

M. C. Miller Co. Android Test Site Survey (TSS)
Application
User Guide



(rev 2.0 5-16-2024)
(TSS v3.1.1)

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Introduction

The Test Site Survey (TSS) Android tablet application is used in conjunction with a M. C. Miller Co. volt meter, either a VADER or a VoltTab. The VADER unit consists of an integrated digital voltmeter and an integrated WAAS-enabled submeter GPS receiver. The VoltTab is a combination of an Android tablet and a direct connect digital voltmeter. The Android TSS app takes advantage of the tablet camera functions to provide this type of survey support if needed.

The M. C. Miller Co. Android TSS application will execute on most Android tablet brands executing on the latest version of Android operating system software. The VADER unit is licensed from M. C. Miller Co. and when used with the M. C. Miller Co. Android TSS application, it is detected and connected to the TSS app via WPAN connection.

TSS data collected via the Android TSS Data-logger app can be transferred to M. C. Miller Co. ProActive Pro or ProActive Legacy PC-based application.



Tablet

- Apps
 - Pipeline Survey
 - Test Site Survey
 - VM Lite

VoltTab

- Direct Connect Voltmeter
- Submeter GPS

VADER

- WPAN Voltmeter
- Submeter GPS

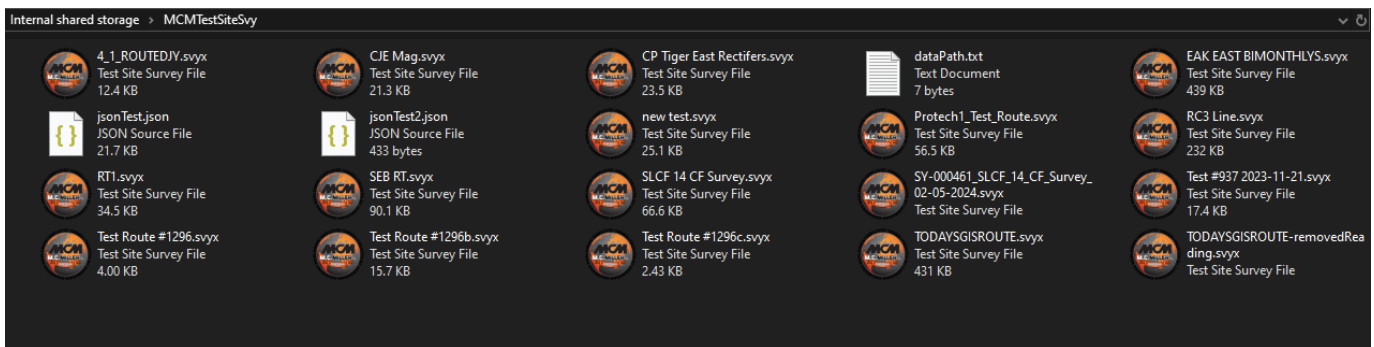
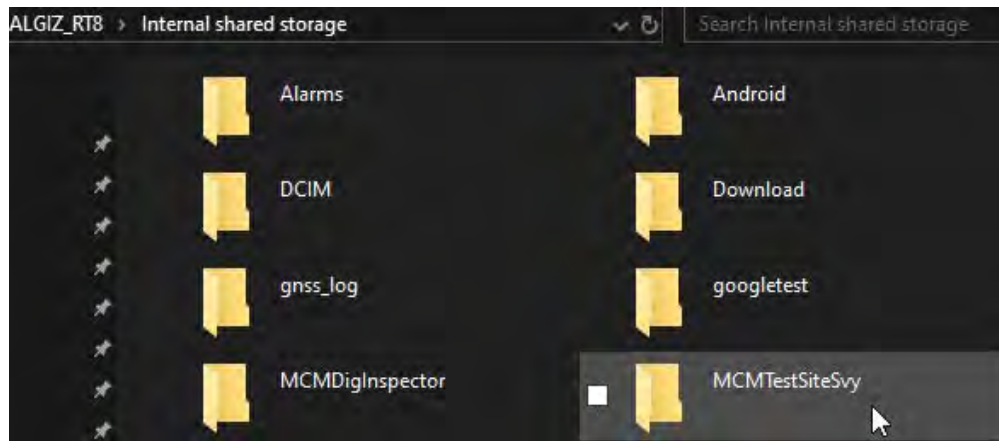
NOTE: Close your survey when you are finished taking readings for the day.

