OceanLogic LLC
Vessel Verification System (VVS)
User Manual

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1. Welcome and Introduction:

Welcome and thank you for joining the expanding group of fisheries professionals who use Ocean Logic LLC software.

1.1. What the VVS software does for you.

You have just purchased the World's first software program dedicated to creating, verifying and archiving your vessel's navigational profile at sea. In doing so, Ocean Logic's Vessel Verification System (VVS) will track your vessel within nearly one meter accuracy using a Date/Time stamp coming directly off the GPS satellites. Though the VVS was specifically designed for fisheries deployment, its uses can be applied to unlimited applications. We hope you will enjoy the use of this product and the relationship you have just begun with Ocean Logic.

The purpose of this software is to protect you, the fisherman, from problems that arise due to common logbook errors and situations that arise from fishing near areas that are closed to fishing activity.

1.2. Here's how it works.

The VVS software resides on your vessel's computer. This computer must be connected to a GPS unit by the appropriate data cable. (If a data cable did not come with your GPS unit, this manual will discuss how to build a cable in the chapter on GPS Connections.)

The VVS creates a log of your navigational data from your GPS at user-defined intervals. The default interval is ten minutes. The VVS then creates a vessel activity signature that through simple interpretation can distinguish between fishing, hauling back, jogging or running. This log is then archived for your protection. Once exported, any standard text editor, spreadsheet or database program can read the logged data. The exports can also be viewed by any number of mapping programs. You can even display the speed of your vessel, over time, by use of a common program like Microsoft's Excel charting function.

You can use the data to accurately recreate a past fishing or non-fishing activity. One of the primary values of the VVS is way you can export the data. You can analyzed the data for performance, share it with a colleague or use it to prove where and when you were in an area and how you were navigating, should the need arise.

2. How to use this manual:

Please take a few moments to read through this manual. It will guide you through the basic installation and setup of the software and through the different ways the VVS is used throughout the industry.

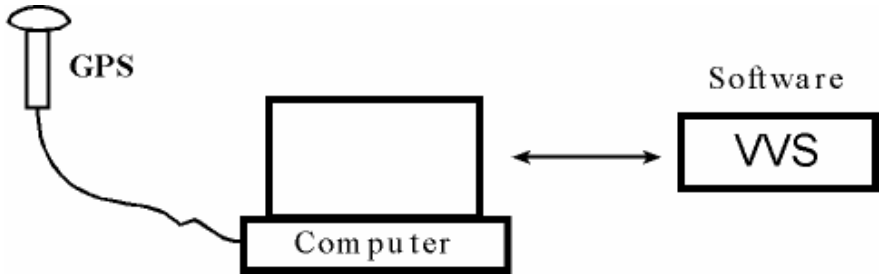
This manual uses basic type and font conventions for providing instructions.

1. **BOLD type, normal font** is used to indicate a requested input from the software.
2. `Normal type and Courier font` is used to indicate user input.
3. Control Buttons, used to navigate through screens or to save edits, are underlined.

GPS Connections:

There are two types of installation that are common for the VVS, dedicated GPS and dual function GPS.

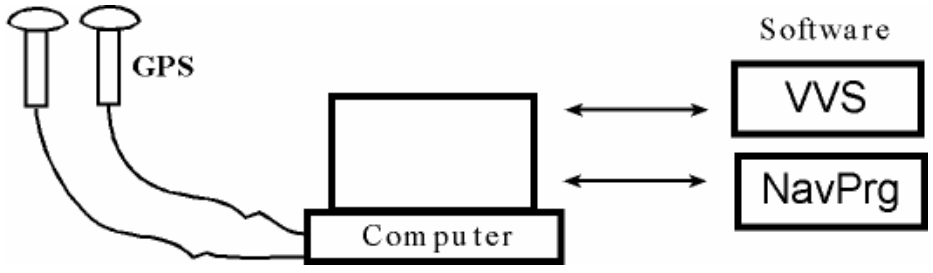
Basic Connection (Dedicated GPS):
A simple connection is a situation where a GPS is dedicated to a single piece of software, in this case, the VVS software. Here, a data cable comes out of the GPS and is simply connected a serial port (or COM port) on the computer. The connections coming out of the GPS units differ from manufacturer to manufacturer, but the connection to the computer is usually a standard, nine-pin serial port cable. If your computer is a laptop, then the serial port is generally the only nine-pin connection on the back panel and your COM port (or serial port) setting in the software is probably "One."



In this illustration, the VVS is the only navigation program using a GPS and the GPS is only using one COM port. It is a 1:1 setup.

