evoDrive User Guide

elster

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THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION

Caution RF EXPOSURE
To comply with FCC requirements, maintain a separation distance of at least 10.0 cm between the antenna and all persons.

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1. Introduction

evoDrive™ System and User Guide Overview

The Elster AMCO Water evoDrive system is a data collection tool that enables utility personnel to read water meters from a moving vehicle, thus saving time, costs and improving accuracy over conventional manual readings.

This manual describes the components of the evoDrive system, how they are to be installed and interconnected and how to use the evoDrive software to gather meter reading data.

evoDrive Features

The evoDrive software has been designed to be easy to learn to use. The graphical user interface offers the following easy access features:

- ✓ Accurate GPS-guided mapping – see where you are
- ✓ Easy route loading and saving of collected data
- ✓ Audible reporting as meters are read during drive-by
- ✓ Rotating map feature that holds the vehicle stationary and moves and rotates the map
- ✓ Manual entry of missed readings
- ✓ Easily identified route symbols with color coding
- ✓ Helpful reports that tell the status of meters along the route
- ✓ Ability to retrace a route in a replay mode on the map display to improve route driving efficiency
- ✓ Ability to replay a recent history of interactions or use steps
- ✓ An easy-to-use settings window to customize some basic functions

evoDrive System Components

The two main hardware components of the evoDrive system are the Mobile Collector and the evoDrive notebook PC.

The evoDrive Mobile Collector is a PC-based radio transceiver that optimizes the automation capabilities of automated meter reading (AMR).

The evoDrive notebook PC, with touch-sensitive screen, serves as a graphical interface to the evoDrive Mobile Collector.

The evoDrive system is shipped with the following components as shown in Figure 1 and Figure 2:

- ✓ Ruggedized notebook PC with sunlight-viewable, touch-sensitive screen
- ✓ evoDrive Mobile Collector
- ✓ Laptop AC/DC power supply
- ✓ evoDrive Mobile Collector DC power cable
- ✓ Ethernet cable (cross cable)
- ✓ Garmin GPS10 GPS unit with Bluetooth connectivity.
- ✓ Two Magnetic Mount Antennas w/cable & TNC connector
- ✓ evoDrive Software Application
- ✓ evoLink™ Route Manager Software
- ✓ Route File

In addition to the above, the user must provide the following:

- ✓ DC-to-AC inverter, which will be used to power the notebook PC via its AC/DC converter on long routes.
- ✓ Secure mount for the Mobile Collector
- ✓ Two DC Accessory Jacks in Vehicle fused for 20 A

Figure 1: The evoDrive ruggedized notebook PC with included accessories

Figure 2: The evoDrive Mobile Collector radio transceiver and data collector

2. Installing the evoDrive System

Vehicle Preparation

The evoDrive system requires the following:

- ✓ Two in-vehicle DC accessory jacks, each fused for 20 A – one for the notebook PC and the other for the Mobile Collector unit.
- ✓ A secure mount for the Mobile Collector unit – i.e. a pedestal mount with straps or clips
- ✓ A secure mount for the notebook PC

System Orientation

The evoDrive system must be installed in a manner that does not block the flow of air from the cooling fans. It must also be installed so that the driver can easily view and reach the evoDrive notebook PC.

Note: The driver must not attempt system interaction while the vehicle is in motion. The evoDrive system is intended to be interacted with only while the vehicle is parked.

Interconnecting the evoDrive Components

Figure 3 illustrates how the evoDrive system components are interconnected. Read the Power-up Procedure section first.

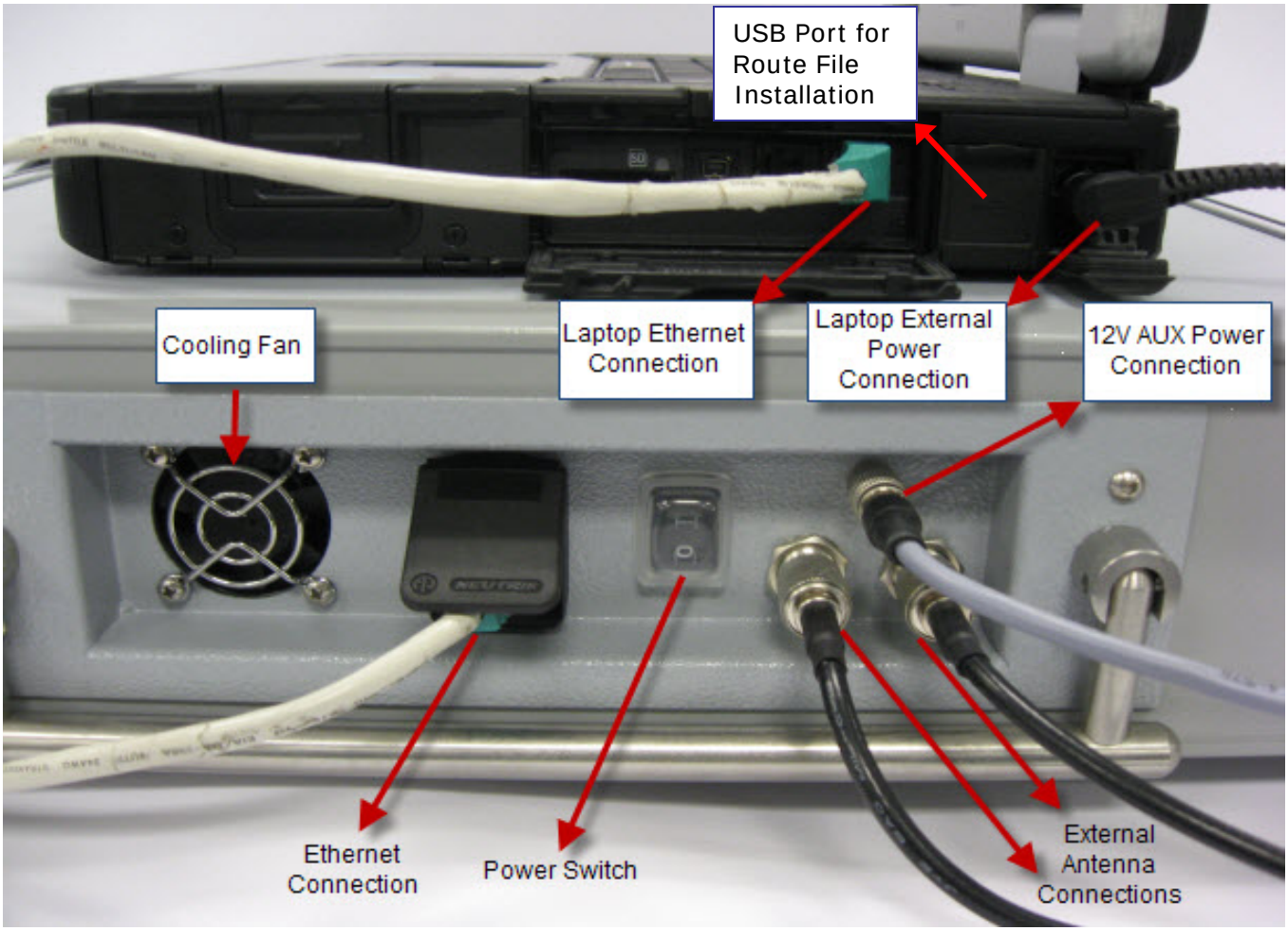


Figure 3: evoDrive System Interconnections

1. Connect the laptop AC/DC power supply cable to the laptop external power connecter.
2. Connect the Ethernet cable from the evoDrive laptop Ethernet connection to the Ethernet connection on the Mobile Collector.
3. Connect the 12V AUX power cable from the power connection on the evoDrive Mobile Collector to the vehicles 12V AUX DC power source.
4. Mount the two external magnetic antennas to the rooftop of the vehicle.

5. Connect both of the external antenna cables to the external antenna jacks located on the evoDrive Mobile Collector.

Power-up Procedure

Because of the amount of current that will be drawn, the vehicle's engine must be running before power is applied to either the notebook PC or the Mobile Collector. The notebook's AC/DC power supply is powered through a DC-to-AC power inverter, which is plugged into an auxiliary 12V DC vehicle outlet.

These steps should be followed for power-up:

1. Start the vehicle's engine.
2. Plug in the DC-to-AC power inverter to one of the vehicle's 12V, 20A, accessory outlets.
3. Connect the AC-to-DC notebook power supply to the notebook PC.
4. Connect the AC plug of the AC-to-DC notebook power supply to an AC jack on the DC-to-AC inverter.
5. Connect the 12V DC cable from the Mobile Collector to the other 12V, 20A, vehicle accessory jack.
6. Use the slide switch on the front right edge of the notebook PC to turn it on.
7. Use the rocker power switch on the Mobile Collector to turn it on.

Garmin GPS Installation

The GPS unit provides longitude and latitude location information to the evoDrive system. It is linked to the notebook PC via Bluetooth radio.

For the notebook to recognize the GPS unit, the GPS Bluetooth driver must be installed on the notebook PC and activated as follows:

1. Power up the notebook PC. Wait for it to fully boot before proceeding.
2. Press the power button on the GPS unit to power it on - a blue LED will illuminate and flash.
3. Go to the Start menu on the notebook and go to Programs, Bluetooth then Bluetooth Settings as illustrated in Figure 4.

4. Double-click on the GPS unit icon to cause the notebook to link with the GPS unit. The GPS unit icon will show a handshake symbol in the GPS icon when the Bluetooth link is successful as shown in Figure 5.