Overview

Test Site Surveys are typically performed either on an annual basis or on a bi-monthly basis. They involve collecting data at specific “sites” associated with a pipeline system, such as test stations, rectifiers, bonds, valves, etc. The function of the Android TSS app will include all of the functionality of the M. C. Miller Co. Gx Data-logger TSS app. The TSS application integrates with M. C. Miller's corrosion control data management application, ProActive Pro or ProActive Legacy, with route data files being created in the ProActive Pro or ProActive Legacy application (please see the ProActive Pro or ProActive Legacy Training Manual). Route data files contain information on the sites to be visited, including information on their location, the types of data to be collected at each site and how various data will be processed. Once a route data file has been downloaded to the Data-logger, a technician can perform a test site survey by visiting each test site and collecting all of the appropriate data in response to the various prompts associated with each test site. The user interface for the Android TSS app is similar to the M. C. Miller Co. Gx Data-logger user interface. Slight changes to the user interface for the Android TSS app are mainly due to the difference in screen size and tablet characteristics.

Test Site Survey data

Test Site Survey data is stored in the **MCMTestSiteSvy** folder on your Android tablet. The **readings** from your route are saved to a svyx file. If your application finds that a survey file is missing, it will try to recover the file by using the data that was last saved to the unit. Once you are done, ensure that you are closing the survey to save your readings. If a survey file is modified before the readings are saved, that data will be lost.



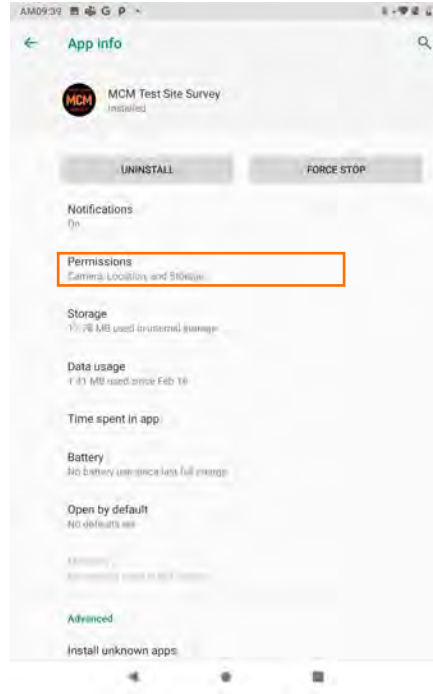
Initial Setup

When the app is launched for the first time, it should prompt you to grant the necessary permissions such as Storage and Location. A common source of malfunction is these permissions not being granted. To ensure proper functionality, you should check that all the permissions listed in the tablet's settings for this app are granted.

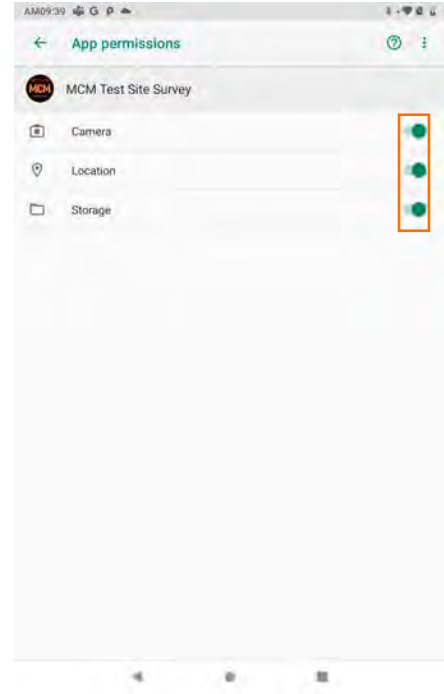
Long press icon and tap "App Info"



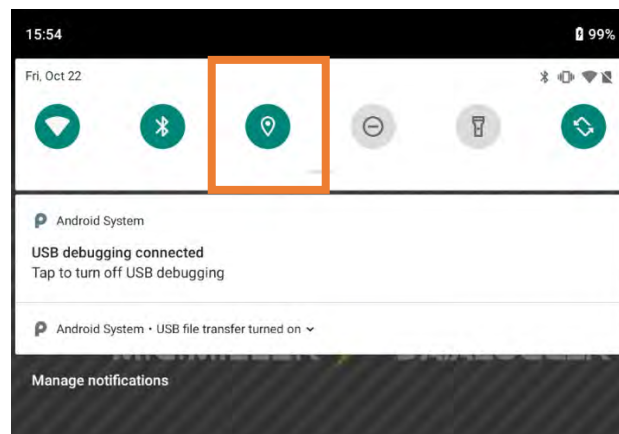
Go to "Permissions"