If you are running the VVS software off of a desktop computer, you may have more than one serial port on your back panel. If this is the case you may have to try a number of settings (COM port 1, COM port 2, etc.) in order to find which serial port you are connected to.

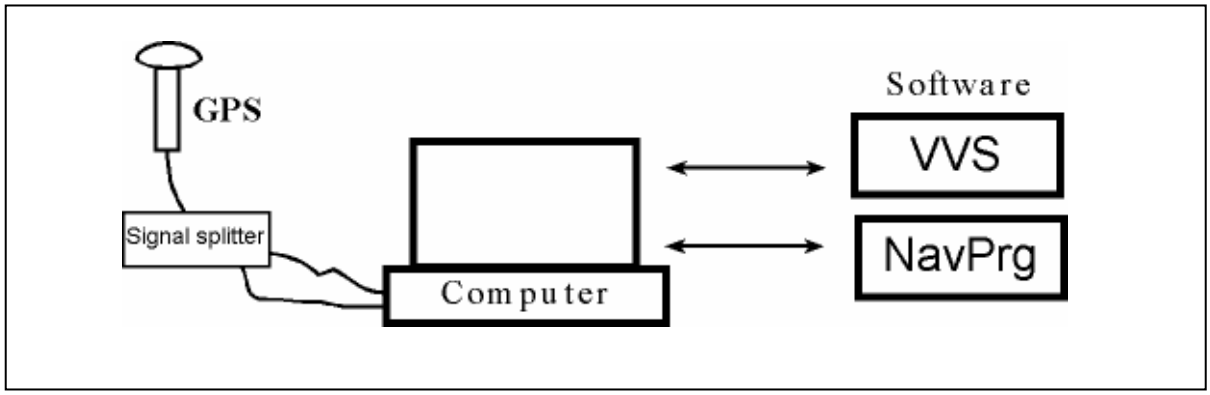
This GPS connection principle is the same regardless of the number of navigation programs you are using. You can only use one software program per COM port.



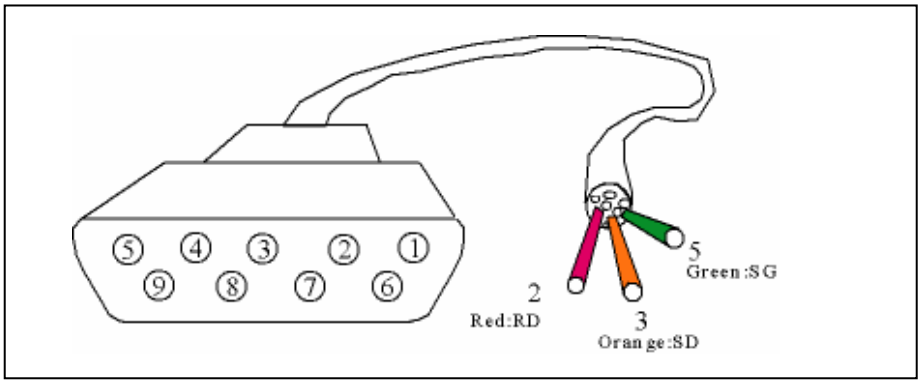
In this illustration, there are two navigation programs; they are both using a separate GPS and separate COM ports. This too, is considered a simple 1:1 setup.

Advanced Connection (Dual-Use GPS)
It is very likely that you may need to run more than one software program off of your GPS. If this is the case, then you will need a signal splitter. A signal splitter is a device that does exactly what the name implies. It takes an incoming signal, splits it so it can now go out on two or more cables, and amplifies it so the signal is strong enough to reach it's destination. A signal splitter requires an external power source for amplification.

On the output side of the signal splitter, you will have two standard looking, nine-pin computer cables. Both of these cables must go to serial ports on the back of your computer. See the following illustration for an example.



You will need to carefully read the schematic diagram in you GPS user manual in order to properly connect the GPS output wires to the nine-pin cable wires. The three wires that you will connect are: pin 2, pin 3 and pin 5.
Pin 2 is the RECEIVE DATA wire: it's RED.
Pin 3 is the TRANSMIT DATA wire: it's ORANGE.
Pin 5 is the COMMON wire: it's GREEN.



Connect the wires as follows (Computer cable – to – GPS cable):

Receive Data: Red – Receive Data: GPS cable colors may differ, schematic label (RD)
Transmit Data: Orange – Send Data: GPS cable colors may differ, schematic label (SD)
Common: Green – Signal Ground: GPS cable colors may differ, schematic label (SG)

(If you are using a laptop, you may need to pick up an extra serial port through the use of a PCMCIA card. These can be purchased through you marine electronics dealer or be they can be found on any Internet search engine. Just type in PCMCIA extra COM ports or Serial I/O cards.)