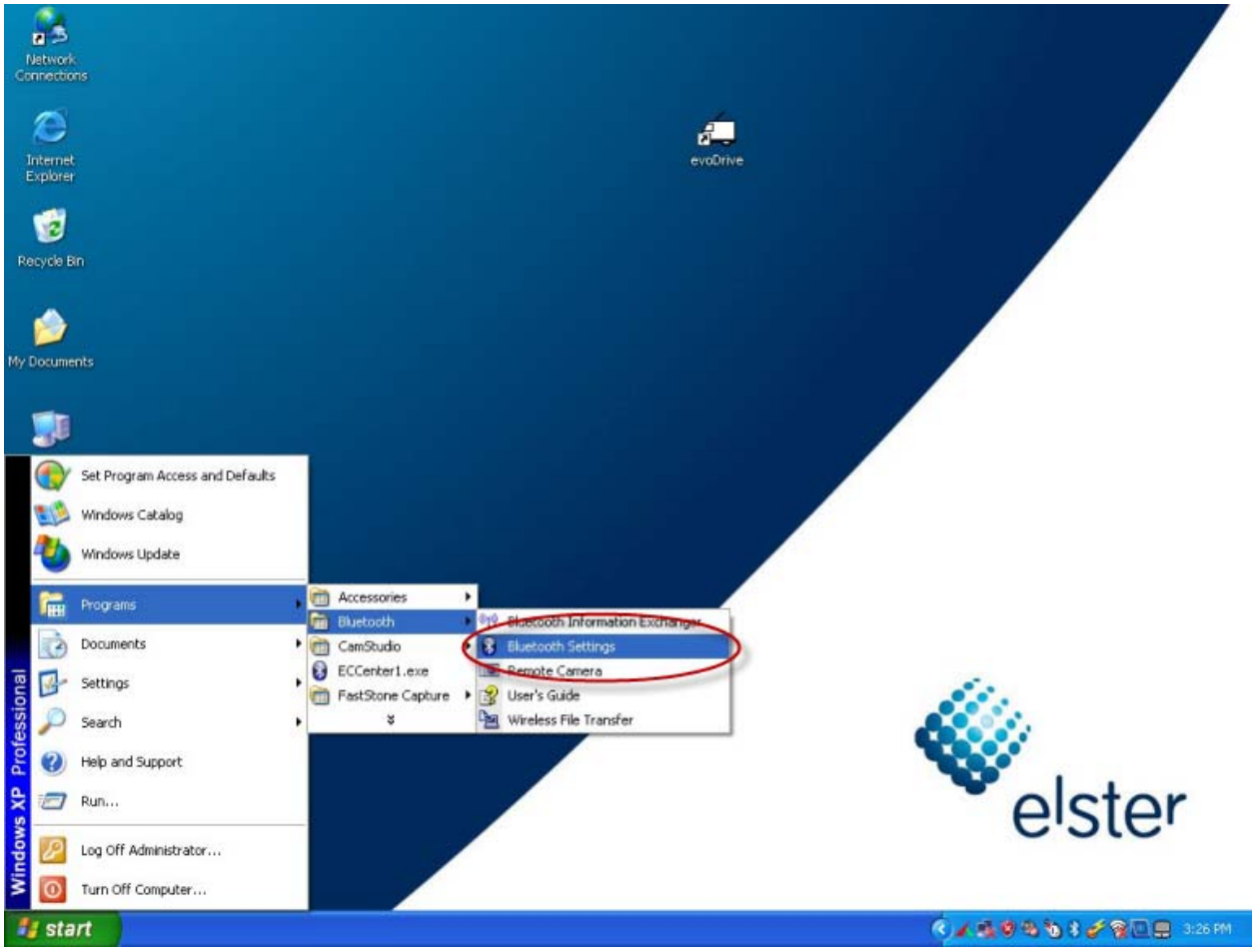


Figure 4: Reaching the Bluetooth settings to link the GPS unit

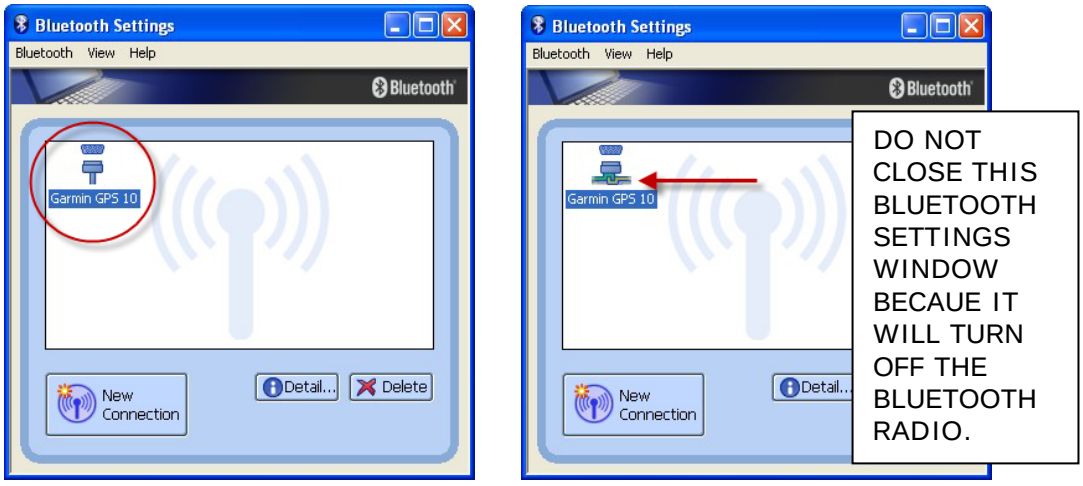


Figure 5: Double-click to activate the Bluetooth link

3. Operating the evoDrive System

Software

evoDrive software and the Windows XP operating system are installed at the factory, along with all GPS map files.

For additional area maps of new construction, contact Elster AMCO Water, Inc at (800-874-0890).

System Start-up

Prior to Start-up, ensure that;

- ✓ All system interconnections are secure.
- ✓ The vehicle engine is running before proceeding.
- ✓ The power connections are secure.

1. Power-up both the Mobile Collector and the notebook PC.
2. Log on to Windows XP.
3. Power-on the GPS unit.
4. Make the Bluetooth connection between the notebook and the GPS unit by following the steps in the Garmin GPS Installation section above.
5. Start the evoDrive program by touching the evoDrive icon on the notebook desktop.

The screen of Figure 6 appears. Note that the GPS is functioning and the vehicle icon is shown at a location on the map.

Operational Overview

The overall operation of evoDrive is straightforward. After starting the evoDrive program you must first load the route file - then touch the Transmitter ON button to activate the evoDrive Mobile Collector. Now drive the route to collect metering data. Stop or pause the route anytime you wish using the Stop button and one of its four options. Use the STOP Quit button to quit the program. When the route is finished, export the loaded route file back to the evoLink Route Manager.

WARNING!
DON'T DRIVE AND OPERATE AT THE SAME TIME.
If the driver is also the evoDrive system operator, the driver/operator must never interact with the evoDrive system while the vehicle is in motion. Interaction with the evoDrive system while in motion is dangerous to the operator and others. Elster AMCO Water does not authorize system interaction while the vehicle is in motion.

BASIC STEPS

- ✓ Start Bluetooth for GPS
- ✓ Start evoDrive application
- ✓ Load Route File
- ✓ Turn Transmitter ON
- ✓ Drive the route
- ✓ Stop or Pause the Route using the Stop Route button.
- ✓ Use the STOP Quit button to exit the evoDrive application
- ✓ Export the route file to the evoLink Route Manager

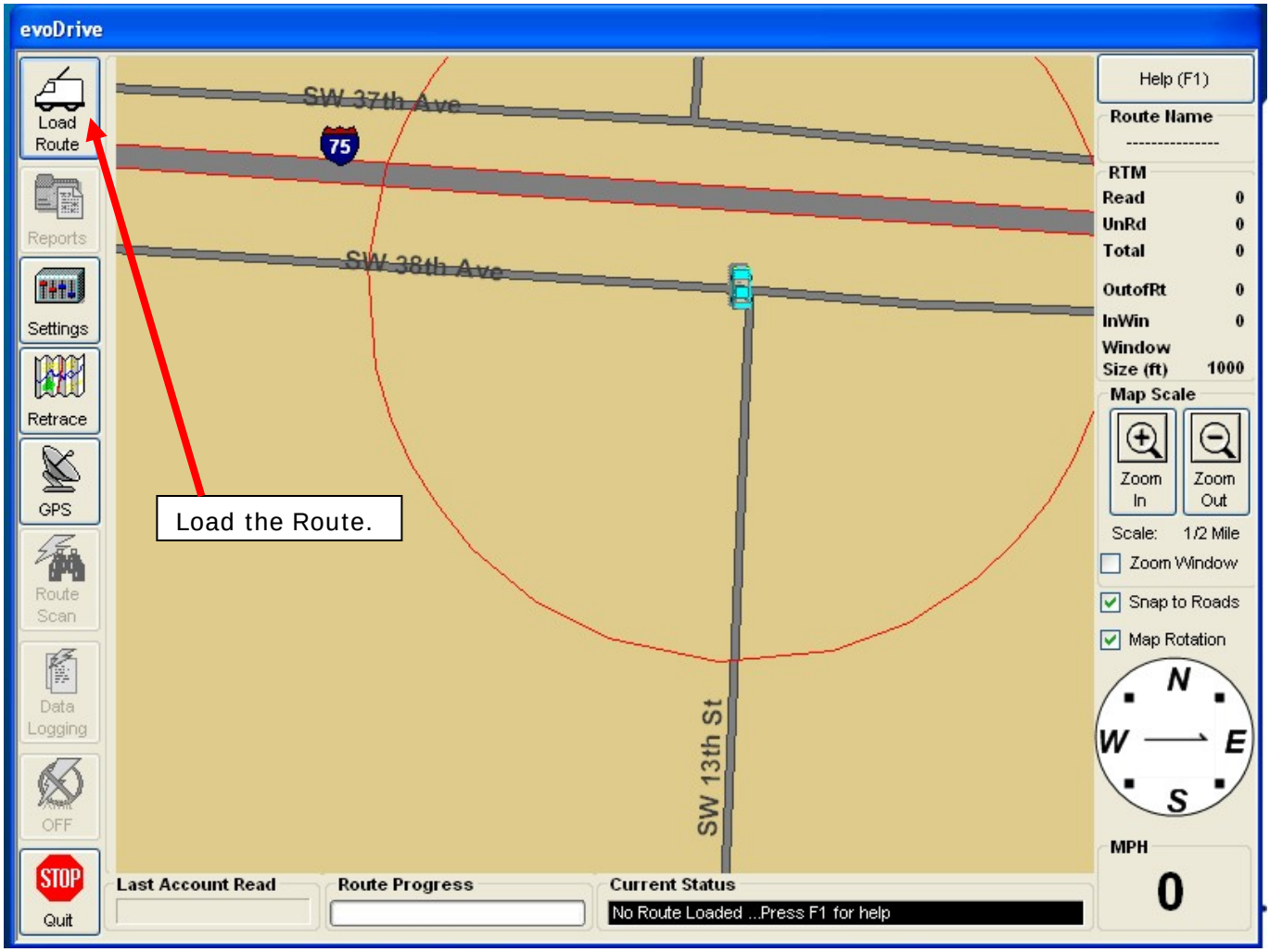


Figure 6: The evoDrive Graphical User Interface

Load the Route File Procedure

Most likely, the first thing you will want to do is to load the Route File. This is the file that was generated from your company's billing system by the evoLink Route Manager and transferred to the notebook PC using a USB thumb drive or other media.

1. Insert the USB Stick containing the Reading Route into a USB jack on the notebook.
2. Touch the Load Route button on the upper left side of the map screen. A typical file selection window will appear.
3. Select the Reading route with the correct reading date (Ex: Reading_20090226.txt)
4. Touch Open.

- ✓ The Loading Route progress bar will appear briefly.
- ✓ The route's GPS locations will now display on the map as black circles. The evoDrive location is indicated by the blue car and the interrogation window is shown as a blue circle near the vehicle.
- ✓ You will note that the Load Route button has been replaced with the Stop Route button and the STOP/Quit button is deactivated while reading is in progress.
- ✓ Data will now appear in the fields to the right and bottom of the screen. (See Reading the Screen Display section next.)
- ✓ The Status bar at the bottom of the evoDrive window will display "evoDrive Online and Reading" after the evoDrive is ready to read.

5. If the evoDrive notebook PC and the evoDrive Mobile Collector do not successfully establish communication, go through the Troubleshooting section to the right.

NOTE: If the evoDrive notebook PC does <u>not</u> establish communication with the evoDrive Mobile Collector after approximately 3 minutes it will timeout and reset.

Troubleshooting

If you receive the "evoDrive Error" message, click "OK" and proceed to troubleshoot as follows:

1. Ensure that all cable connections are secure at both ends.
2. Replace any cables that may be defective.
3. Verify that power is applied to both the evoDrive notebook PC and the Mobile Collector.
4. Call Elster AMCO water, Inc. (866-896-8879) if the source of the problem cannot be identified.
5. After the problem is solved, shut down and restart the system:
6. Shut down and restart both the notebook PC and the Mobile Collector.
7. Begin again at Step 1 of the 'Load the Rout File Procedure'.

You may now begin to drive your route. The map will move and rotate as needed to keep the blue car in the approximate center of the screen.

evoDrive Functions and Options

The following table provides an overview of evoDrive buttons, the options and sub-options available through each button and their functions.

Button	Option	Sub-Option	Function
STOP ROUTE	Cancel exit menu		Exits the “Stop Route” function and returns to normal operation.
	Pause reading to resume later		Allows you to interrupt the reading session and power off the evoDrive to conserve vehicle battery. When the evoDrive is powered back on, you may resume the route
	Exit without saving route reading data		Exits reading function without saving data read so far. To resume reading after this type of stop you must load the route and start again from the beginning.
	Save route reading data and exit		Exits reading function after first saving data to disk.
REPORTS	Not read		Lists all unread evoRTM endpoints in the route along with status and current distance from the evoDrive.
	Read		Lists all read evoRTM endpoints, along with status, read data and conditions.
	Tampered		Lists all read evoRTM endpoints returning a tamper indication, along with status, read data and conditions. Also indicates whether tamper reset was successful (TRUE) or unsuccessful (FALSE).
	Unread		Lists any evoRTM endpoints that should have been read but were not for the route.
	Not read in window		Lists any evoRTM endpoints currently within the interrogation window that have not yet been read.
	Route		Lists all evoRTM endpoints on the route, along with read status, data and conditions.
	Refresh On/Off		Toggles between a dynamic display of data as it changes (Refresh On) and freezing a particular report/display (Refresh Off) for closer inspection. This option may be applied to any Report currently displayed.
	Show large/small format		Toggles between a small window (Show small format) overlaid on approximately one-third of the map window, and a full-screen display (Show large format) that completely replaces the map view with the report data.

