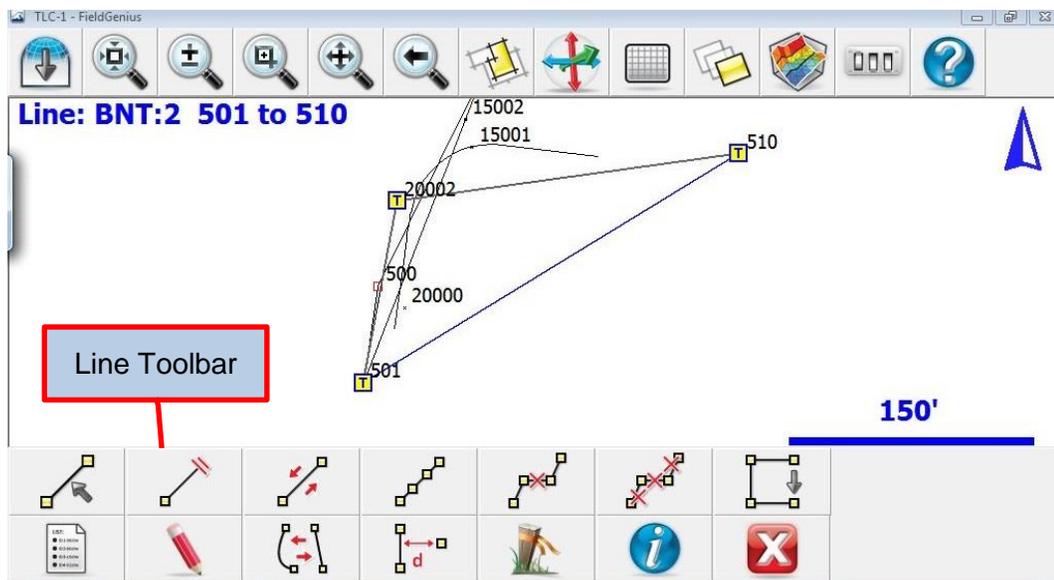
- If you want to switch to and add additional points to a different line, highlight the line you want and tap **OK**. It will make the highlighted line the active line.



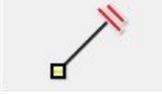
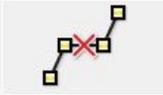
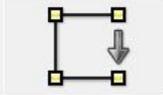
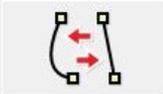
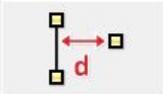
- As you start collecting points by tapping the RTK Fixed icon, the points you collect will automatically make a line.



- Once you have made a line you can work with it. If you pick a line by tapping one of the segments, the Line Toolbar will open.

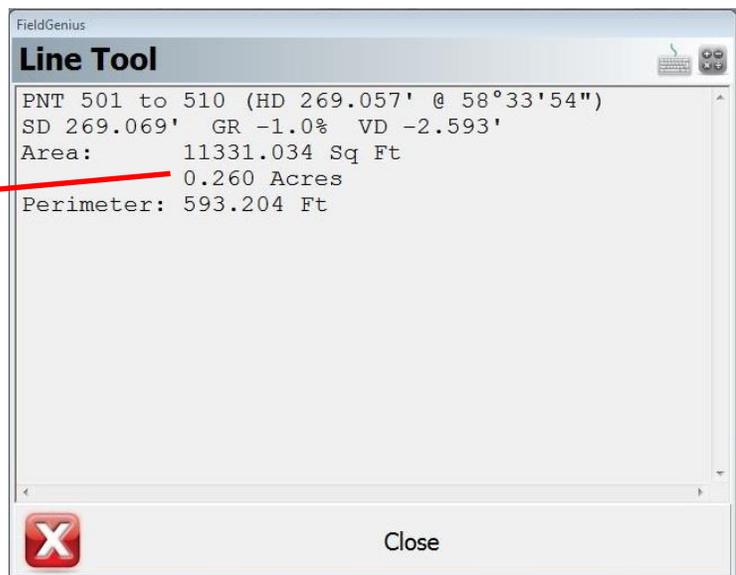


- Line Tools buttons.

	Set line to Active in the Line List		Ends a figure
	Reverses the direction of a line		Adds points along a line
	Deletes a segment from a line		Deletes an entire line
	Closes a line (To get an area a line must be closed)		Opens the Draw Tool menu
	Opens the Active Line List		Opens the Stake Line Menu
	Changes a line from straight to curvy or vice-versa		Closes the Line Tool Bar
	Opens the Offset Tool		Displays the lines info

- To calculate the area created by a line. Store all of the exterior points as one line. When you are finished select the line by tapping any segment, then tap the Close Line button. It will prompt you to make a selection. Choose Yes. Close the Line Tools bar by tapping the red "X". Reselect the line and tap the Info "i" and your area will be displayed.

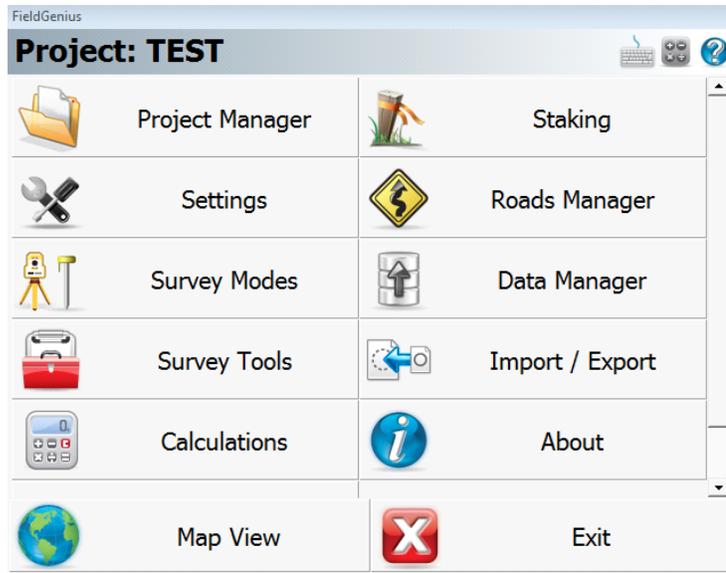
Area of the Figure



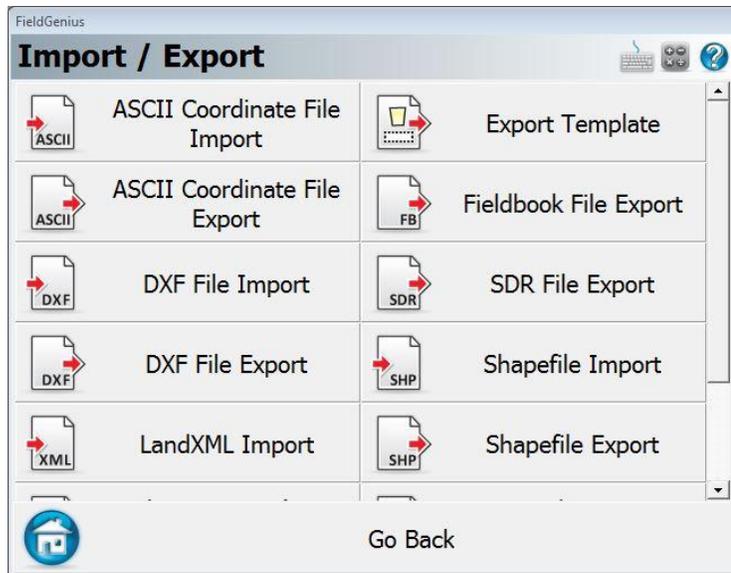
FieldGenius
Line Tool
 PNT 501 to 510 (HD 269.057' @ 58°33'54")
 SD 269.069' GR -1.0% VD -2.593'
 Area: 11331.034 Sq Ft
 0.260 Acres
 Perimeter: 593.204 Ft

Close

- To export data out of FieldGenius tap the Main Menu Icon
And tap the Import/Export button



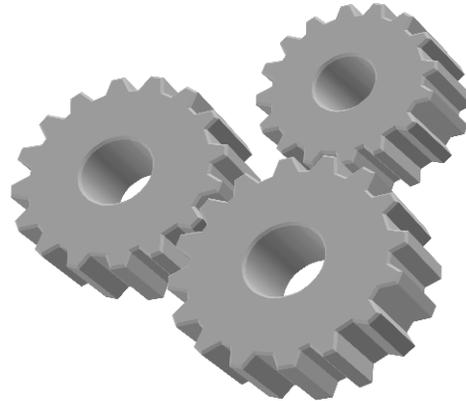
- From the Import/Export menu you can select ASCII, XML or DXF as your export method. Select the desired format and store the files to the provided USB drive.