4. Software Installation and Setup

Once the GPS is connected to the computer you are ready to install the VVS software program.

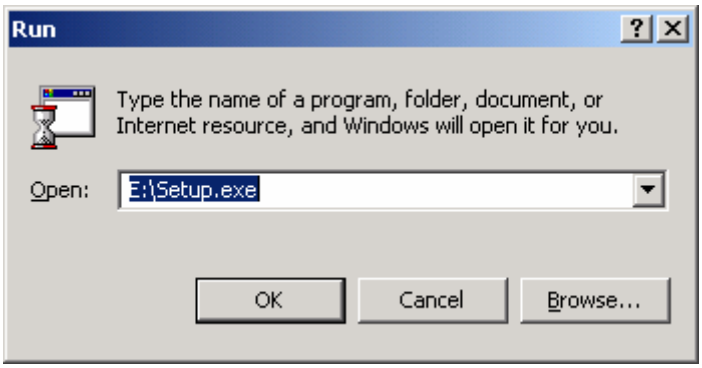
4.1. Installation: Place the VVS CD in the CD-ROM drive. (It should begin the installation process by itself.)

4.1.1. If the installation process does not begin by itself,

4.1.1.1. Go to the Windows Start button and select Run.

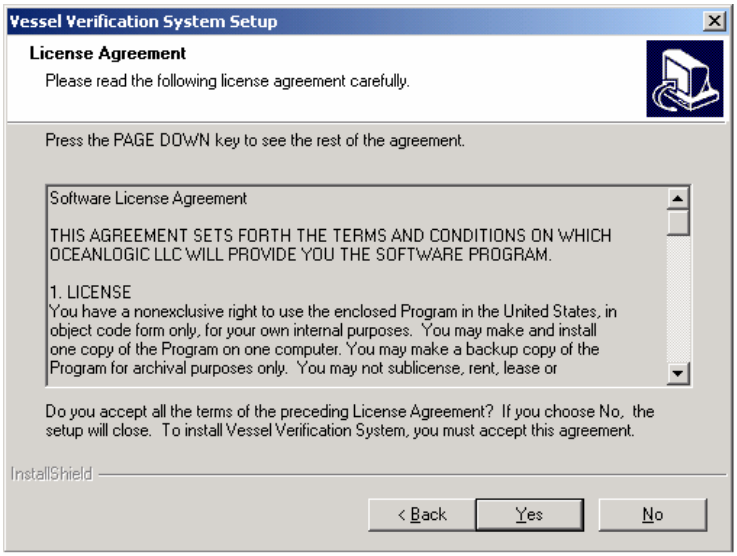
4.1.1.2. Browse to the drive that contains the CD (If you have downloaded the VVS program from the web then Browse your way over to the drive and folder that contains the program. Is it on a Zip drive or other removable media?)

4.1.1.3. When you see the **Setup.exe** file in the Dialog Box, click the OK button.



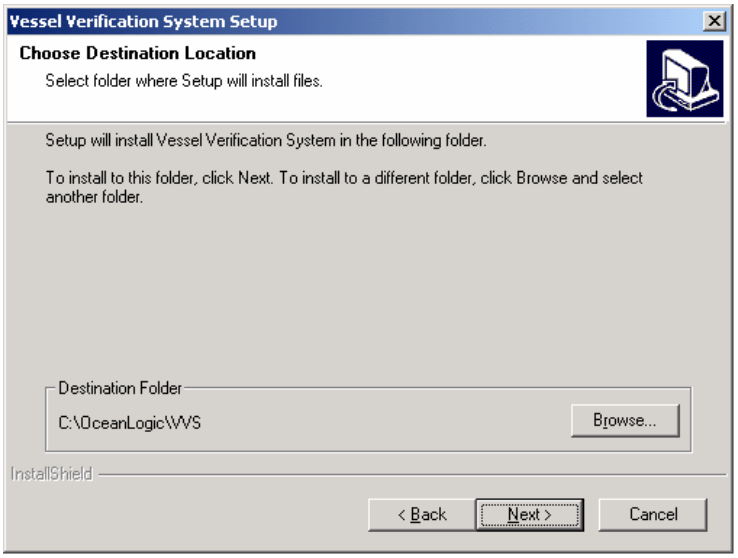
4.1.2. Next you will see the OceanLogic splash screen and then the Licensing Agreement.