Button	Option	Sub-Option	Function
evoDrive ROUTE			Displays area map, tracing previous route movements in a series of blue dots. (You must stop reading to evoDrive route.)
GPS DETAIL	Various		For diagnostic purposes. Displays satellite information, current latitude and longitude coordinate of the evoDrive/vehicle.
ROUTE SCAN	Scan Route	Enter serial number	Upon entry of valid evoRTM serial number, this feature displays account and current reading information for the selected evoRTM.
Xmit On/Off			Toggles the transmitter on and off.
STOP			Quits evoDrive software. (You must touch Stop Route button first before exiting evoDrive.)

evoDrive Function Buttons

The function buttons along the left edge of the evoDrive screen operate as drop-down menus. Touching a button will cause another layer of selections to appear.

Buttons that are grayed-out (such as the Retrace Route and Stop/Quit buttons in the graphic shown at right) are not active under the current (reading) conditions.

Load Route Button

This is the first button used. It allows you to select the desired route file for evoDrive to load in and use. After this button is used to load the route file, the button is replaced with the Stop Route button.

Stop Route Button

NOTE: The Stop Route button changes to the Load Route button after reading operations have been exited and at evoDrive start-up.

As revealed in Figure 7, the Stop Route button actually offers four options when touched:

Cancel Exit Menu
This exits the Stop Route menu and returns the system to its previous status. Use this option when you do NOT wish to stop reading.

Pause Reading to Resume Later
This allows you to temporarily stop the reading session, for lunch or other activities during which the notebook and Mobile Collector will be powered off to conserve vehicle battery power. When the notebook and Mobile Collector are powered back on, you may resume reading the route where you left off.

Exit Without Saving Route Reading Data
This allows you to stop reading operations without saving any data collected thus far. To resume reading evoRTM endpoints after this type of stop, you must load in a route from disk and start over from the beginning.

Save Route Reading Data and Exit
This allows you to save current route data to disk and exit. You must load a new route from disk to resume reading after this type of stop.

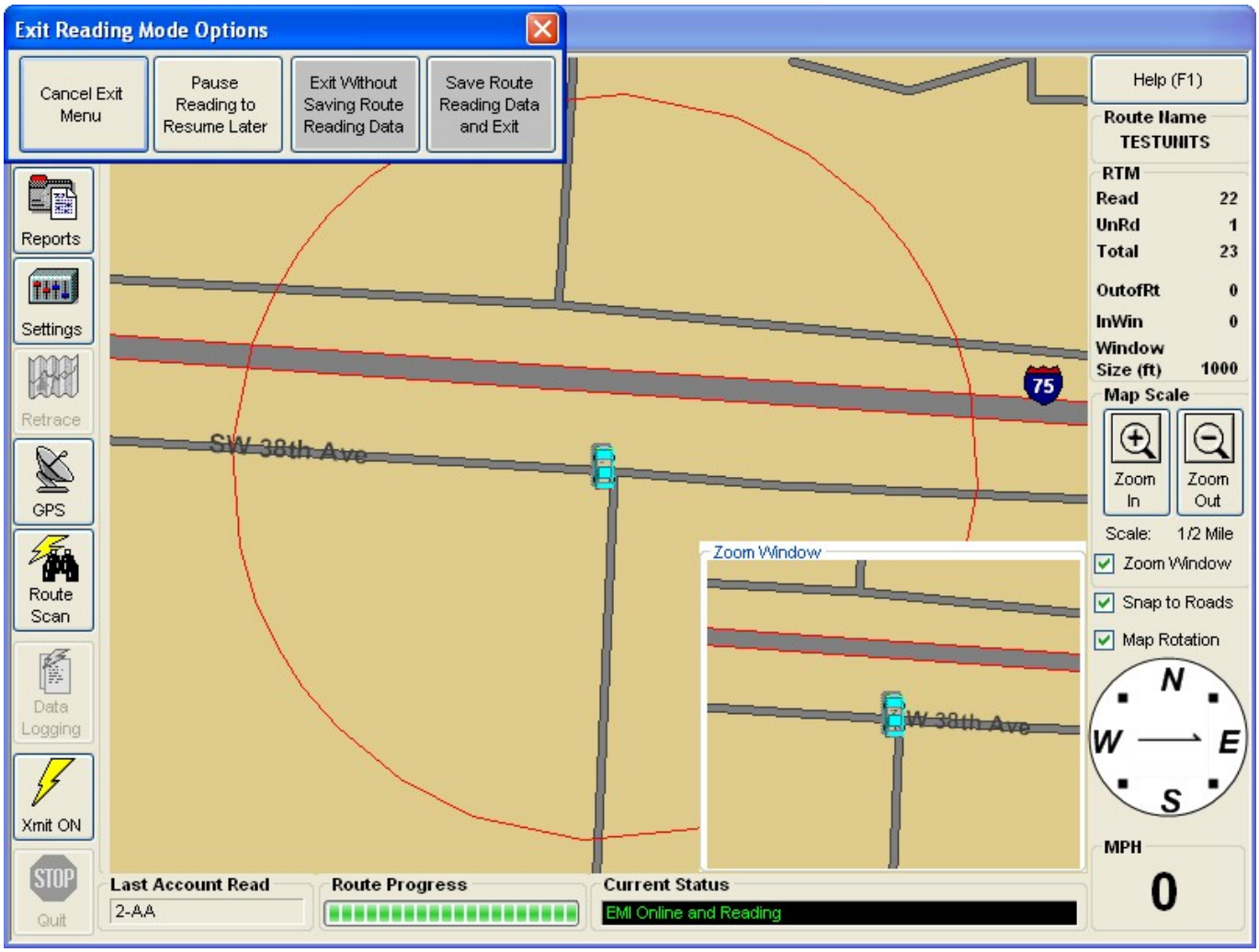


Figure 7: The Stop Route button offers 4 options.

Reports Button

Touching the Reports button enables you to view evoRTM status and related data in a variety of formats. Figure 8 shows the Reports window that appears when the Reports Button is touched. The Reports window overlays the main program window.

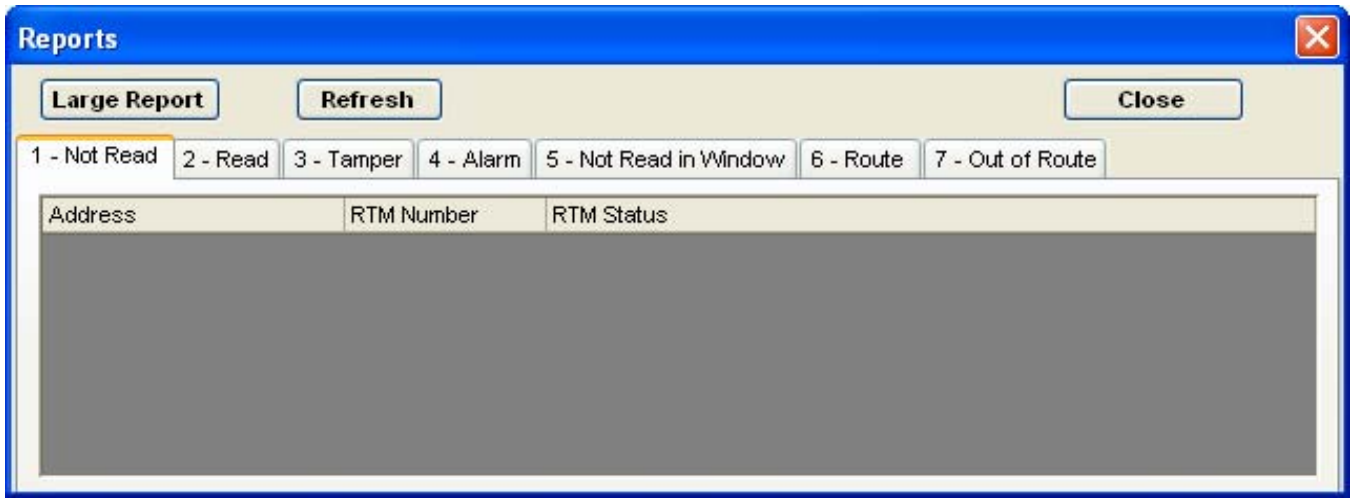


Figure 8: The Reports screen appears when the Reports button is touched.

Reports Screen Top Buttons

The Reports screen has three buttons across the top: Large Report, Refresh and Close.

The **Large Report** button toggles between Larger Report and Small Report formats. This allows you to view report data either in a small window (small format) that leaves a large portion of the map view exposed, or in a full screen (large format) display that completely replaces the map view. Note that the Small Report window is shown. Clicking on the Large Reports button expands the window.

The **Refresh** button allows you to refresh, or update, the reports with new reads that may have been received since the Reports screen was first opened, or since the last time the refresh button was pressed.

The **Close** button closes the Report screen and returns you to the home screen.

Reports Screen Tabs

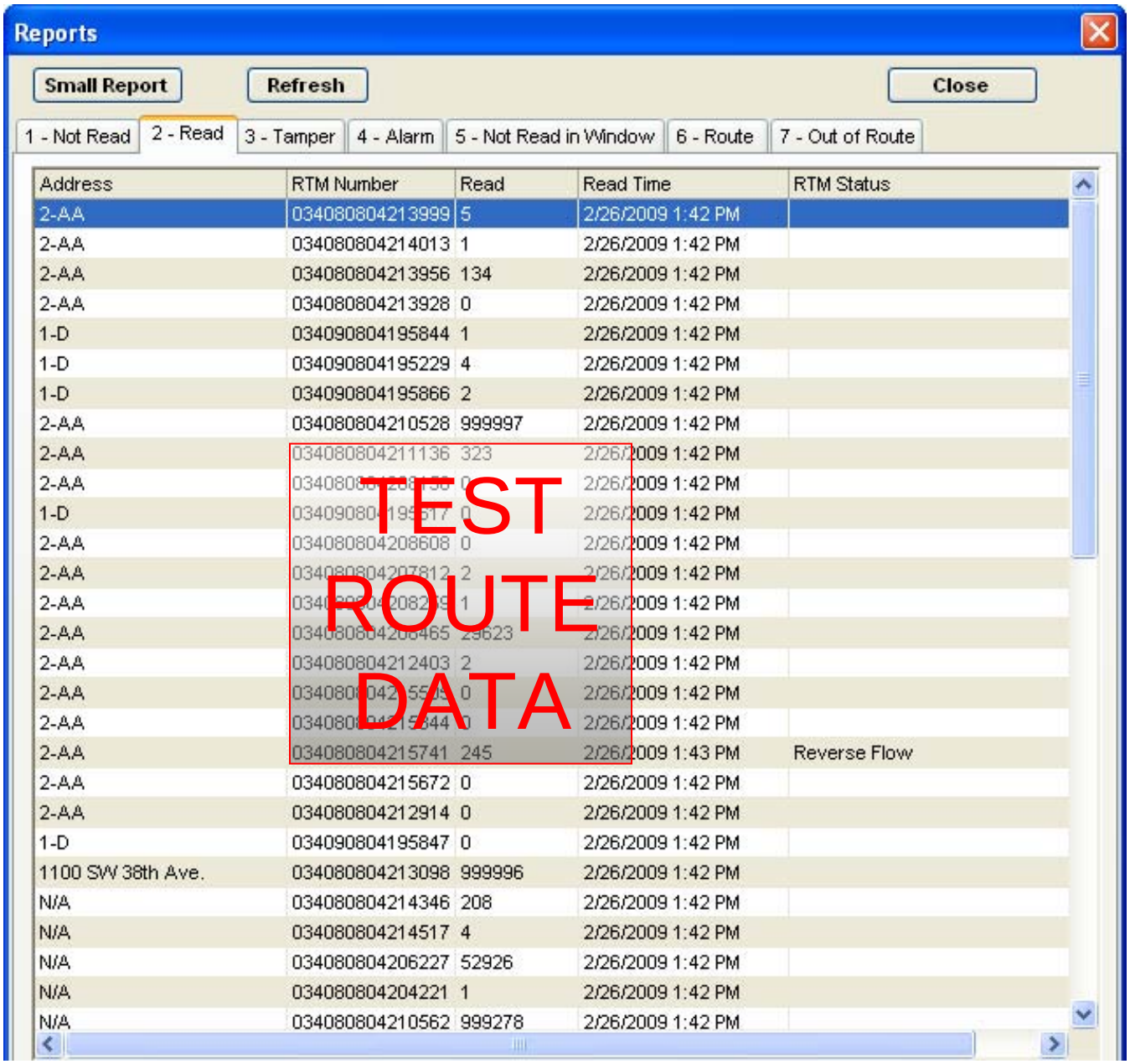
There are seven Report configurations: 1) Not Read, 2) Read, 3) Tamper, 4) Alarm, 5) Not Read in Window, 6) Route and 7) Out of Route. Each is described below.