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FieldGenius Staking

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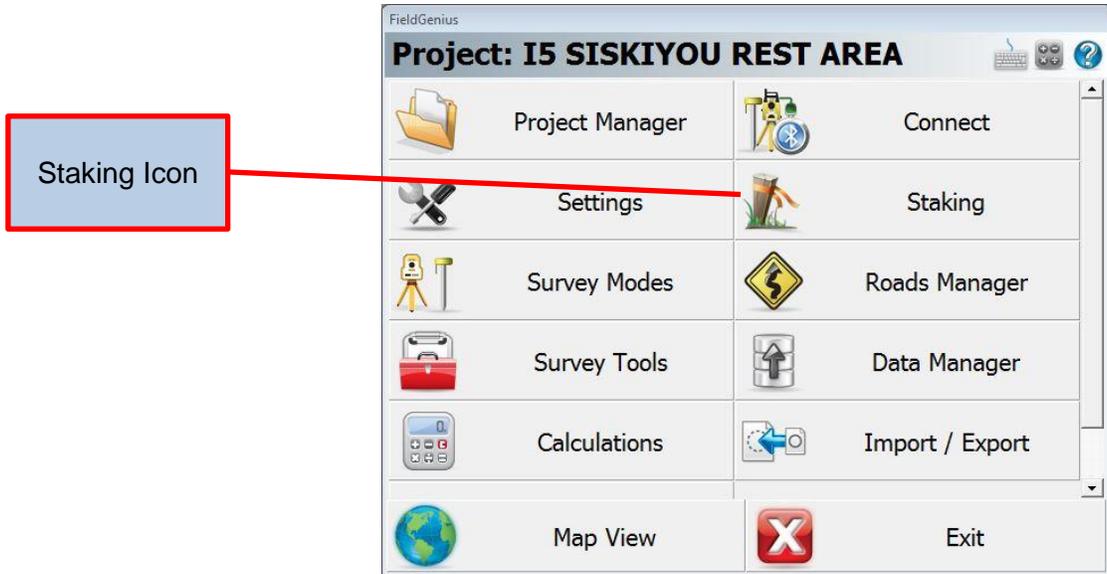
*Chris Pucci, PLS
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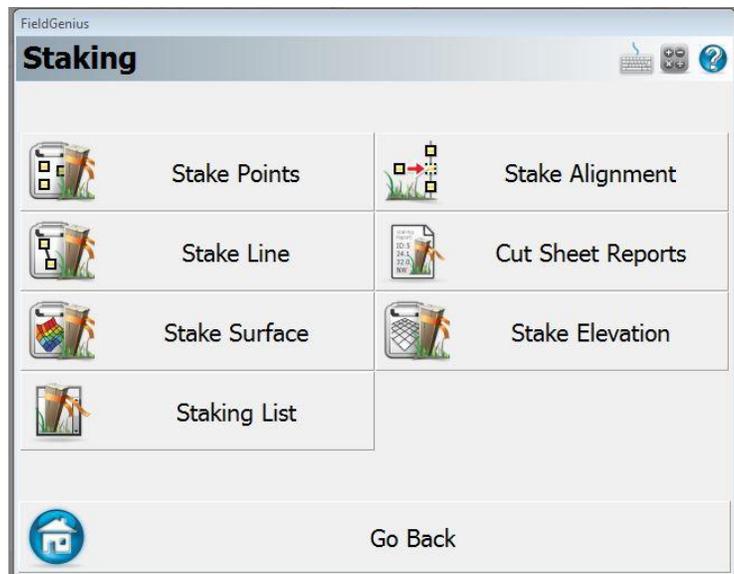
Title	FieldGenius Staking
Info	Inspector Tablet
Version	8.1
Date	September 8, 2015
Author	Chris Pucci
Overview This document will cover basic stake out using FieldGenius 8.0.	

Point Staking

- FieldGenius 8.0 can be used to stake out locations and features from alignments, surface models and coordinate files once the correct files have been loaded for your job.
- Open or Create your project in FieldGenius and connect to the sensor.
- To start staking tap the Main Menu icon and tap the Staking icon.



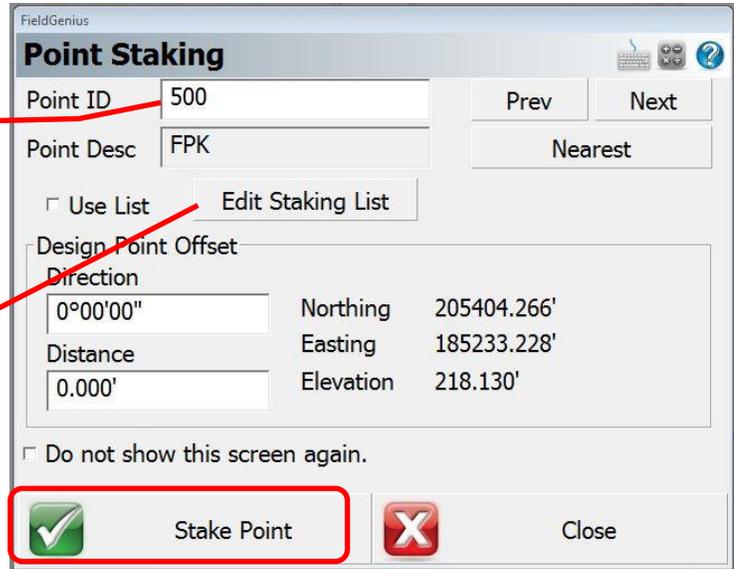
- From the staking menu you can select how and what you want to stake.



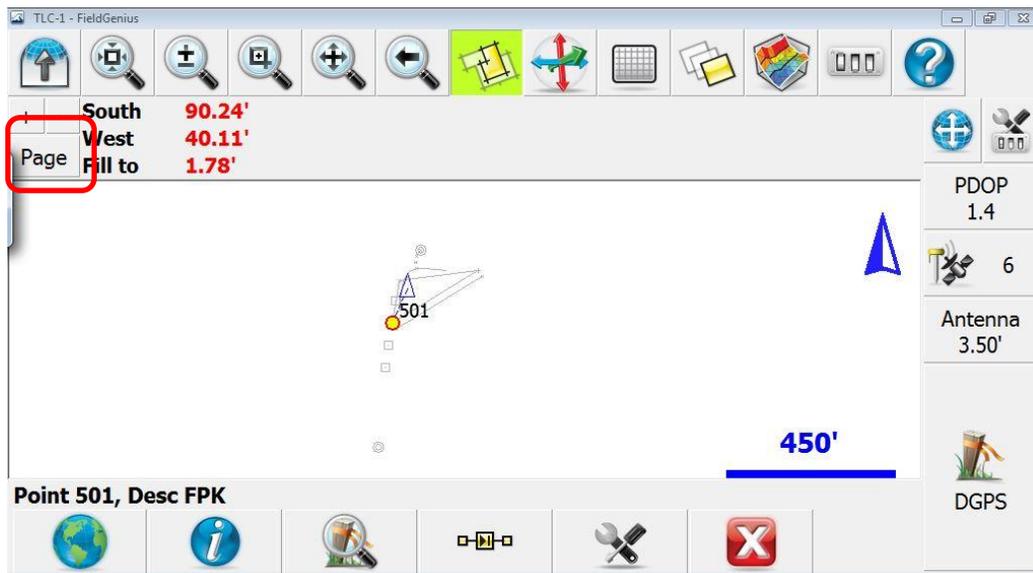
- The Stake Point menu will allow you to stake out any point in the job database, when you have the point ID entered tap Stake Point to proceed.