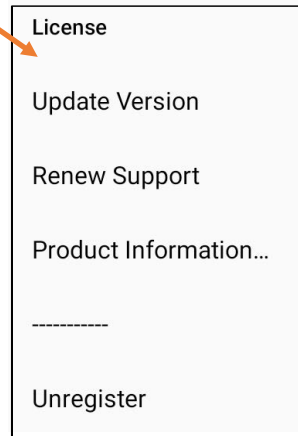
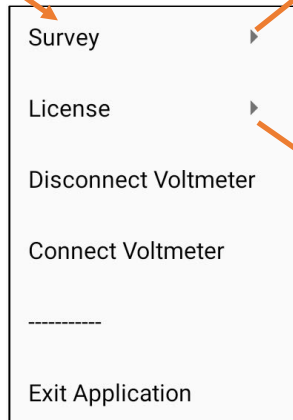
Enable all listed permissions



In addition to granting the permissions, some WPAN functions require that Location is turned on. Not turning on Location may prevent the app from finding your VADER.



Android TSS Main Screen



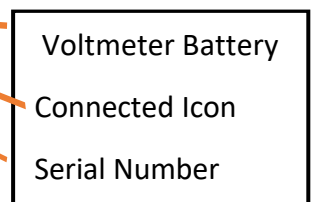
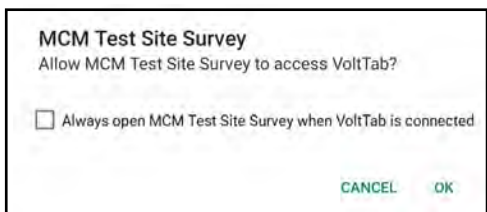
An **Android app menu** is provided (3 vertically stacked dots) that can be used to check TSS app information, connection options, and licensing information.

Connecting a Voltmeter

When you open a survey a popup will start scanning for devices. If a VoltTab is detected, it will always appear at the top of the list. As soon as a device is added to the list, you can tap on it to connect to it. At any point, you can tap anywhere else on the screen to cancel the scan. The scan will end when the OS determines there's nothing more to find, and the progress wheel will become a "scan" button. Tapping this button will start the scan again. **Note: restarting the scan will first clear the list.**

Connecting a VoltTab

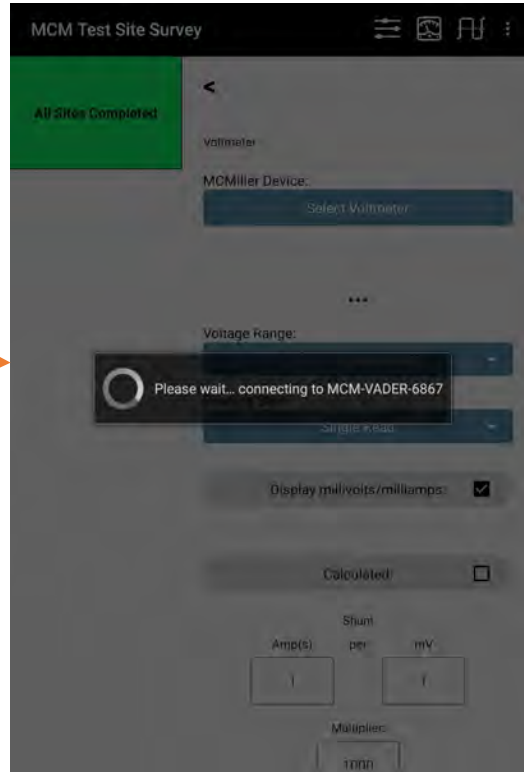
When Connecting to a VoltTab you will be prompted with this popup to allow the application to communicate with the Voltmeter.



Connecting a VADER

Scanning for devices

MCM-VADER-6867



Pair with MCM-VADER-6867?