Touching the **1 - Not Read** tab reveals a report that lists all evoRTM endpoints on the route that have not been

read. The Not Read report displays the following information:

- ✓ evoRTM Address (physical postal address)
- ✓ evoRTM Number (serial number)
- ✓ evoRTM Status

As illustrated in Figure 9, touching the **2 – Read** tab, reveals a report that lists all evoRTM endpoints that have been read successfully.



Address	RTM Number	Read	Read Time	RTM Status
2-AA	034080804213999	5	2/26/2009 1:42 PM	
2-AA	034080804214013	1	2/26/2009 1:42 PM	
2-AA	034080804213956	134	2/26/2009 1:42 PM	
2-AA	034080804213928	0	2/26/2009 1:42 PM	
1-D	034090804195844	1	2/26/2009 1:42 PM	
1-D	034090804195229	4	2/26/2009 1:42 PM	
1-D	034090804195866	2	2/26/2009 1:42 PM	
2-AA	034080804210528	999997	2/26/2009 1:42 PM	
2-AA	034080804211136	323	2/26/2009 1:42 PM	
2-AA	034080804208608	0	2/26/2009 1:42 PM	
1-D	034090804195617	0	2/26/2009 1:42 PM	
2-AA	034080804208608	0	2/26/2009 1:42 PM	
2-AA	034080804207812	2	2/26/2009 1:42 PM	
2-AA	034080804208279	1	2/26/2009 1:42 PM	
2-AA	034080804206465	29623	2/26/2009 1:42 PM	
2-AA	034080804212403	2	2/26/2009 1:42 PM	
2-AA	034080804215544	0	2/26/2009 1:42 PM	
2-AA	034080804215844	0	2/26/2009 1:42 PM	
2-AA	034080804215741	245	2/26/2009 1:43 PM	Reverse Flow
2-AA	034080804215672	0	2/26/2009 1:42 PM	
2-AA	034080804212914	0	2/26/2009 1:42 PM	
1-D	034090804195847	0	2/26/2009 1:42 PM	
1100 SW 38th Ave.	034080804213098	999996	2/26/2009 1:42 PM	
N/A	034080804214346	208	2/26/2009 1:42 PM	
N/A	034080804214517	4	2/26/2009 1:42 PM	
N/A	034080804206227	52926	2/26/2009 1:42 PM	
N/A	034080804204221	1	2/26/2009 1:42 PM	
N/A	034080804210562	999278	2/26/2009 1:42 PM	

Figure 9: The 'Read' report screen (in Large Report window)

The Read report displays the following information:

- ✓ evoRTM Address (physical postal address)
- ✓ evoRTM Number (serial number)
- ✓ Read
- ✓ Read Time
- ✓ evoRTM Status

The **3 – Tamper** tab report lists only those evoRTM endpoints that have been read and have returned a positive indication that tampering has occurred.

The Tamper tab screen includes the same kind of information that is found on the Read report of Figure 10.

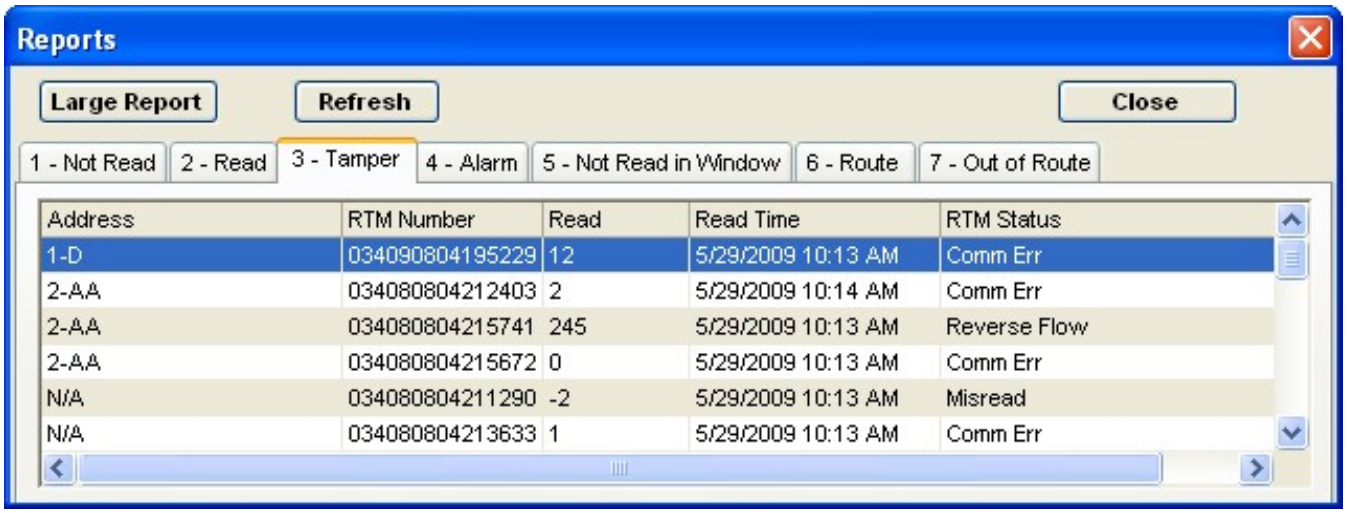


Figure 10: Reports Window - Tamper Tab (in Small Report window)

The **4 - Alarm** report lists any evoRTM endpoints that should have already passed within range but have not been read. Missed evoRTM endpoints will display the same type of information and statuses as shown for “Not Read” above.

evoRTM endpoints may be missed because:

- ✓ Lat/Long coordinates are incorrect
- ✓ evoRTM has been moved or replaced
- ✓ evoRTM has been damaged
- ✓ Conditions have interfered with signal communications
- ✓ evoRTM serial number was entered incorrectly in Route Manager or in the billing system

Where conditions have interfered with a successful read, you may return to the location later and try again.

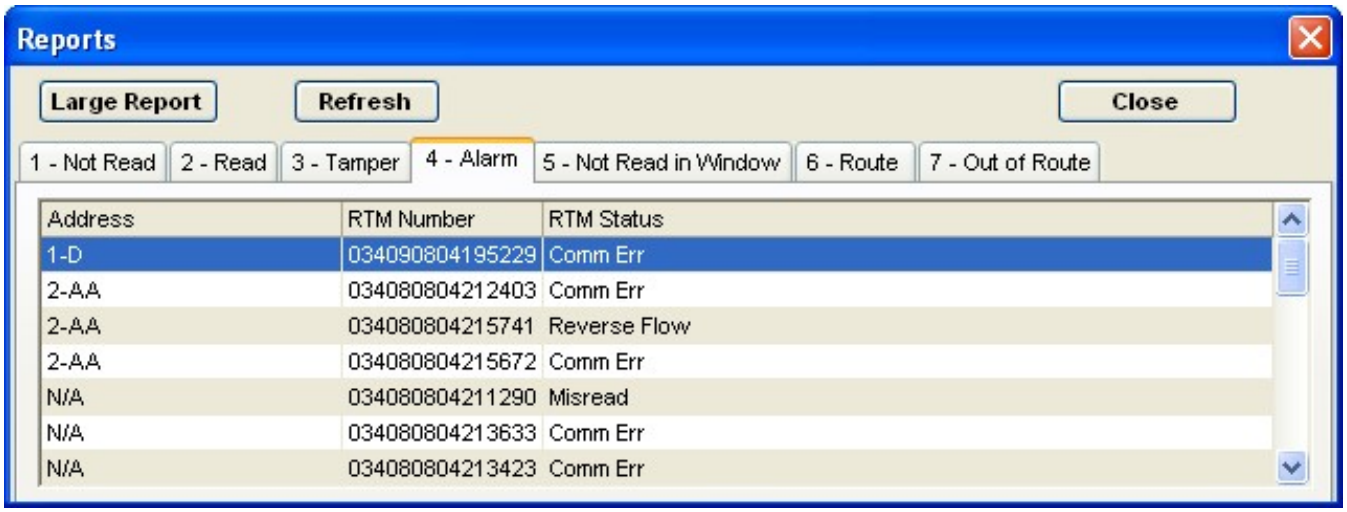


Figure 11: Reports Window - Alarm Tab

The **5- Not Read In Window** report lists any evoRTM endpoints currently within the interrogation window that have not yet been read. Typically the entries in this report will appear briefly, then disappear as the evoRTM data is captured.

If the evoRTM has still not been read after the evoDrive has moved out of range, it appears on the Alarm report.