Enter the point you wish to stake here. Double tapping in the box will bring up a selection for different methods to select the point to stake

You can make a list of points to stake here and it will step through them



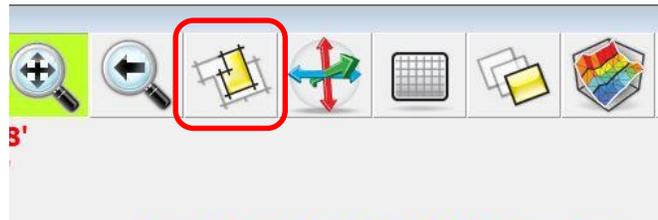
- Once you are staking the point you will see the highlighted point you are staking and your position will be the triangle. By tapping the Page button you can change the way the directions to the point are displayed.



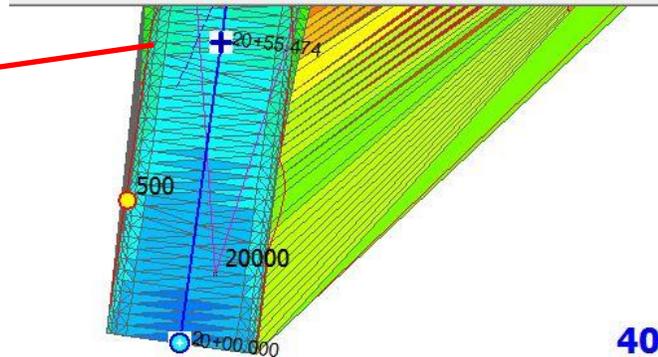
- If you have a surface turned on while staking a point it can be hard to see what is going on. If you click the World button it will gray out the surface and any other lines that are not being staked.



ON



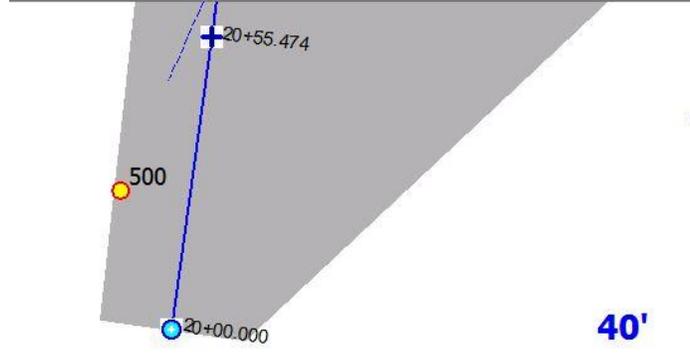
With everything turned on



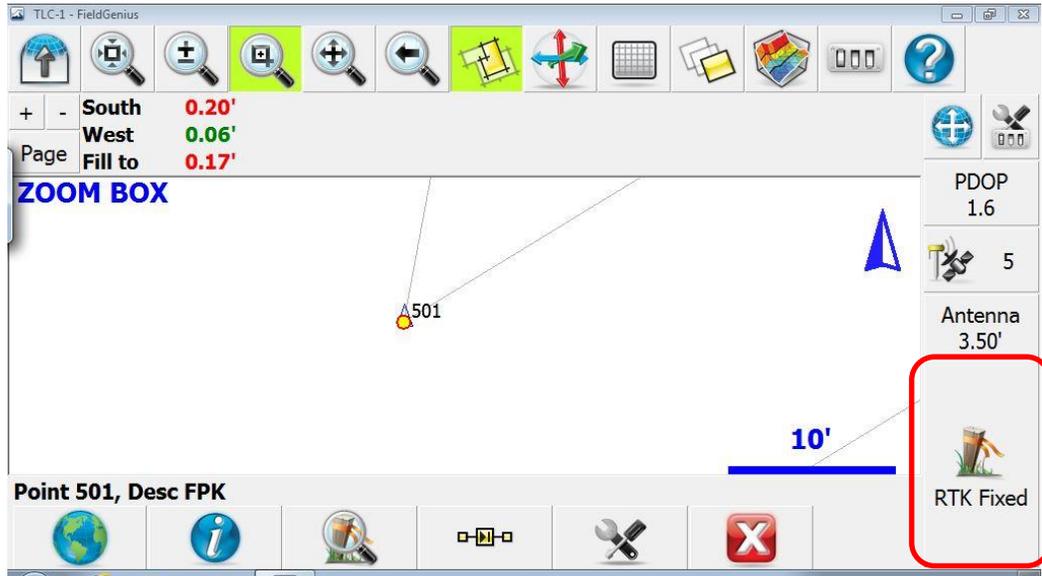
OFF



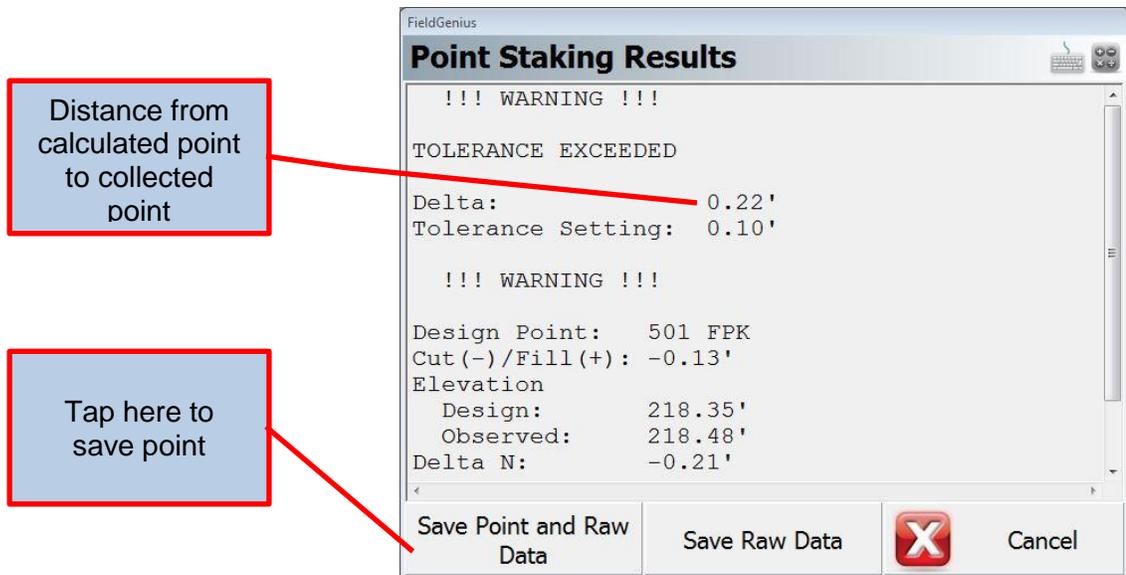
Tap the World button to quickly focus on the point you are staking



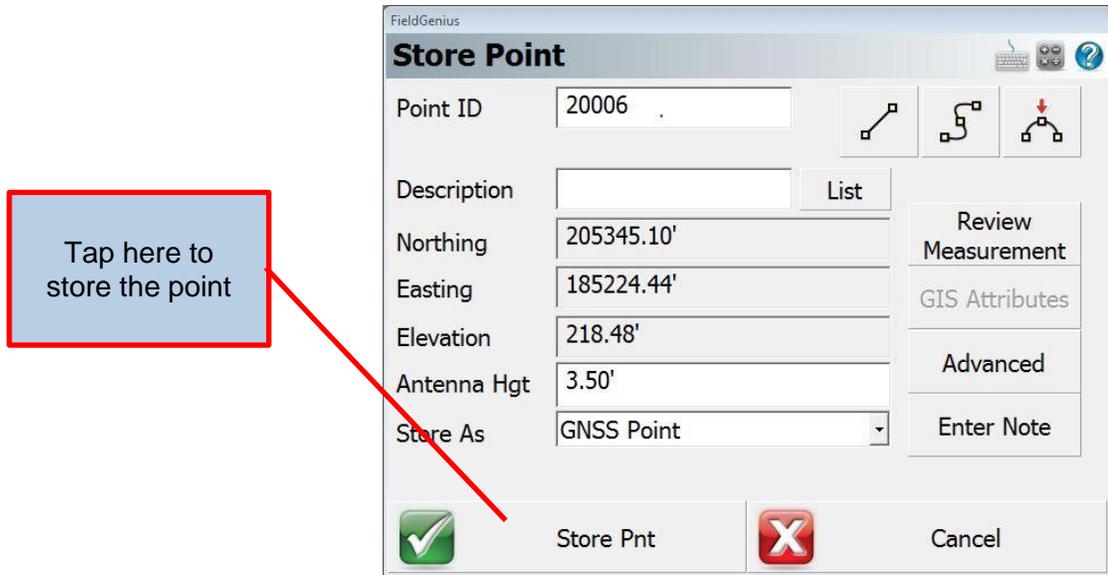
- After navigating to the point, you will be able to see how close you are. If you want to re-measure the point and store the information tap the RTK Fixed icon just like you are collecting data.