Allow access to your contacts and call history

CANCEL PAIR

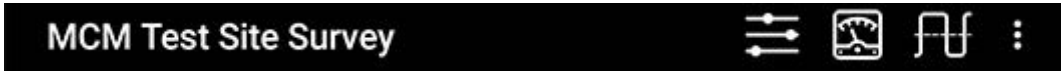



VADER Battery
Connected Icon
Serial Number

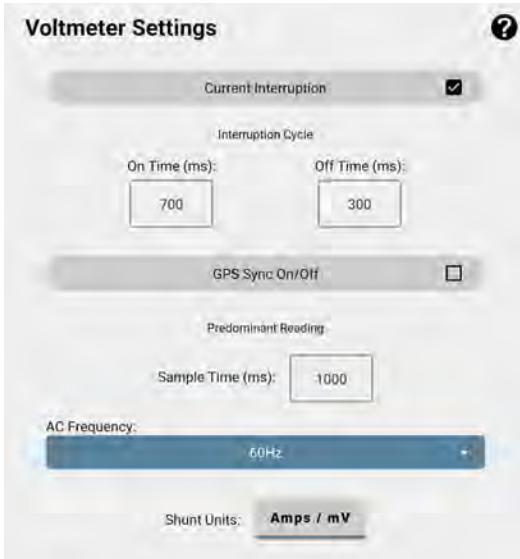
Note: The unit does not do anything with this data.
You can safely ignore the pop up and continue pairing with the unit.

Functions

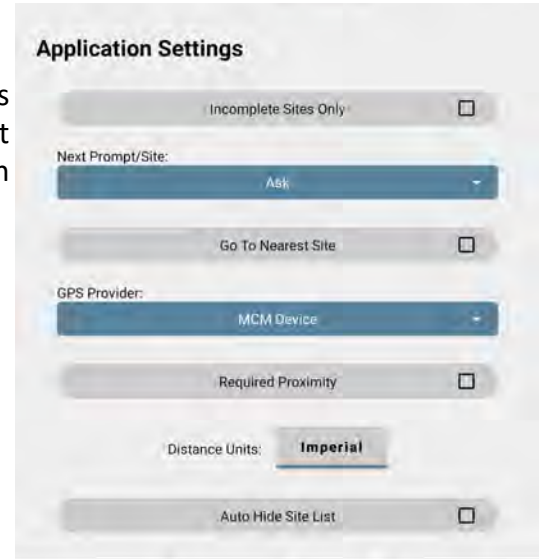
The TSS app shows a main **Function** menu bar at the top of the screen. The button selections provide access to **sub-functions** that may be used during certain survey events.





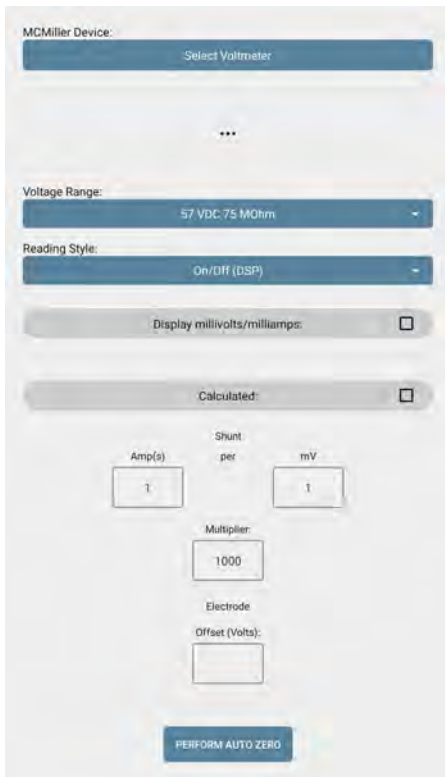
- The first button in this section of the screen is the **Settings** button . Here, you can adjust some general settings for the application, survey, and Volt Meter.



The question mark denotes that the page will explain what certain fields represent when long pressing them.



- The next set of buttons are (**Volt Meter Configuration**) , and (**Wave Form Recorder**) . **Volt Meter Configuration** provides access to functions and settings that *modifies the* data that relates to the current survey in process.



- **MCMillerDevice:** Connect to a Volt Meter or set up the survey for manual entry.
- **Voltage Range:** Select an operating Voltage range.
- **Reading Style:** Select the style you would like to take your readings in.
- **Calculated:** For calculated amperage readings, the app will multiply your voltage readings by the shunt multiplier.

Calculated Overview:

There are two ways you can change the multiplier value in the app. You can either enter the multiplier, and the app will determine the simplest factors for the shunts' Amps to mV ratings. Or you can alternatively enter the shunt's rating, and the app will determine the multiplier. If you enter 1000 for the multiplier, the app will set the shunt rating as 1 Amp per 1 mV. If you enter a shunt rating of 50 Amps per 50 mV, the app will set the multiplier as 1000. There is no functional difference for the calculation.