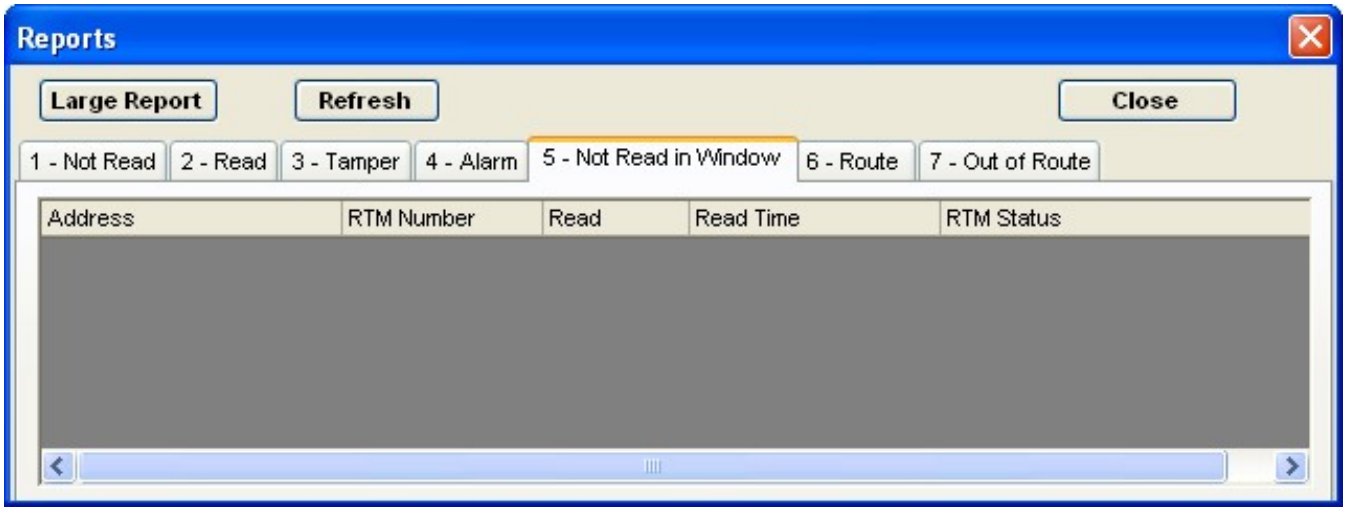
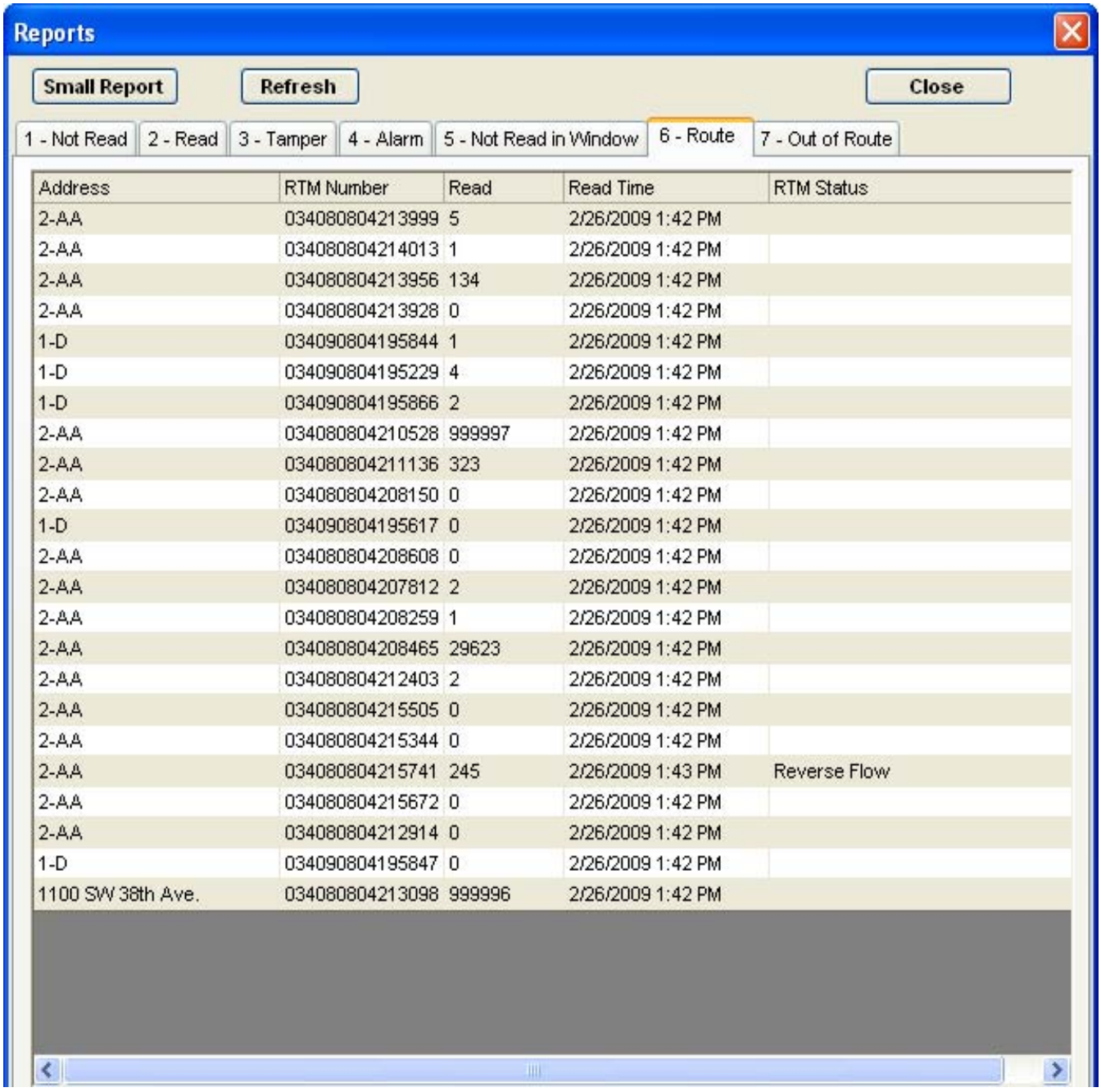


Figure 12: Reports Window - Not Read in Window Tab

Illustrated in Figure 13, the **6 – Route** tab report lists all evoRTM endpoints on the route, regardless of read status.



Address	RTM Number	Read	Read Time	RTM Status
2-AA	034080804213999	5	2/26/2009 1:42 PM	
2-AA	034080804214013	1	2/26/2009 1:42 PM	
2-AA	034080804213956	134	2/26/2009 1:42 PM	
2-AA	034080804213928	0	2/26/2009 1:42 PM	
1-D	034090804195844	1	2/26/2009 1:42 PM	
1-D	034090804195229	4	2/26/2009 1:42 PM	
1-D	034090804195866	2	2/26/2009 1:42 PM	
2-AA	034080804210528	999997	2/26/2009 1:42 PM	
2-AA	034080804211136	323	2/26/2009 1:42 PM	
2-AA	034080804208150	0	2/26/2009 1:42 PM	
1-D	034090804195617	0	2/26/2009 1:42 PM	
2-AA	034080804208608	0	2/26/2009 1:42 PM	
2-AA	034080804207812	2	2/26/2009 1:42 PM	
2-AA	034080804208259	1	2/26/2009 1:42 PM	
2-AA	034080804208465	29623	2/26/2009 1:42 PM	
2-AA	034080804212403	2	2/26/2009 1:42 PM	
2-AA	034080804215505	0	2/26/2009 1:42 PM	
2-AA	034080804215344	0	2/26/2009 1:42 PM	
2-AA	034080804215741	245	2/26/2009 1:43 PM	Reverse Flow
2-AA	034080804215672	0	2/26/2009 1:42 PM	
2-AA	034080804212914	0	2/26/2009 1:42 PM	
1-D	034090804195847	0	2/26/2009 1:42 PM	
1100 SW 38th Ave.	034080804213098	999996	2/26/2009 1:42 PM	

Figure 13: Reports Window - Route tab (in Large Report view)

The **7 - Out of Route** tab of the Reports Window is shown in Figure 14. These are evoRTM endpoints that have been read but are not part of your route (not included in your route file).

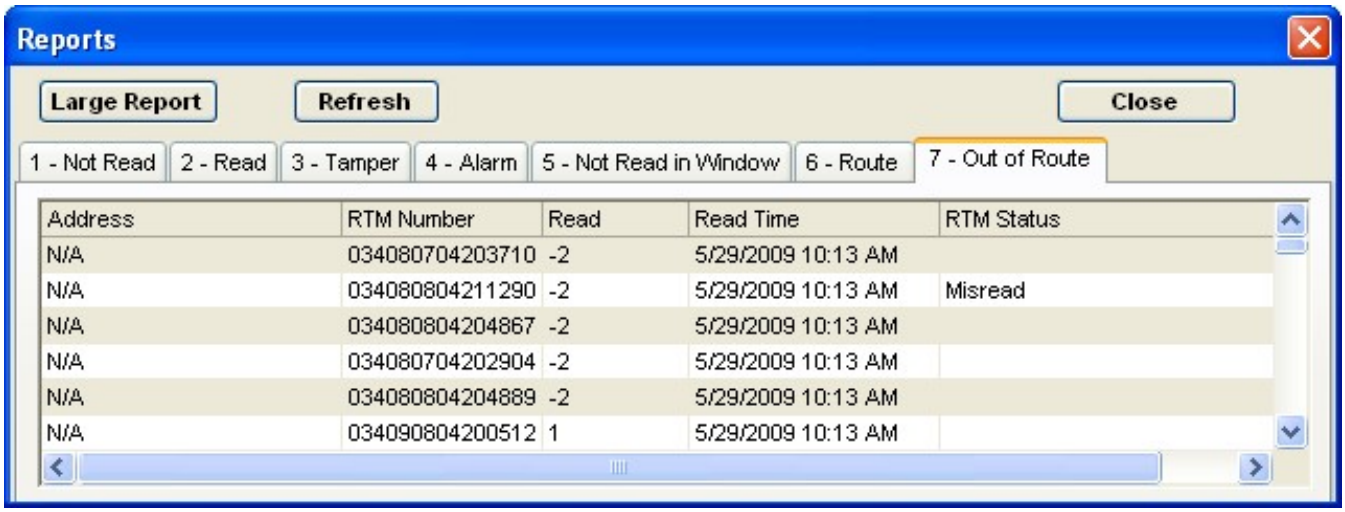


Figure 14: Reports Window - Out of Route tab

Settings Button

The Settings window is accessed by touching the Settings button. When the Settings button is touched, a User Login window appears as shown in Figure 15.

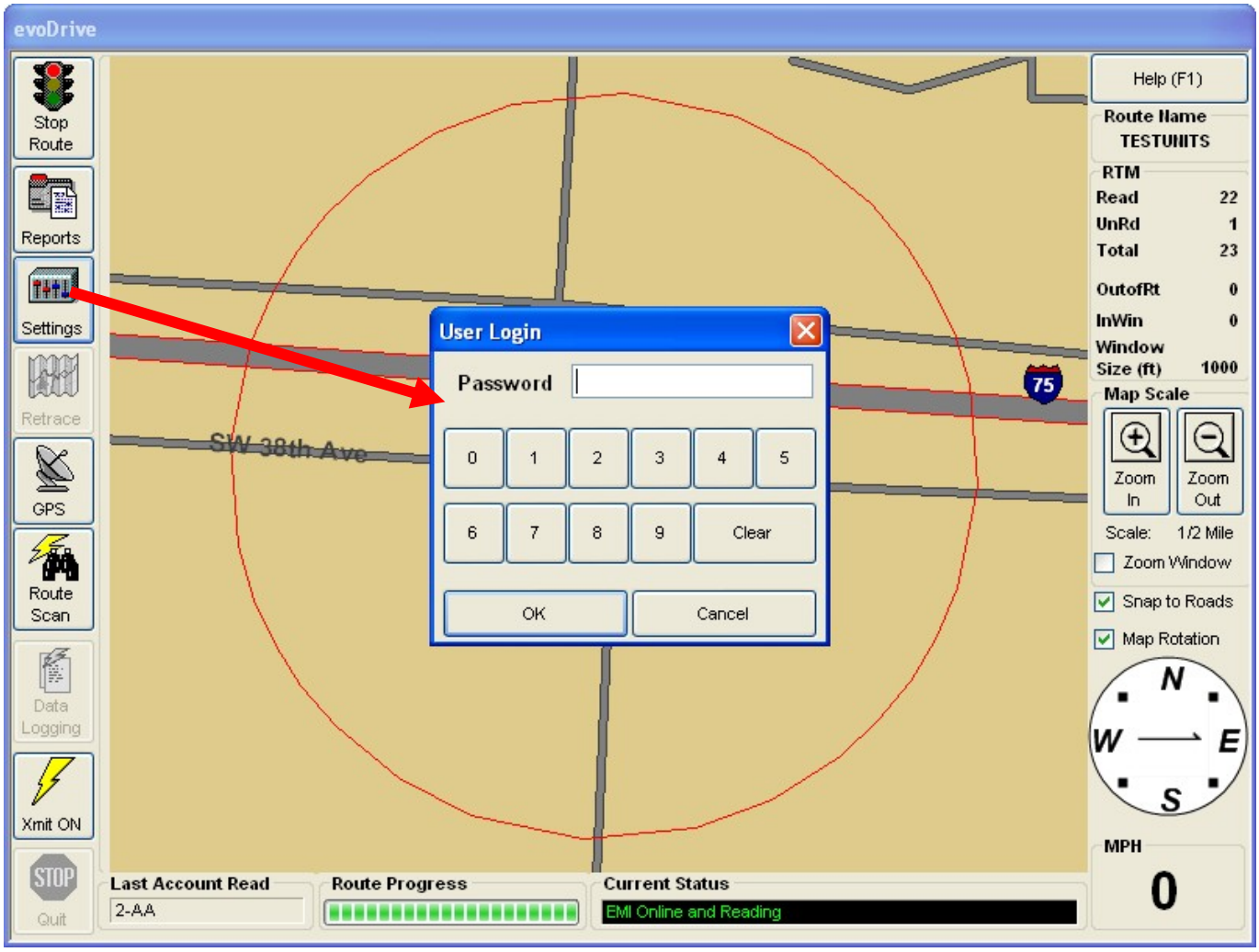


Figure 15: User Login is required to change settings.

You must enter a 6-digit password by touching the applicable number buttons in the proper sequence on the User Login window. If it is necessary to correct an entry, touch the Clear button. Touch OK when the password has been entered.

The default password is 123456. The password is set using the Route Manager application.

The Settings window then appears as shown in Figure 16. The Settings window has two tabs: G – General and M – Map.