- If you aren't using the external antenna, the constructed point is not exactly per plan or the point has been disturbed (moved) you will get a tolerance exceeded error. You can still tap Save Point and Raw Data to collect the point.



- The Store Point menu will appear and you will be able to change the point number and give the point a Description.

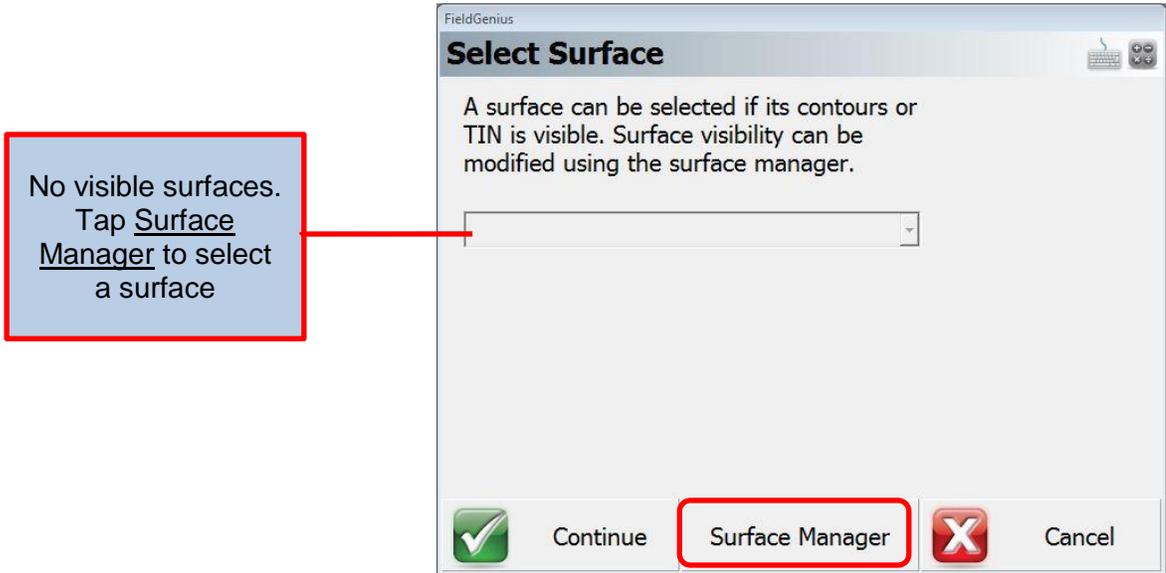


- After storing the point the Point Staking menu will appear with the next numeric point prefilled. Or you can type in your next point.

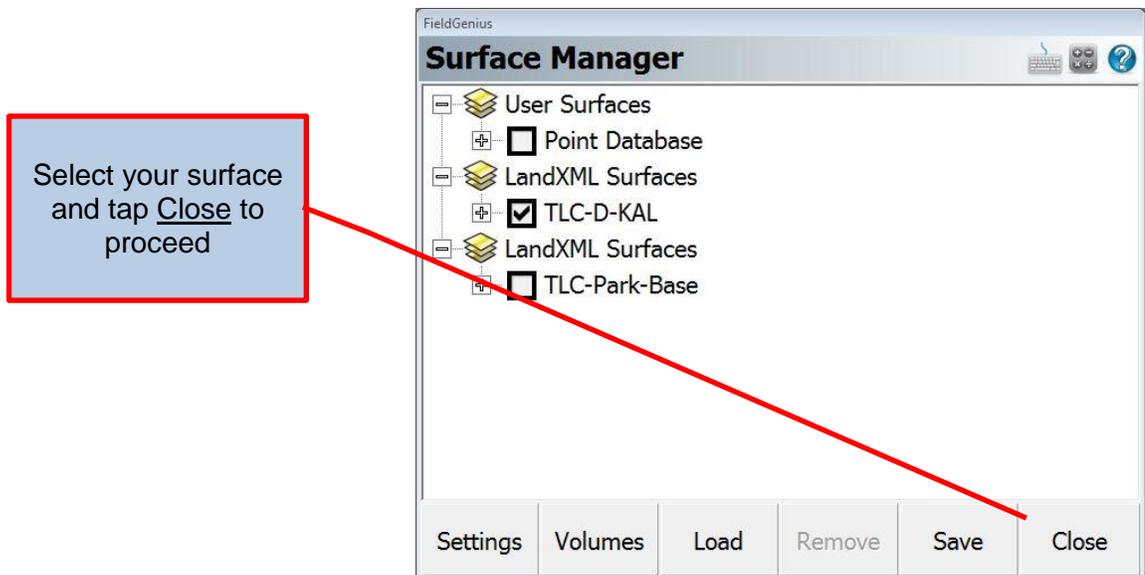


Surface Staking

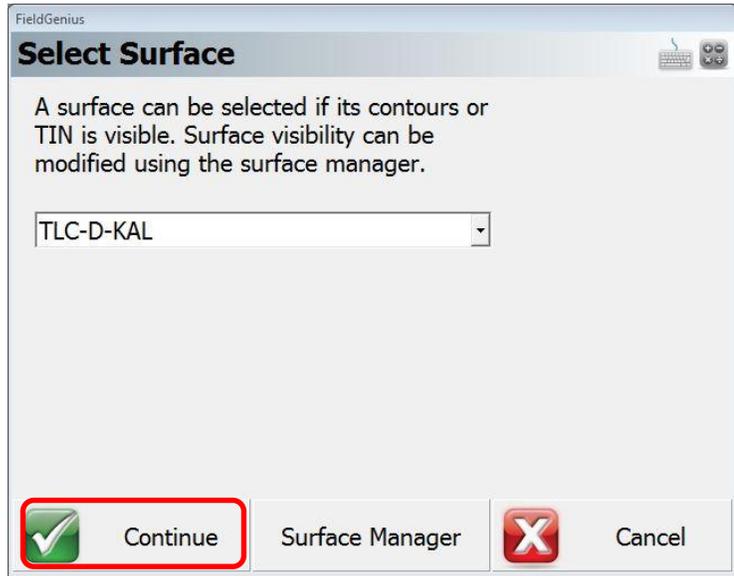
- If you select Stake Surface from the Staking menu you will be prompted to select a surface to stake to. The surface must be visible/active before you can select it for staking.



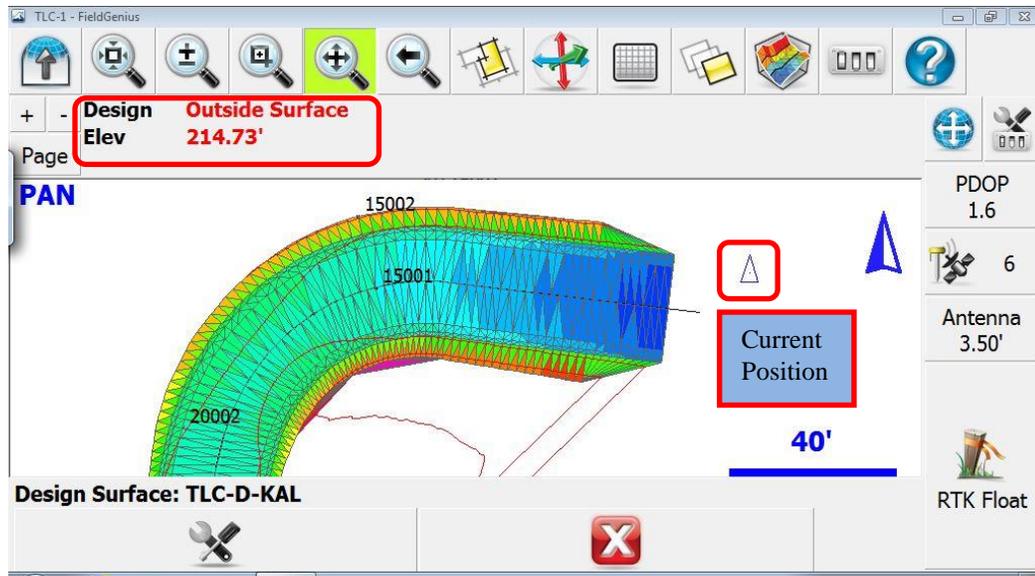
- The Surface Manager menu will allow you to turn surface on and off. Select the surface you want to stake.