Volt Meter Configuration

The Waveform page allows you to view and record waveforms. You can specify how many seconds worth of readings the waveform will hold. As new readings are added, readings older than this setting are removed. This setting does not affect the recording function. The app will track the minimum "Min" and maximum "Max" values. The graph auto-scales and arranges the readings with the Max at the top and Min at the bottom. The Max will be the voltage with the greatest absolute value. The Min will be the voltage with the least value if the Max is positive, or the greatest value if the Max is negative.

In other words, if you are reading voltages ranging from -2.3V to +1.1V, the Max would be -2.3 and the Min would be 1.1. If you then read +2.5V, then +2.5 would become the new Max, -2.3V would become the new Min, and the graph would flip.

Positive voltages are denoted with green dots, and negative voltages are orange dots. There is a counter above the top left corner of the graph displaying the number of readings held in the waveform at any given time. Pressing the Start/Stop button at the bottom right of the screen will either start or stop the waveform, respectively. The "Clear" button will remove all the readings on the graph leaving it blank, and the "Record" button allows you to save waveform data to a csv file. The readings displayed at the time of pressing "Record" will be saved first, followed by new readings as they are added to the graph. When you first press this button, a popup will ask for a file name. It will default to waveform1, waveform2, and so on, but may be changed to whatever you would like. If you tap "Cancel", then no file will be created. Once you tap "OK", the file will be created and the app will start recording the readings, up until you press the "Stop Recording" button to stop recording and close the file.



Wave Form Recorder

Route Devices and Prompts

The TSS main screen will prompt the user to open either the last opened survey or the last survey that was sent to the tablet. Once opened the user will see the list of devices from the route, and the respective prompts set up for field readings.

List of devices on the route, with prompts that require the user to log findings/readings

This list can be hidden by pressing the "<" button and reopened with the ">" button.



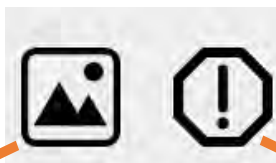
Device Name		
Pipeline:	Distance:	Milepost:
Pipeline/Site Name	Unknown	0.000000
Station #:	Latitude:	Longitude:
2.0	27.766850	-80.510660

Device Name: The name of the device.

Pipeline: The line or site that the device is on.

Distance: When location data is on, and the correct co-ordinates are set for the device. Distance will display your distance from the device.

Attach a new picture or one that has already been taken.



Add remedial prompts for any repairs made to the device during the survey.

Add Picture

Gallery

Camera

Remedial Item

Remediation: Other

Remarks

Add Cancel

Other

Repair Post

Repair Top/Cap

Replace Wire

Repair Arrestor

Replace Leads

Text Input

Cancel

Remedial Item

Remediation: *Text Input*

New Remediation

Save Remediation

Remarks

Add Cancel

When creating a new remedial item, you can check the "Save Remediation" option to add it to the list of remediations for future use. Otherwise, it will only be added to the current site.

k : Notes on the device or its readings.

Log Reading: Save the current reading to the prompt.

Skip: Skips prompt and marks it as skipped, so a technician is reminded what needs a reading from a glance. When skipping a prompt, the app requires that you provide a reason for skipping. ProActive Pro or ProActive Legacy will import these skipped readings with the reason in the remarks field.

Note: The app will treat skipped prompts as if they were completed. That is, they will not be counted as "Undone" in the site list, they will not be considered when the app automatically moves to the nearest or next site, and they will not prevent a site from being hidden in the list when in "Incomplete Sites Only" mode.

Current

...

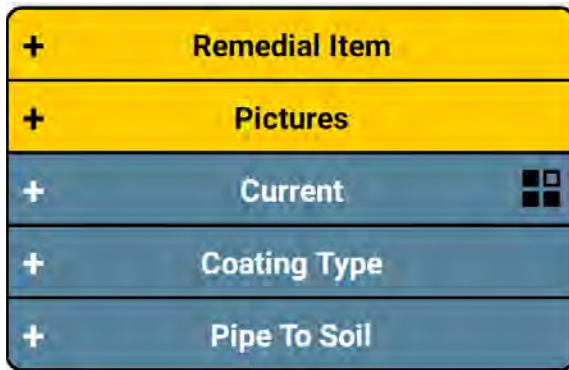
Remarks

Range: 40 VDC 75 MOhm
Mode: Single Read

LOG READING SKIP

+ Coating Type

+ Pipe To Soil



When remedial items or pictures are added to the device they should appear in the list of prompts like this.

Similarly when a prompt is skipped, a symbol denoting that a prompt was not filled out will appear.