4.1.2.1. If you agree to the licensing terms, then please click YES.



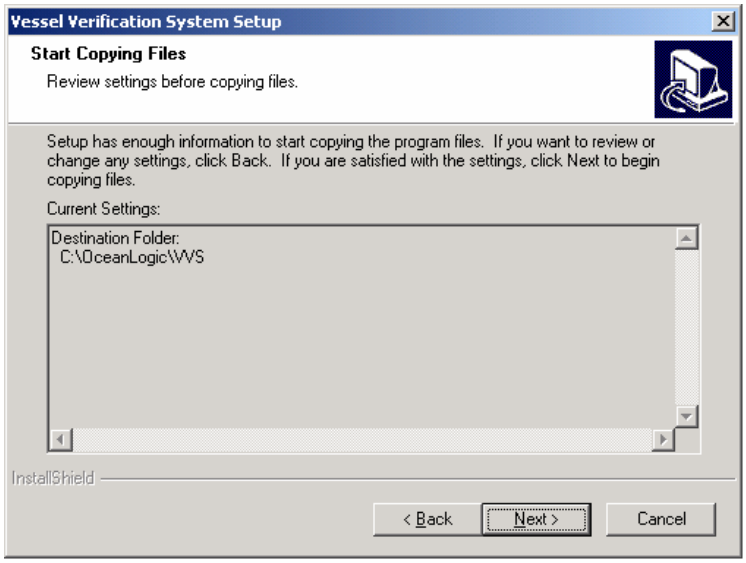
4.1.3. The next screen during the installation process is the Directory screen. This is where you chose to either accept the program defaults (putting the VVS in the OceanLogic directory on the C drive) or creating your own directory. We recommend that you accept the installation defaults.

4.1.3.1.If you agree to accept the default program directory, then click NEXT.



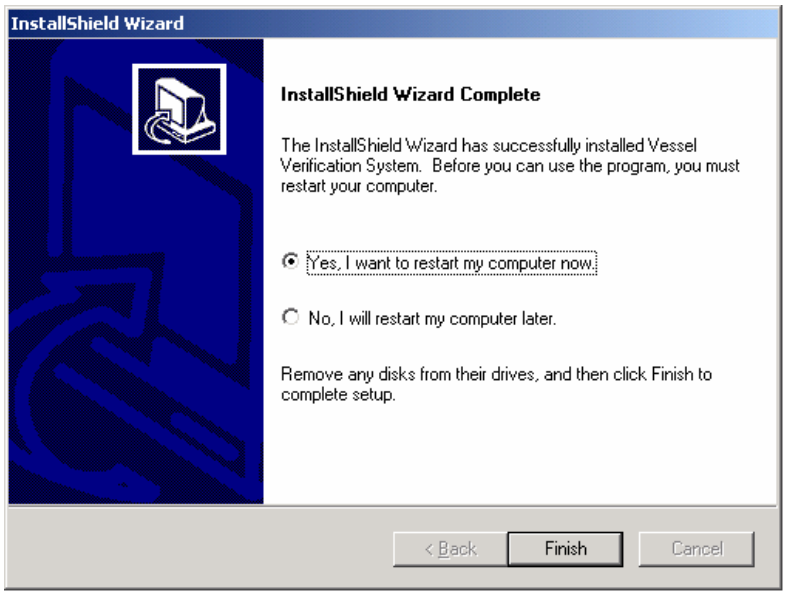
4.1.4. The next screen allows you to review the information and selections you have made during the installation process. This is your last chance to go back and make any changes before the installation program begins to move the VVS application files into your directory.

4.1.4.1.If you are ready, click NEXT.



4.1.5. The next screen (not shown here because it was just way too fast to capture) allows you to watch as the installation process copies the files from your storage media to the hard drive. This process is so exciting that we thought we'd toss it in there for your enjoyment.

4.1.6. You're Done! The final screen of the installation process asks you if you want to restart your computer: now or later. There's no time better than the present. It doesn't really make a difference to us when you restart your computer, but you've got to do it before you start the VVS. Click the Finish button.