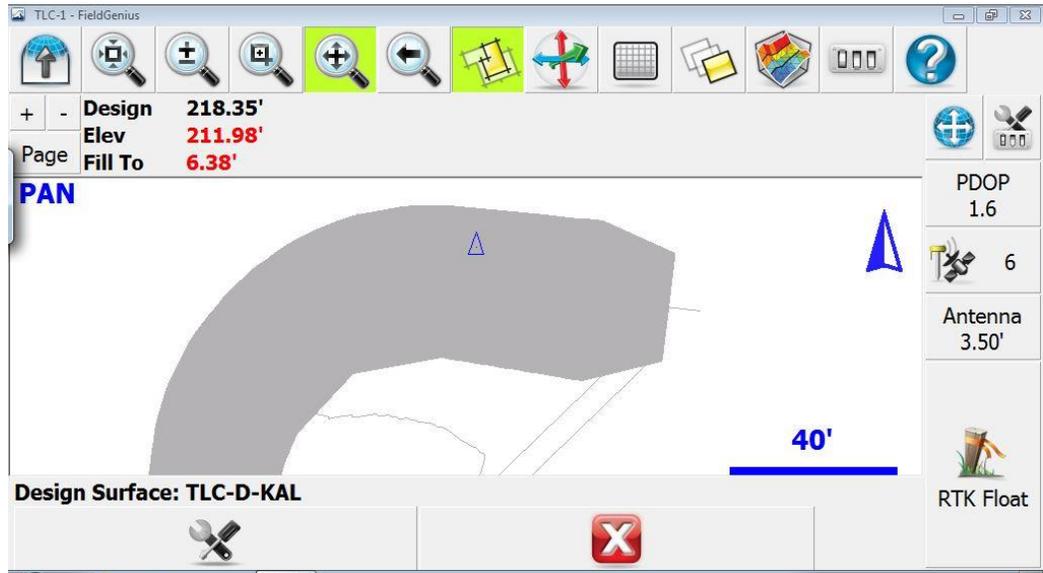
- You should now have a surface listed in your Select Surface menu. Tap **Continue** to proceed.



- You should now have a surface in your Map View and details about your position. If you are outside the limits of the surface model, it will let you know.



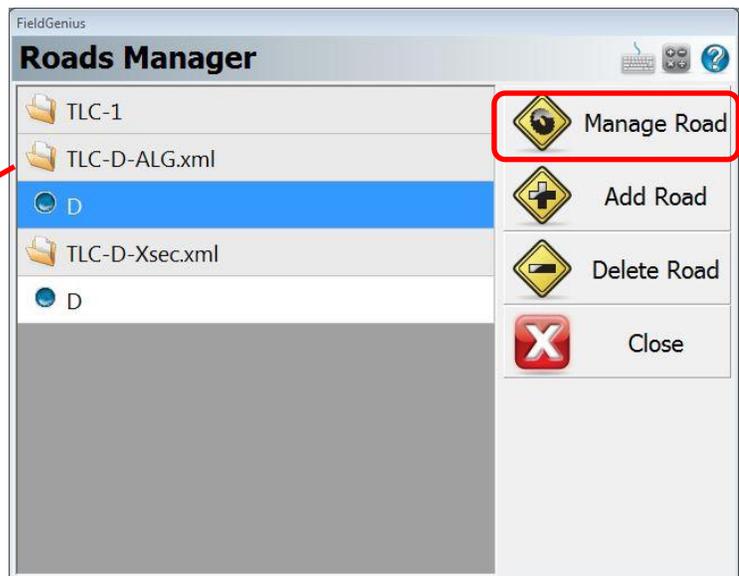
- Once you are within the surface limits you will be given a cut or fill to the design elevation at your point. Remember your elevation is based on the antenna height.



Alignment Staking

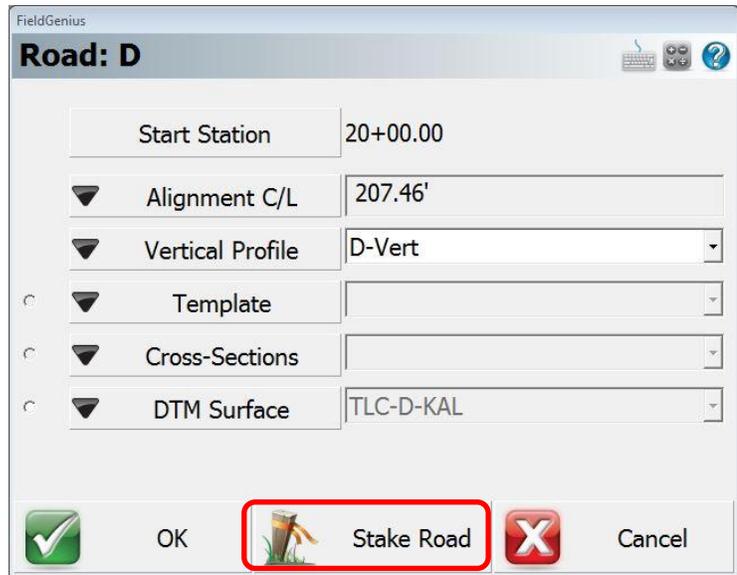
- To stake an alignment select Stake Alignment from the Staking menu. The Road Manager menu will popup. Highlight the alignment you want to stake and tap Manage Road.

Note: The Alignment or cross section xml must be loaded into your project before you can stake it.



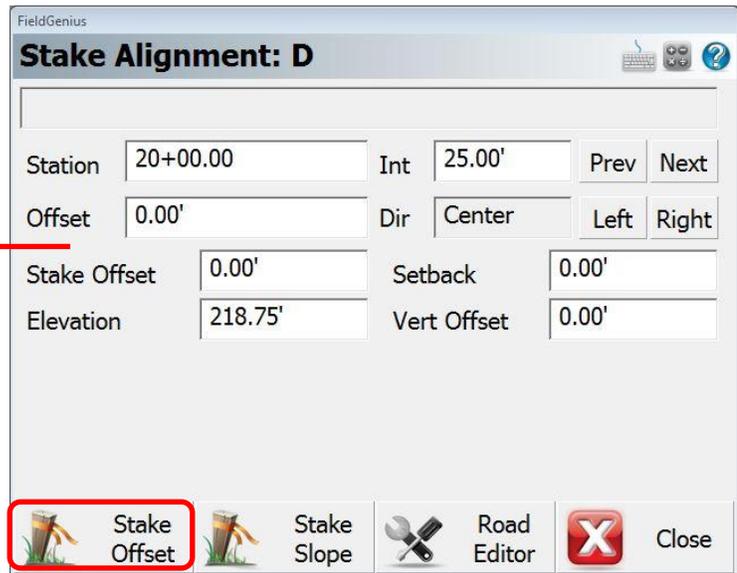
- Tap Stake Road to continue.

FieldGenius will stake using both horizontal and vertical information. If you need to use templates, cross sections or a surface to control the vertical design, make the proper selection in this detail screen. Once you have made the proper selection tap Stake Road to continue.