Symbols representing these features will be generated in the device list next to any devices containing them.



The settings page can be accessed from device prompts via this button.



Settings can be adjusted for specific devices, and their individual prompts

Save settings across all prompts of the same type.



SEB Station Rectifier Pipeline: DEMO-Line Station: 25.0 Prompts: Undone: Non-compliant: 1 1 1
Sation Rd Test Point Pipeline: DEMO-Line Station: 173.0 Prompts: Undone: Non-compliant: 2 0 0
CR 512 Test Point Pipeline: DEMO-Line Station: 0.0 Prompts: Undone: Non-compliant: 4 4 0



technicians

k d:) \ u
Green:
Blue:

If the Technician is given the proper permissions in ProActive Pro, they will be able to clone devices by long pressing the device.


When connected to a Volt Meter and logging GPS you will see your current latitude and longitude below your device information.

The button next to Current Location can be used to update the latitude and longitude of the device to your current coordinates.

Line Crossing w/ No Bond  

Survey: Survey6

Pipeline:	Distance:	Milepost:
_Risky Line	1079.4 mi W	3.335230
Station #:	Latitude:	Longitude:
0.0	26.928240	-98.041710

Current Location 

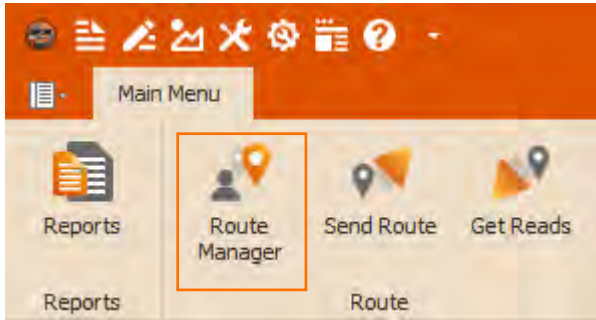
Latitude:	Longitude:	Accuracy:
27.805907	-80.463380	excellent

Android TSS Route Setup Process

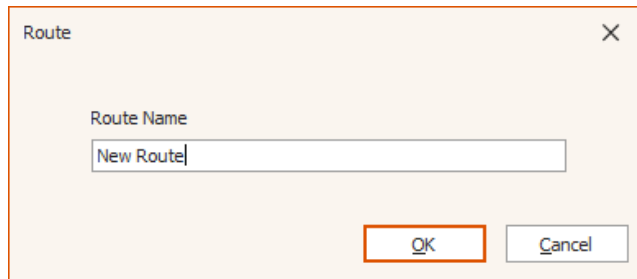
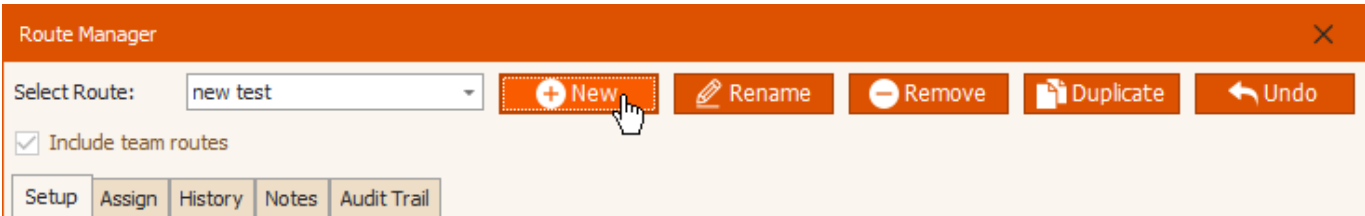
The following section will go over the required set up in ProActive Pro.

Users will need to build their routes in ProActive Pro. Once a route is built in ProActive Pro the user can send the route to the android device running TSS. A new route can only be created in ProActive Pro.