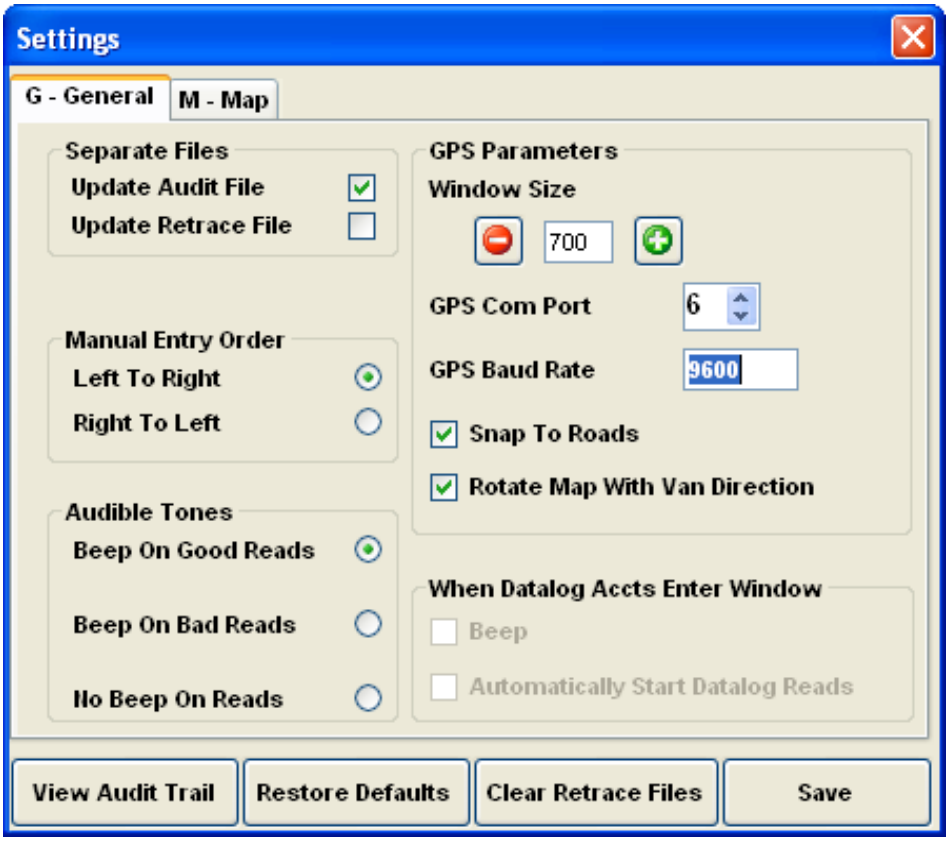


Figure 16: The Settings screen

G - General Tab

The General Tab screen is divided into 6 main areas: Separate Files, Manual Entry Order, Audible Tones, GPS Parameters, When Datalog ACCTs Enter Window and a bottom row of action buttons.

All options are shown in the default state.

Separate Files Options
This allows you to toggle ON/OFF the Audit File and the Retrace File for automatic updating. These files are useful for diagnostic purposes. The Audit File is helpful when it is replayed to see what you did to get where you are in the program. The Retrace File allows you to analyze your route to optimize the path you take for highest efficiency.

- ✓ Update Audit File
  - o The Audit file simply tracks every interaction you make with the notebook PC and the evoDrive program.
  - o When you activate Update Audit File by checking its box, the program

begins updating or recording to the file.

- ✓ Update Retrace File
  - o The Retrace File records all vehicle movements on the route.
  - o When you activate Update Retrace File by checking its box, the program begins updating or recording your vehicle's path along the route.

Manual Entry Order Options

This allows you to change the order in which the digits in a manual entry are entered.

- ✓ Left to Right – This default selection is recommended.
- ✓ Right to Left

Audible Tones Options

This section allows you to select the conditions under which the evoDrive will provide an audible signal. Select as desired.

- ✓ Beep on Good Reads
- ✓ Beep on Bad Reads
- ✓ No Beep on Reads

GPS Parameters Options

- ✓ Window Size
  - o Use the [-] and [+] icons to change the window size.
- ✓ GPS Com Port
  - o This should not need to be changed from the default value (6).
- ✓ GPS Baud Rate
  - o This should not be changed from the default value (9600).
- ✓ Snap to Roads
  - o This feature causes the image of your vehicle to move closely to the road you are currently on in your route.
- ✓ Rotate Map with Van (Vehicle) Direction
  - o This option is a matter of preference.

When Datalog ACCTS Enter Window Options

This feature is not currently available in this version of evoDrive. That's why the two options are grayed out.

- ✓ Beep
- ✓ Automatically Start Datalog Reads

Action Buttons

- ✓ **View Audit Trail**
  - o This button allows you to display all evoDrive activity currently stored on the hard drive of the evoDrive. It is a FIFO (first-in-first-out) file that drops the oldest data in order to add new records. This file is used only for diagnostic purposes.
- ✓ **Restore Defaults**
  - o This button is used to reset all of the settings to their factory-set default values.
  - o *CAUTION! There is no verification of reset to defaults message and no option to change your mind before acceptance of this command. If you touch this button in error, you must re-enter any custom settings previously recorded.*
- ✓ **Clear Retrace Files**
  - o This button is used to delete all data from the retrace file. See Separate Files options above.
- ✓ **Save**
  - o This button is used to save all options that have been changed.

M – Map Tab

The M – Map tab of the Settings window merely explains the color-coded objects that are used on the map.

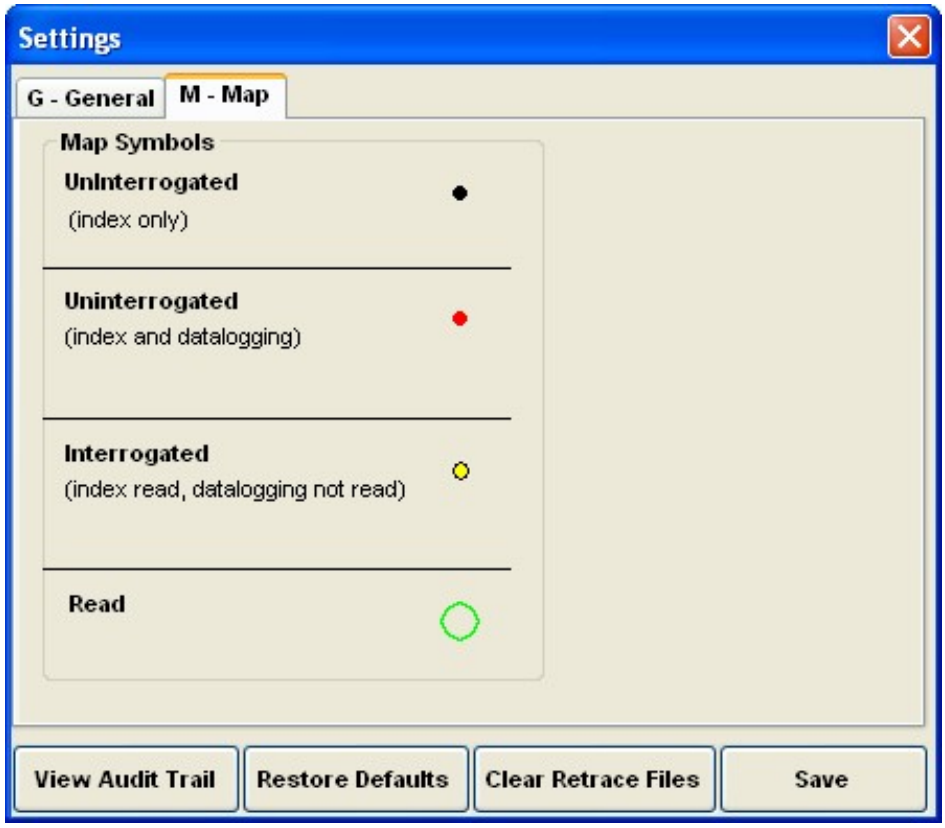


Figure 17: Settings Window - M - Map tab

evoDrive Retrace Route Button

The evoDrive Retrace Route button can only be accessed when reading has been stopped. During a reading session this button will be diffused in gray.

When you select this button a Select evoDrive Route window will open, showing the route files available.

1. Touch the desired route file to select it then touch Open.
   - After the file has been loaded, the evoDrive will display the route map as shown in Figure 18.
   - Route replay window (upper right) works like the controls on a CD player, allowing you to play and pause the replay as desired. The Times button turns the time stamp on or off.

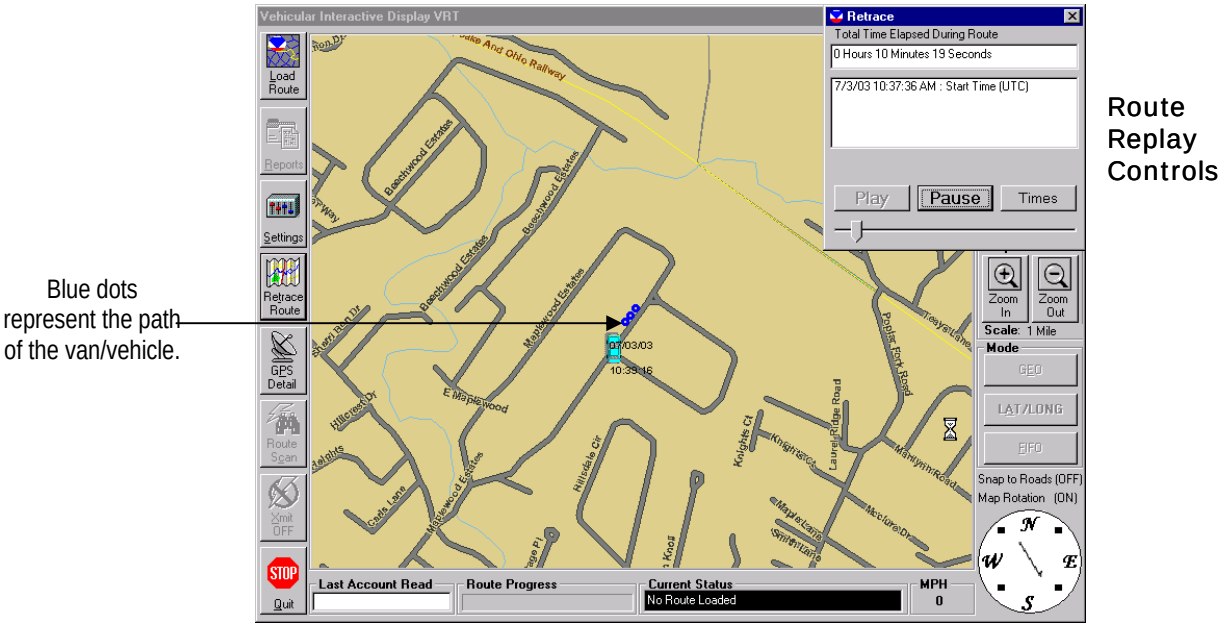


Figure 18: evoDrive route window and controls for route replay

2. Touch the Play button on the Route evoDrive Window to begin replaying the route.
   - The map will show the progress of the evoDrive over time as a series of blue dots.
3. To pause, touch the Pause button.
4. To turn on the time stamp, touch the Times button.

6. To stop the route replay touch the Stop evoDrive button on the left (which will then change back to the evoDrive Route button).

GPS Detail Button

Touching the GPS Detail button will reveal the box of Figure 19. This provides diagnostic information related to the GPS system and the movement of the evoDrive. The data fields that are most meaningful to the user are described below.

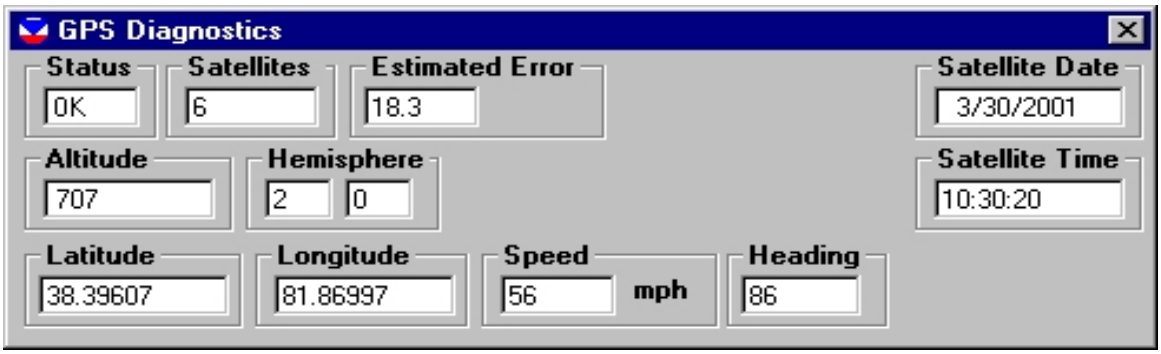


Figure 19: GPS Details

Status
This field may show either OK or NO GPS.