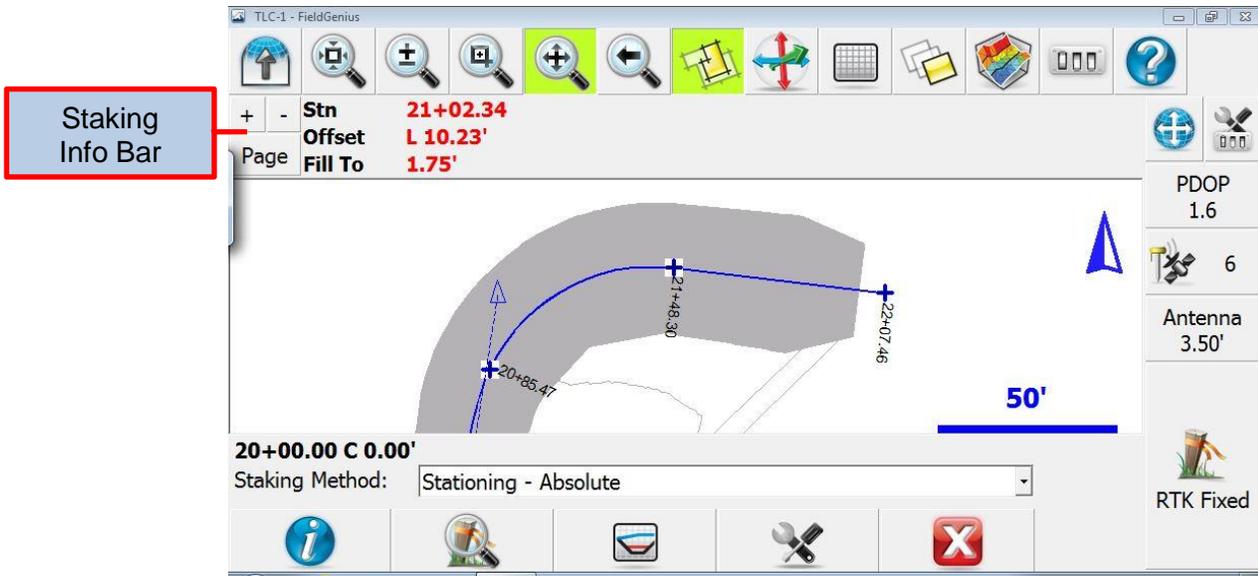


- The Stake Alignment menu will popup. You can change the Station, Offset and Elevation you wish to stake. After making your selection tap Stake Offset to begin staking.

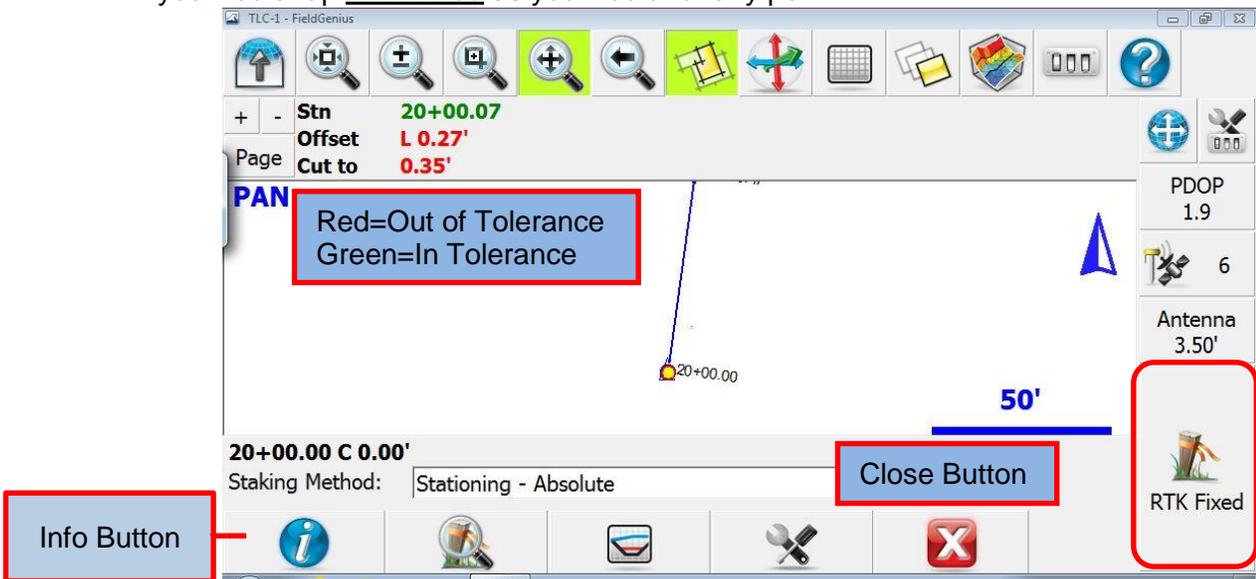
The centerline at Station 20+00 will be staked



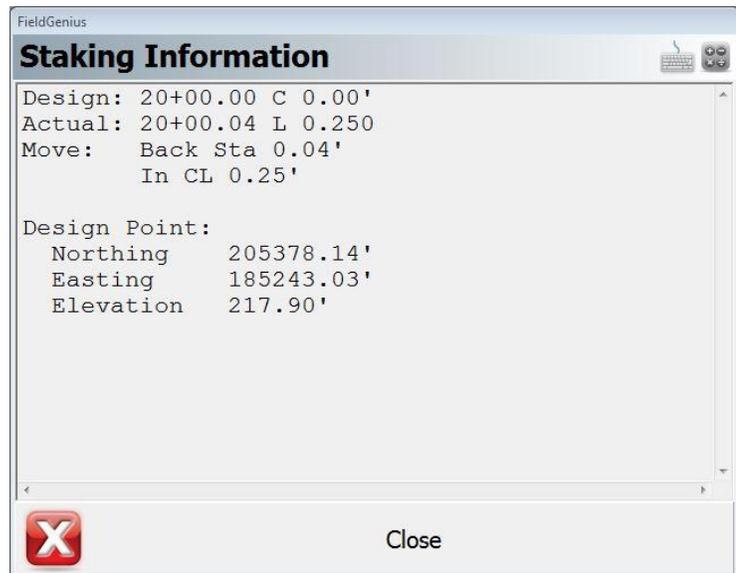
- From the Map View screen you will see your current position and the dashed line to your desired station and offset. If you change the Staking Method to “Stationing – Absolute” you will be shown the station and offset of your position, as you move the information will update dynamically.



- There are four staking methods available:
 - 1) “Directional” – Gives you a northern/easting to get to location
 - 2) “Radial” – Gives you a bearing/distance to get to location
 - 3) “Stationing - Absolute” – Gives your position based on alignment
 - 4) “Stationing – Relative” – Gives you distance based on alignment to get to location
- Once you are within the staking tolerance of the design location the text in the info bar will switch from red to green. If you would like to store the position of the staked point, you would tap **RTK Fixed** as you would for any point.



- At any point during Staking (point, line, surface, alignment, etc.) you can tap the Info button from the Staking View menu and get details on what you are staking and where you are at.

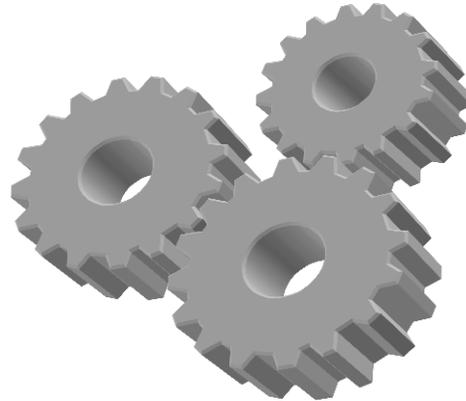


- To move to the next Station without storing a shot at the current Station – tap the Close button on the Staking bar and the Stake Alignment menu will popup allowing you to select another Station and Offset to stake.