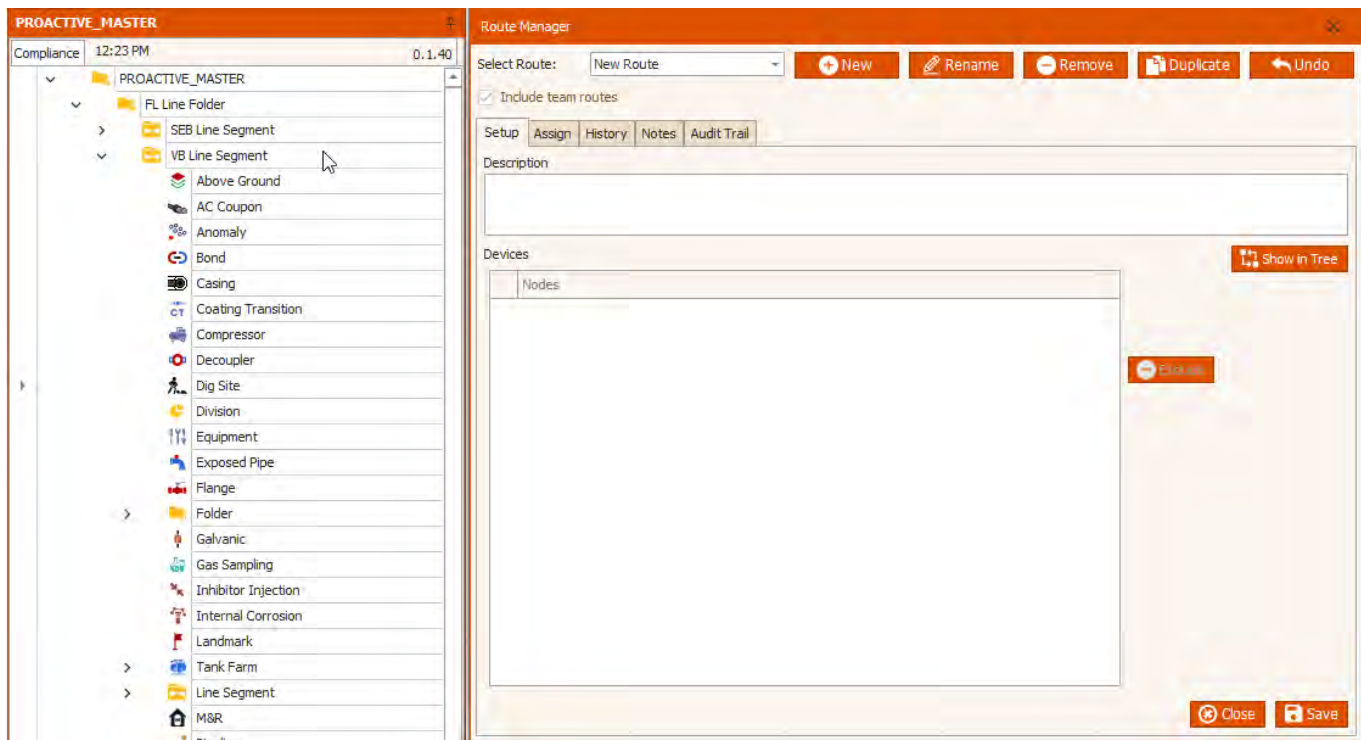
Route Setup

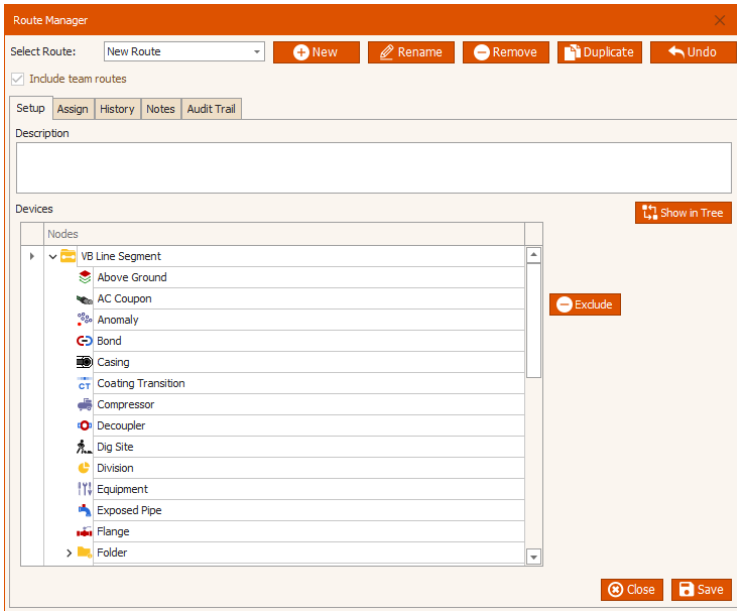


Users create and manage their routes from the Route Manager.

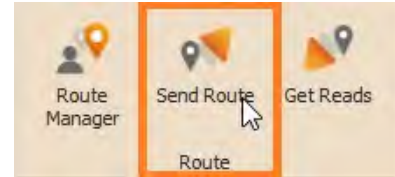


Simply drag devices from your tree into the devices field to add them to your route.