Satellites
This field indicates the number of GPS satellites that have been acquired.

Altitude
The GPS data also reflects changes in altitude as expressed in feet above sea level.

Latitude/Longitude
Current evoDrive/GPS latitude and longitude are indicated in degrees, minutes and seconds.

Speed
This number reflects the current speed of the evoDrive/GPS-equipped vehicle.

Heading
This shows the current direction (heading) of the vehicle, expressed in degrees. This will be a number between 0 and 359 where 0 is true North.

Route Scan Button

This button enables you to locate a specific evoRTM and access the associated Account Information.

Account Information

The Account Information window of Figure 21 displays all of the information for a selected account. The Account Information window is accessed by touching the Route Scan button. When this button is touched, a Scan Route numeric pad window appears as shown in Figure 20. You must enter the serial number of the evoRTM™ endpoint that is associated with the account.

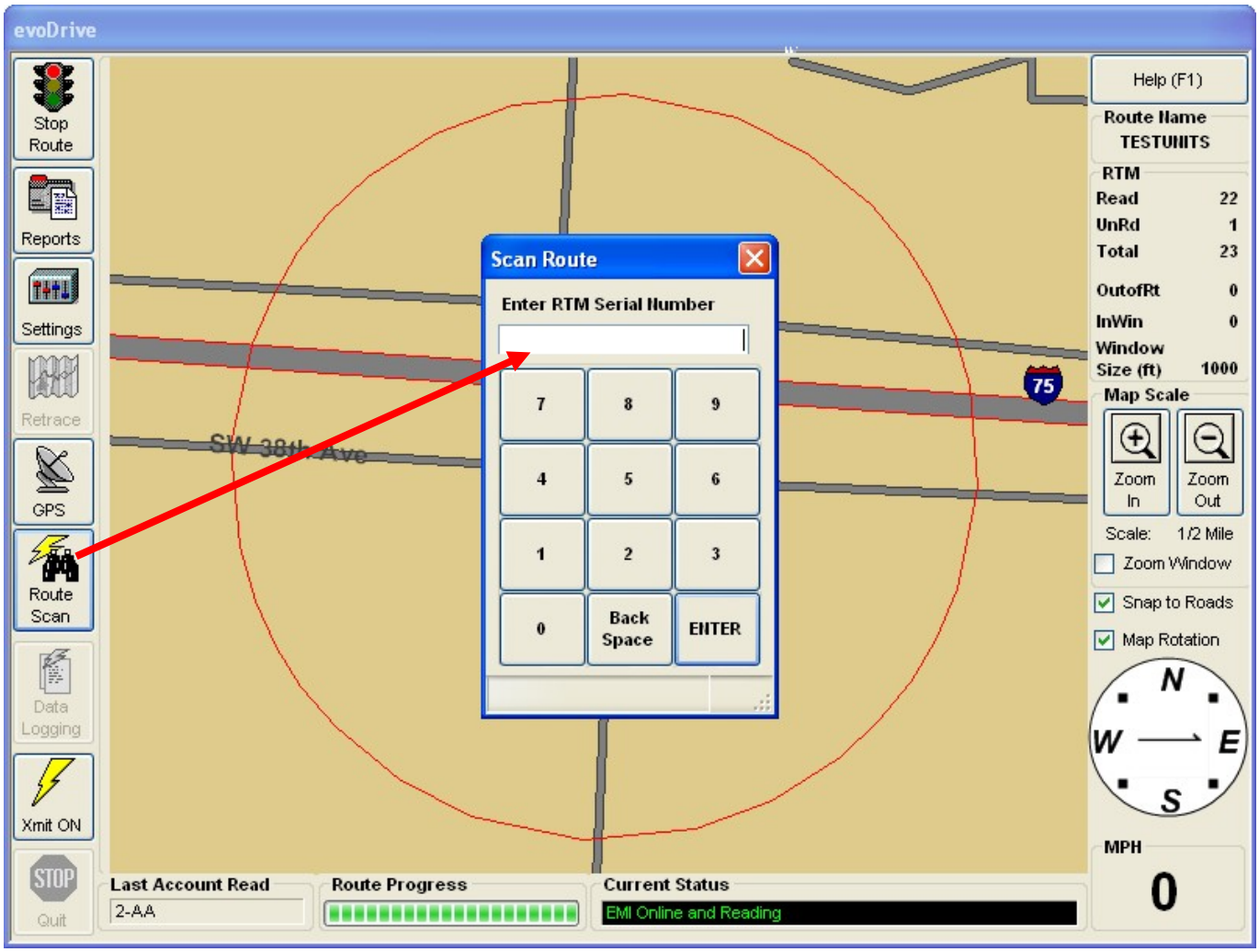


Figure 20: Enter the evoRTM endpoint serial number to access an account.

After entering the 15-digit serial number for the evoRTM endpoint of the account, touch the ENTER button and the screen of Figure 21 will appear showing available account information.

If you enter the serial number of an evoRTM endpoint that did not read, or has not yet been read, the Account Information window will appear with the Enter Manual Read button black and activated as shown in Figure 22.

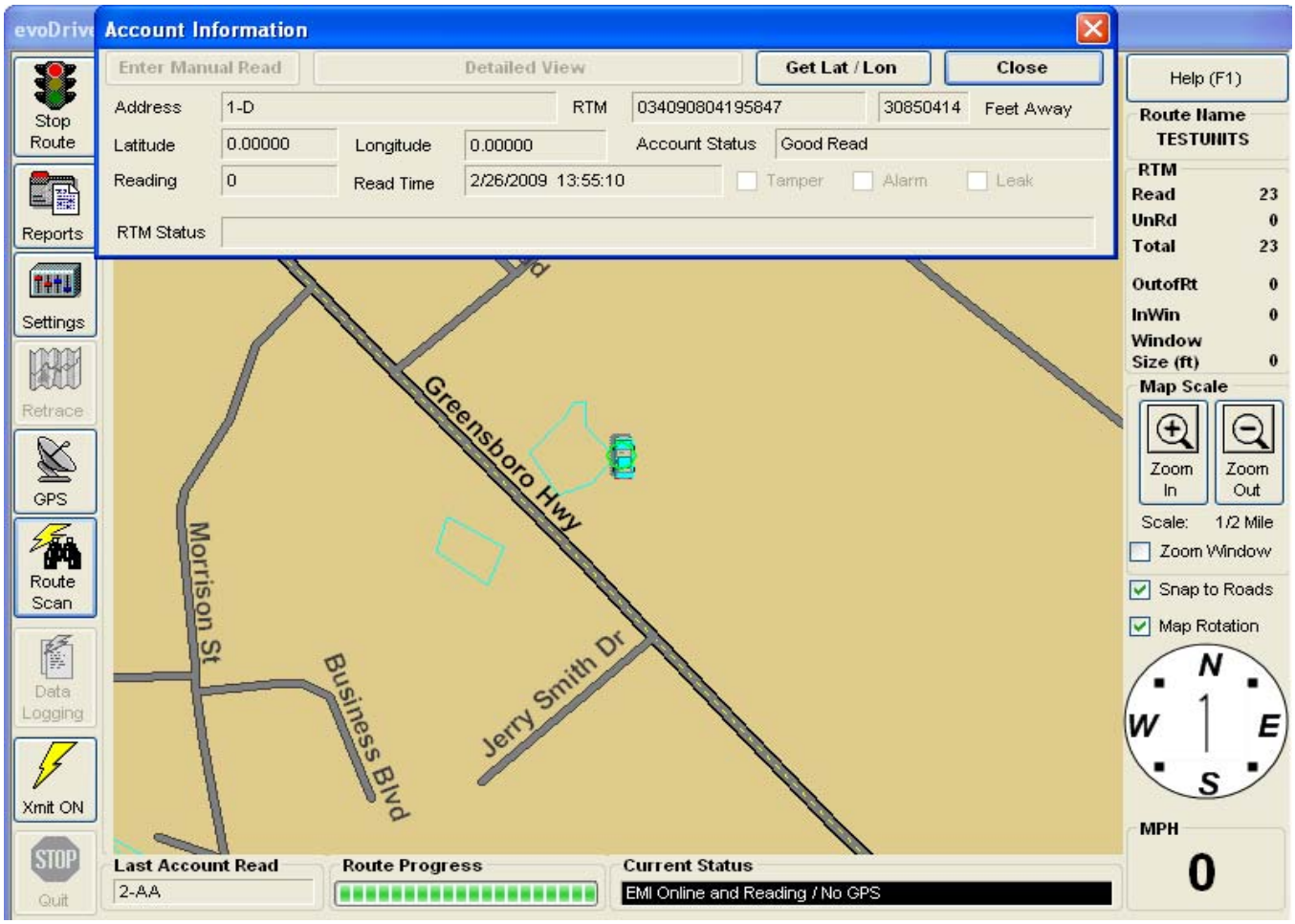


Figure 21: Account Information window

Another method of activating the Account Information window is to touch on the map at the location of the evoRTM/account.

Enter Manual Read

The Account Information box also allows the user to enter a Manual Read for the selected account. This option is only available for accounts that do not currently have a reading value. Touch the Enter Manual Read button as shown in Figure 22.

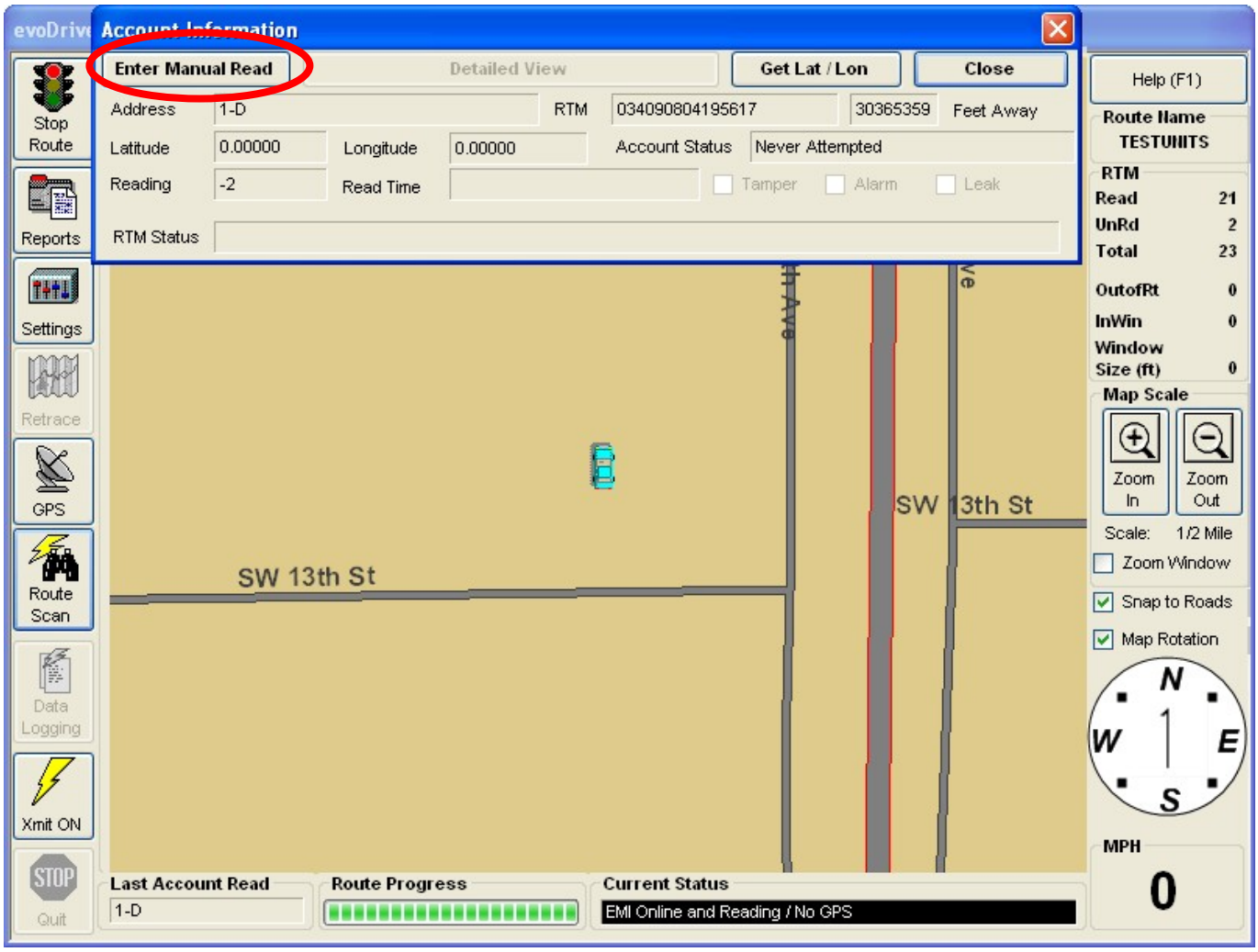


Figure 22: Selecting the Enter Manual Read box

The procedure for entering manual reads is as follows:

Entering Manual Reads

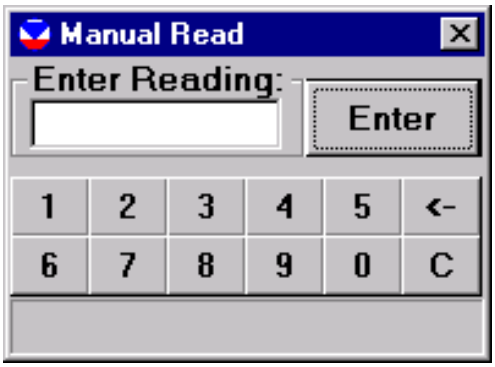
1. Touch on the Get Lat/Lon button to display the location of the evoRTM/account on the map.
2. Drive to that location and exit the vehicle to record the meter reading.
3. Return to the vehicle and touch the Enter Manual Read button located on the Account Information window.

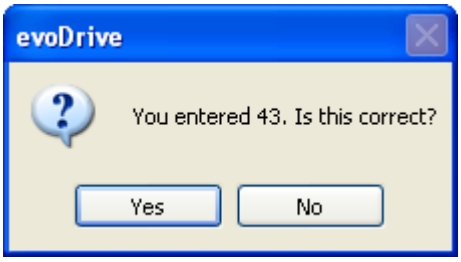
   ✓ *NOTE: The Enter Manual Read button is only enabled for accounts that have not received a 'good reading' comment in the Account Status field.*

4. Enter the manual read using the on-screen keypad.

   ✓ Reading will be displayed in the Enter Reading box.

5. Press Enter when finished. A verification box will display.
6. If the reading entry is <u>not</u> correct, press NO and re-enter the reading.
7. If reading <u>is</u> correct, press YES.
8. When finished, close the Account Information window by pressing the Close button.
9. The Enter Manual Read button is now disabled and the reading value (43 in this example) is displayed in the reading field.





Transmit ON/OFF Button

This button allows you to manually toggle the evoDrive transmitter on and off for diagnostic purposes.

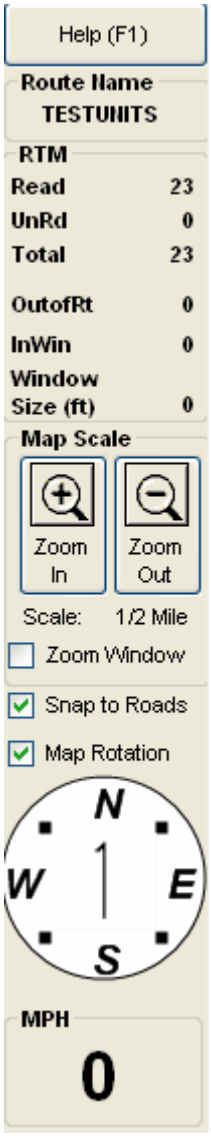
***CAUTION**! The transmitter must be ON to enable route reading.*

STOP Button

After the Stop Route function has been executed, touch the Stop button to exit the evoDrive program.

Click on the Quit button to turn off the evoDrive.

evoDrive Data/Status Displays



The areas to the right and bottom of the evoDrive display screen provide dynamic information regarding the current route reading session.

Right Side Bar

The evoDrive right side bar is shown to the right.

Route Name
The Route Name displays the current route identification.

evoRTM
The evoRTM section displays various data about evoRTM endpoints in the current route. Details provided in this display are:

- ✓ **Read**
  - o Displays the number of evoRTM endpoints in this route that have been successfully read.
- ✓ **Unread**
  - o Displays the number of evoRTM endpoints not yet read. This includes bad reads and any other interrogated but not successfully read condition.
- ✓ **Total**
  - o Displays number of accounts (evoRTM endpoints) in current route.
- ✓ **Out of Route**
  - o Displays the number of evoRTM endpoints that have been detected that are not part of this route.
- ✓ **In Window**
  - o Indicates the number of evoRTM endpoints that are currently within the evoDrive system's interrogation window (blue circle on map display).
- ✓ **Window Size**
  - o Displays the window size in feet. If Dynamic Window is turned on, this number will increase and decrease continually to attempt to maintain a maximum of 25 evoRTM endpoints in the window. If Dynamic Window is off, this number will

remain the same. (Window size is changed via the Settings button G – General tab.)

Map Scale

- ✓ **Zoom In** and **Zoom Out buttons**
  - o Allow the user to change the scale of the map. The Page Up, and Page Down keys as well as the plus (+) and minus (-) keys may be used in the same way to increase and decrease map scale.

- ✓ **Scale**
  - o Shows the current map scale in feet or miles.

- ✓ **Zoom Window**
  - o If the Zoom Window checkbox is selected, a magnifying glass window will appear on the map as shown in Figure 23.

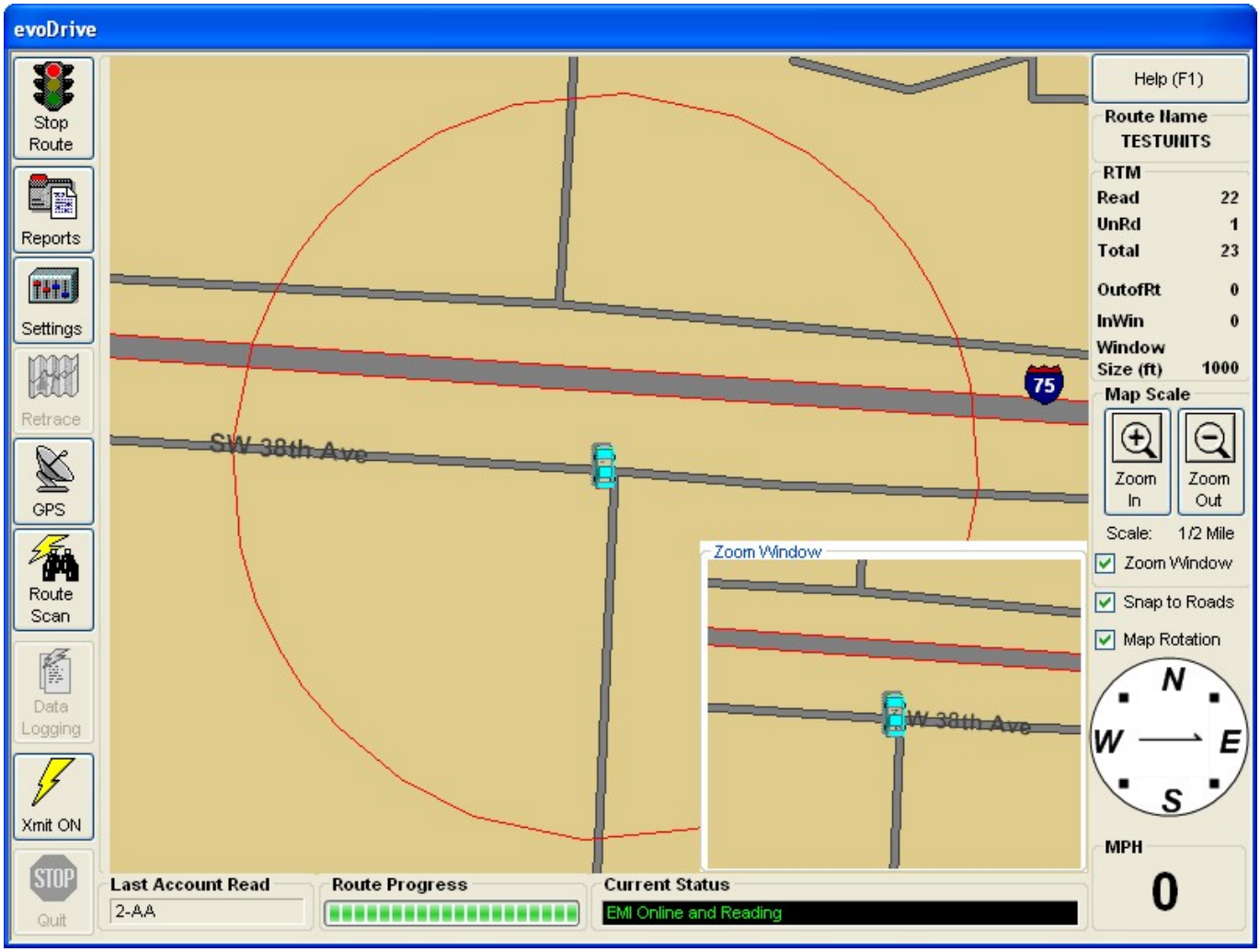


Figure 23: Zoom Window

Compass Image
The compass image indicates the current compass heading.

- ✓ Snap to Roads checkbox
  - o Snap to Roads can be activated from this checkbox at any time.
  - o This feature moves the image representing your vehicle close to the road you are traveling.
- ✓ Map Rotation checkbox
  - o This checkbox activates a feature that automatically rotates the map as you make turns on your route.

MPH
The MPH field displays the current speed of route vehicle.

Bottom Bar

The evoDrive bottom information bar is shown in Figure 24.

Figure 24: Bottom Bar of evoDrive Screen

Last Account Read
Shows the street address of the last evoRTM successfully read.

Route Progress
Graphically indicates the percentage of evoRTM endpoints on the route that have been successfully read thus far.

Current Status
Shows the status of the evoDrive connections and activity. Possible status conditions are:

- ✓ No Route Loaded
- ✓ "V0#.##.## Firmware Verified"
- ✓ EMI Loading Route
- ✓ EMI Online and Reading
- ✓ EMI Online and Reading No GPS
- ✓ EMI Exiting Without Saving
- ✓ EMI Saving and Exiting
- ✓ EMI Pausing Route

Note: EMI = evoDrive Mobile Interface

4. Service and Support

Elster AMCO Water Customer Service

The Elster AMCO Water customer service team can be contacted during the following hours:

Monday through Friday – 8:00 AM to 5:00 PM EST, excluding holidays

You can reach the customer service team by calling:

1-866-896-8858

Elster AMCO Water Technical Support

Elster AMCO Water technical support specialists are a highly skilled group of individuals who have been selected for their dedication to customer satisfaction. The technical support team is on call during the following hours:

Monday through Friday – 8:00 AM to 5:00 PM EST, excluding holidays

You can reach the technical support team by calling:

1-866-896-8879

Please note: If you are calling after hours, or a technical support person is not immediately available, you will be directed to a voice mailbox. Please leave your name and number along with your question or a brief description of the issue. A tech support person will return your call as quickly as possible.

Email: techsupport@us.elster.com

5. Revision History

New Revision Number	Changes	Revision Date
0		

About Elster AMCO Water, Inc.

Located in Ocala, Florida, Elster AMCO Water is part of Elster, the world's largest metering and smart metering system solution company. Elster AMCO Water is an industry leader in the development and implementation of innovative metering and system solutions and is committed to delivering superior customer service, quality products, solutions and services to the water utility industry.

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