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Working with DXF files in FieldGenius

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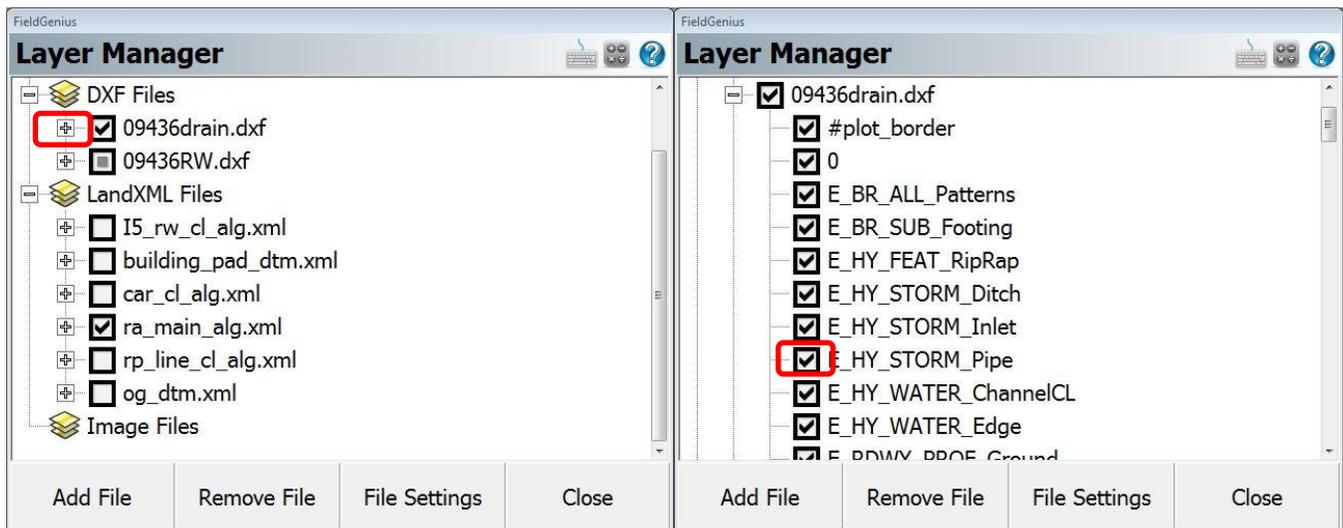
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Title	Working with DXF files
Version	FieldGenius 8.1
Date	November 4, 2015
Author	Chris Pucci
Overview This document will cover using DXF files inside of FieldGenius.	

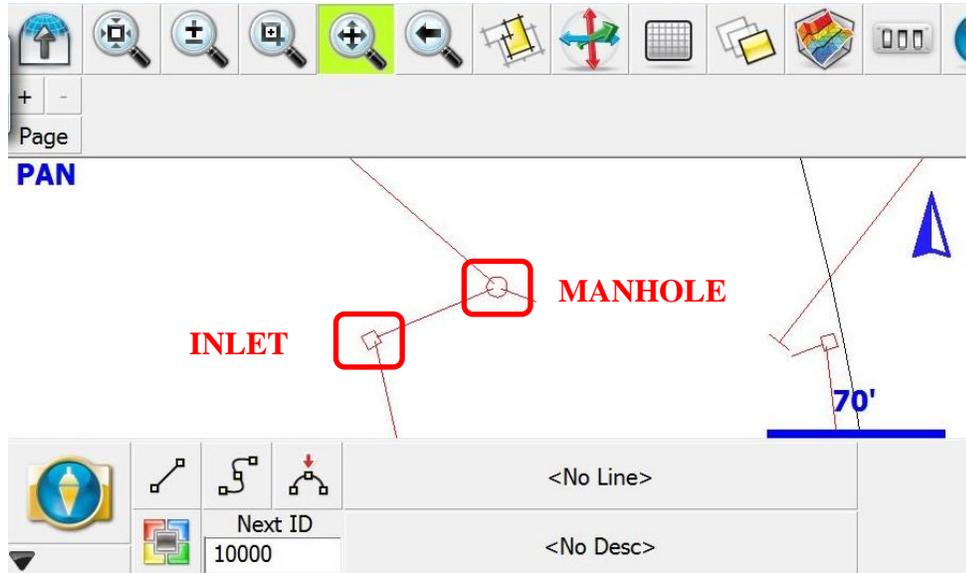
Working with DXF Files

- The FieldGenius software can import and display .DXF files (a generic cad format) allowing you to see and work with design files on the job site. You can import the files using the layer manager or by going through the Main Menu and selecting Import/Export and then DXF files.
- Once you have loaded the DXF files into FieldGenius you can manage the files and the layers through the Layer Manager. If you expand a DXF file by tapping the “+” symbol you can turn levels on and off, much as you would in a cad or GIS program.

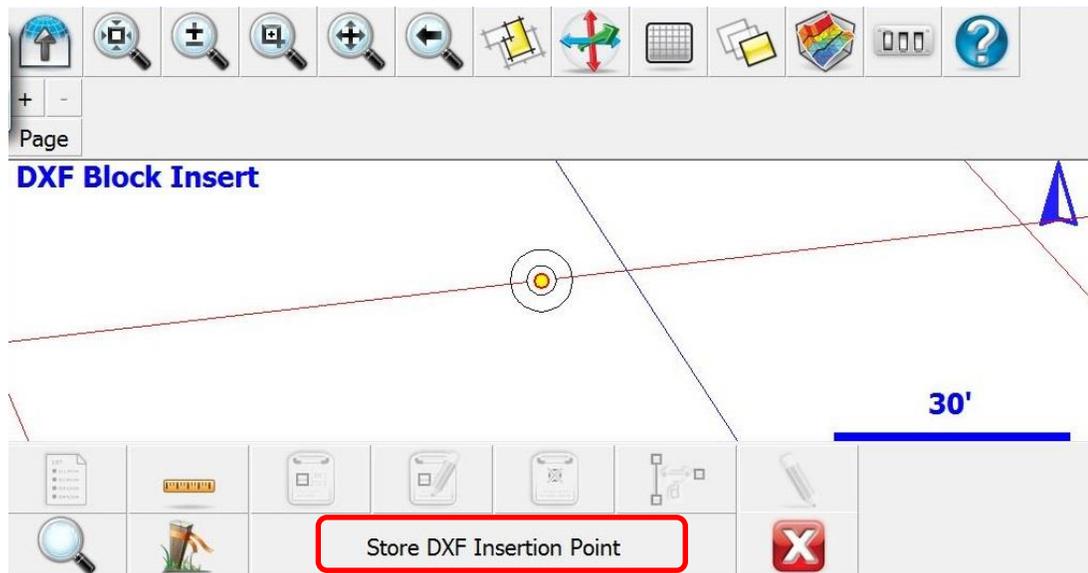


- The DXF files you will work with will all be very different depending on what they are and where they came from. Right of Way files may be made up of only lines. A drainage file will be lines and features. Depending on how the project was designed, will determine what data is associated with each line or feature. Some lines will be 2D, while other will be 3D. Some features will be blocks (cells in MicroStation) and other features will be simple shapes or lines and 2D or 3D depending on the original design.

- In the project below we have zoomed in on a section of a drainage design DXF and can see round manholes and square inlet structures with pipes connecting them.

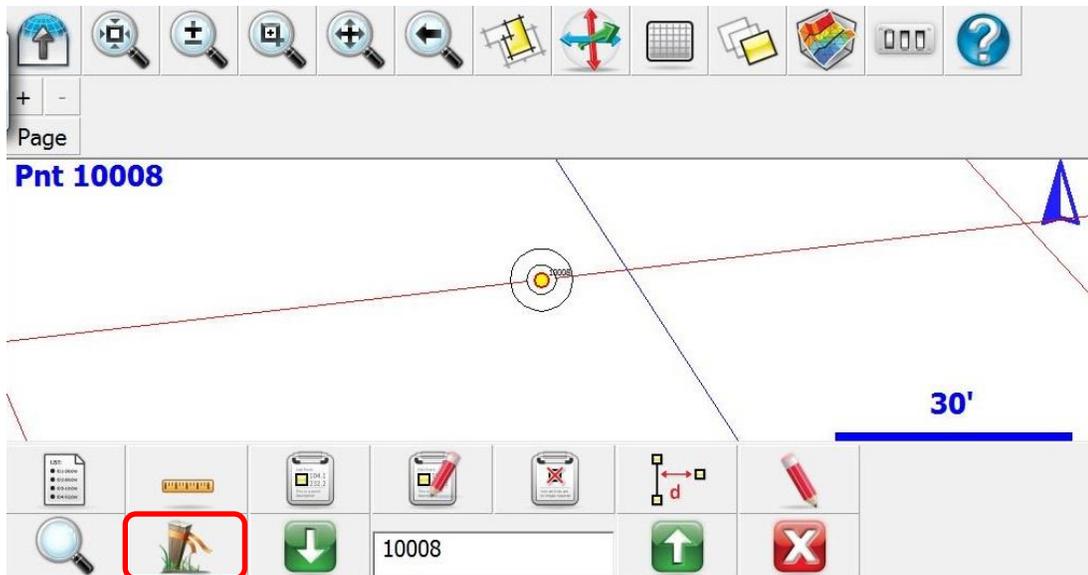


- If you select a manhole by tapping it, you will get a selection specific menu bar along the bottom of the screen. If you would like to make a point in the project that you can stake to, tap the Store DXF Insertion Point button and a Store Point box will open.