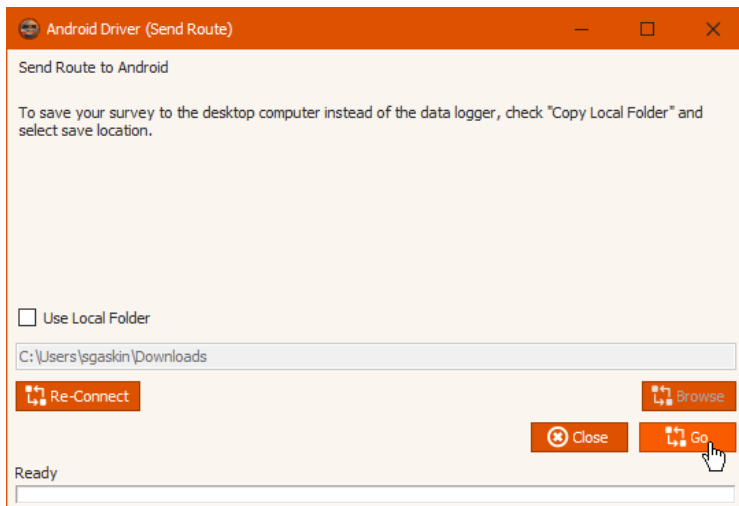
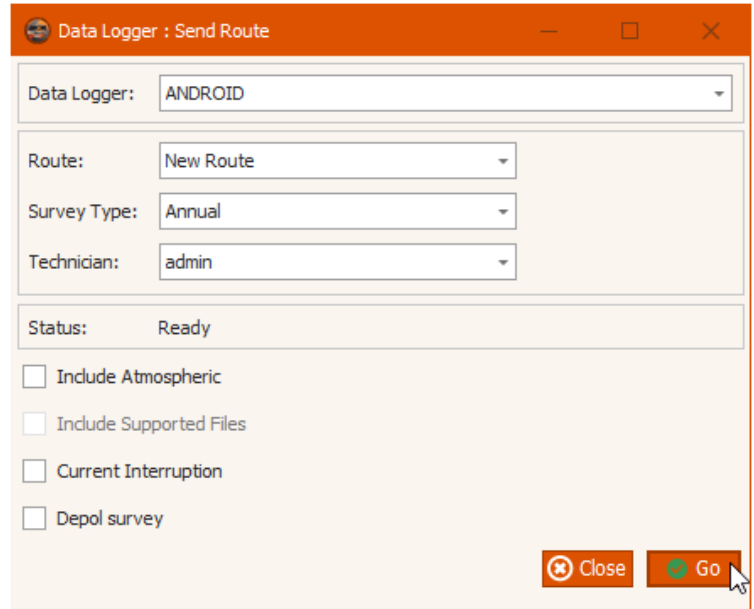




Now that you have built the route with your devices, we will send the route to your data logger using the send route tool.



Select the appropriate data logger, route, survey type, and if you would like to include atmospheric data. Mark that the pipeline is under current interruption or if you are taking a depol survey.



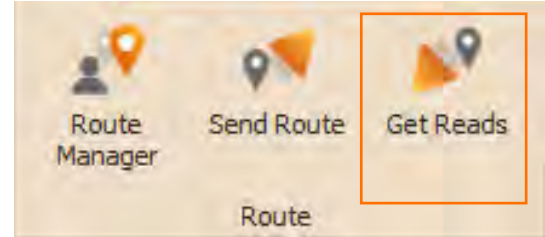
"Use local folder" will send the file to a user defined path, or you can explore your files using the "Browse" button. Users can subsequently send the saved file to others to allow them to manually put the file on their tablet.

If you are having connection issues or would like to send the route to another tablet, click the "Re-Connect" button to check the connection or alternatively once connected to the new tablet.

When you are satisfied select "Go" to send the file.

Get Reads

When you are ready to bring your readings into ProActive Pro plug in your tablet and select the "Get Reads" function.



Select the route and choose the technician that took the readings. If the technician is different than the one set from "Send Route" or from within the application, select "Override Logger".

Record what the conditions of the area were during the survey and write up a description of what you are bringing in.

If you did not select "Include Atmospheric", "Current Interruption", or "Depol Survey", when the route was sent to the tablet, you are now able to make those selections before bringing your surveys in.

"Use Local Folder" in get reads will look for the file on your computer instead of the tablet.

"Copy Local Folder" will bring the readings in and also create a copy

NOTES