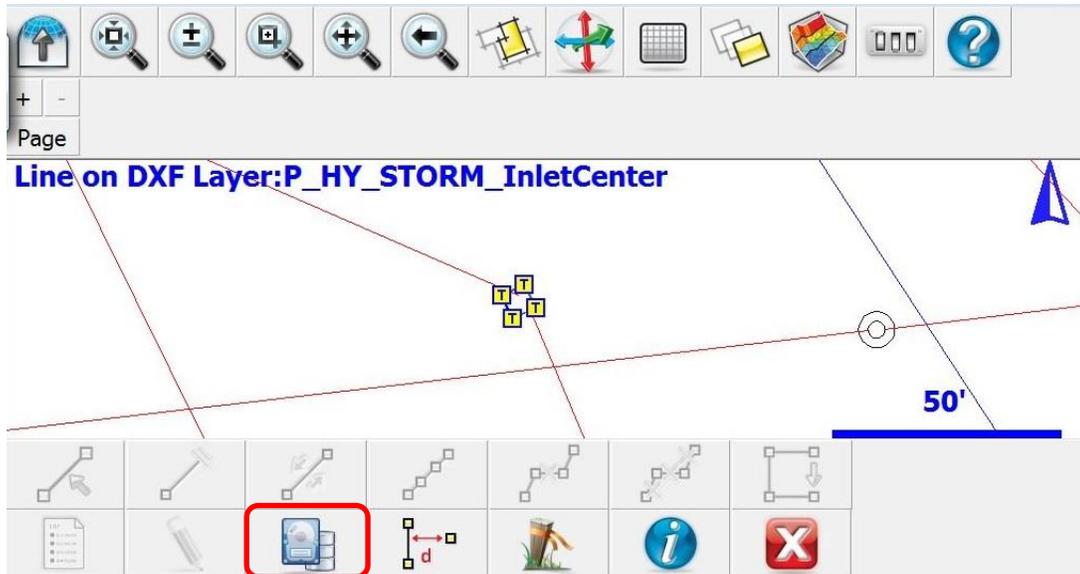


- From the Store Point box you can give the point a new ID (number) and description. You will notice that it is stored as a "User Point" to designate that it was not collected by GNSS or imported as control. Once you tap Store Pnt you will be returned to the Map View with the point you just created loaded into the selection box.

- With the point created and selected you can work with it like any other point in your database. If you tap the Stake icon you can stake the point out and check the location.

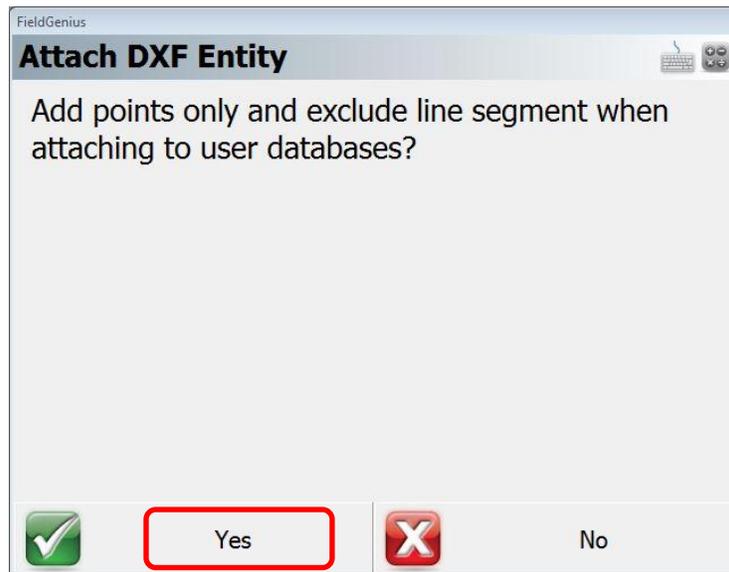


- If you select an inlet it will give you a different set of options in the bottom tool bar. The Stake icon will allow you to stake the lines that make up the inlet. Or you can tap the Coordinate DXF Data button and it will add points to all of the nodes that make up the inlet.

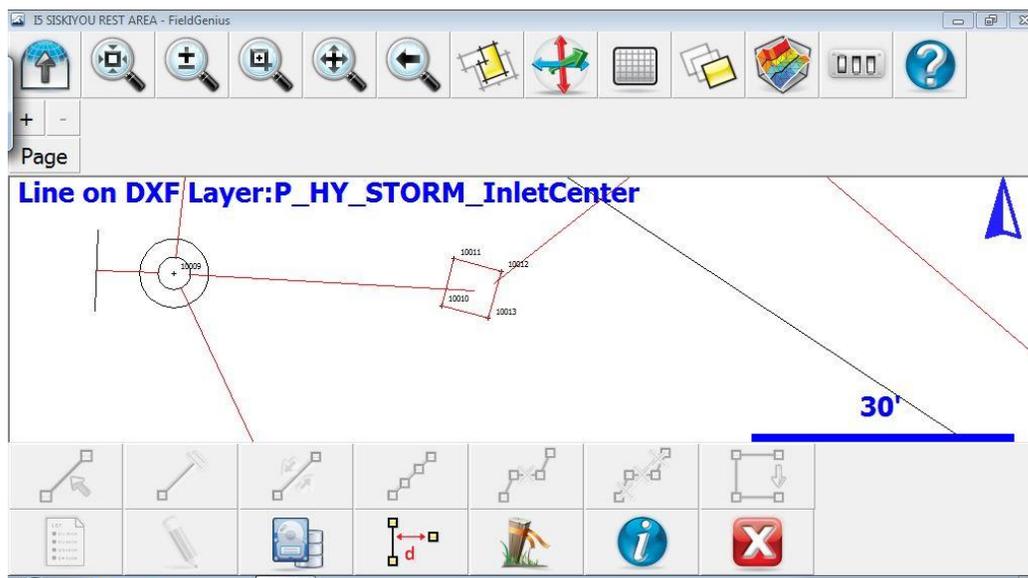


COORDINATE DXF DATA

- After tapping the Coordinate DXF Data button you will be asked a question about points only. Select YES.



- You will now have points at all of the nodes that defined the inlet.



- You can use these same procedures on almost any line or feature within a DXF file. If the lines and features are 3D you will be able to stake the design elevations as well as the design location. If they are only 2D you will only be given a location and the elevation will default to 0.00'.



Inspector Tablet

Antenna Settings – Select HEMI P303 ORGN configuration for both internal and external antenna

Internal: APR to APC Offset 84.3mm

External: APR to APC Offset 58.3mm

Antenna
3.500'

Antenna Height

Internal HEMI P303 – Distance from tablet to point

External on fixed rod – 6.562 feet // 2meters

NTRIP CASTER Settings

ORGN MAX GG: 167.131.109.57, Port 9882

ORGN Single: 167.131.109.57, Port 9879

User Name: 15TABXX, Password: GRADE

Data Format: RTCM 3

RTK Radio Settings

GS14 2015 Models – Satel OEM22 – Channel 2

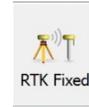
GS14 2013 Models – Satel OEM20 – Channel 2



To Access Main Menu



Instrument / Connection settings



To Store a point tap this icon



Opens Point Database

Technical Questions/Support/Help

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