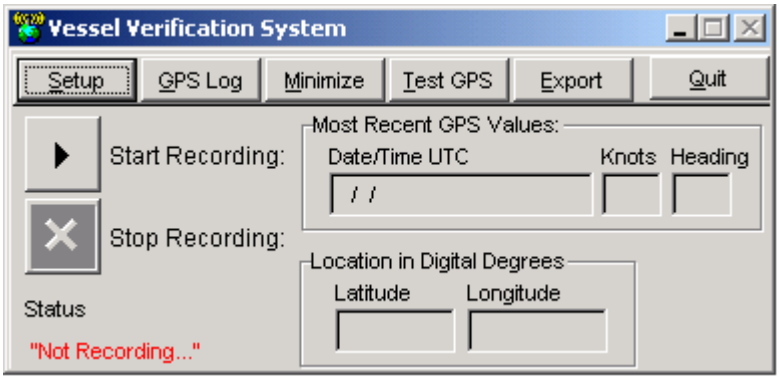


4.2. Software Setup

Once the VVS software has been installed, it must be configured to match your GPS. Because GPS units differ from one another in the ways that they describe their computer interface, we cannot tell you exactly what to look for here, so you must refer to you GPS User Manual for precise instructions. However, in general terms: you will want to go to the SETUP menu on your GPS and scroll over to the I/O (Input/Output) or INTERFACE submenu. From there, chose the NMEA – REM (or similar) selection. This is the NMEA – to – Remote interface selection.

Next, open up the VVS software. You should have a "shortcut" icon on you desktop. Double click this.

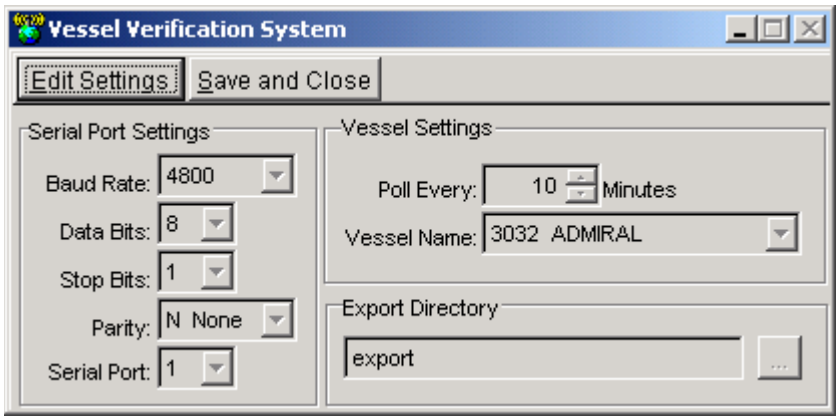
At this point you should get the VVS Main Screen.



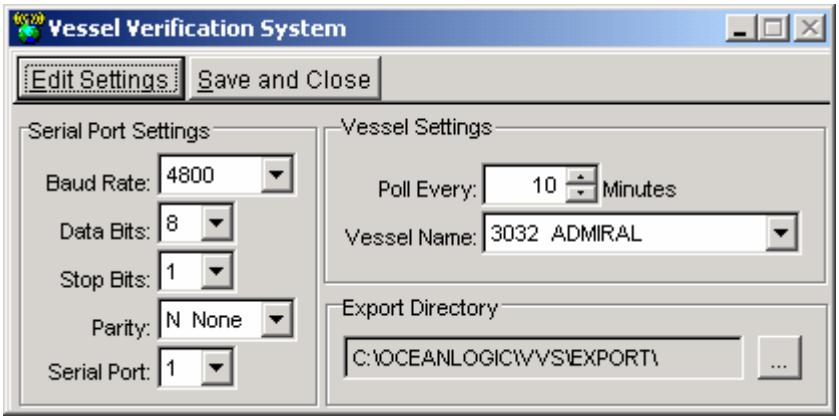
You'll notice that the screen is relatively small. It has eight buttons that operate the VVS and five boxes that hold the most recent GPS information. The information may not appear to reflect your time and location, but it does. It is in the most basic, standard format: Universal Time and Geographic coordinate referencing system (Digital Degrees). In this format your data can be imported, seamlessly, into any mapping or OSF (Open Standards Format) navigation program. Incidentally, the VVS coordinate referencing system of 100,000th of a degree is equivalent to (100,000/364,566.929 (number of feet in 60nm) =) 3.646 feet or 1.111 meters.

Click the Setup button.

Your screen should look like this:



Click the Edit Settings button. The grayed-out boxes are now ready for editing.



The default settings are the recommended setting for your system, however you may have to check you GPS manual to be sure.

4.2.1. Baud Rate: Set at `4800`

4.2.2. Data Bits: Set at `8`

4.2.3. Stop Bits: Set at `1`

4.2.4. Parity: Set at `N None`

4.2.5. Serial Port: The serial port menu option defaults to `1`. If the VVS does not recognize the GPS, you will have to change the setting to another port.

4.2.6. Polling Rate: The default setting is ten minutes, however you may want to change that. A five-minute polling rate seems to be the best rate at which a clear "vessel activity signature" is produced. If you will be using the VVS to document vessel activity in a high traffic area, a one-minute polling rate would be better.

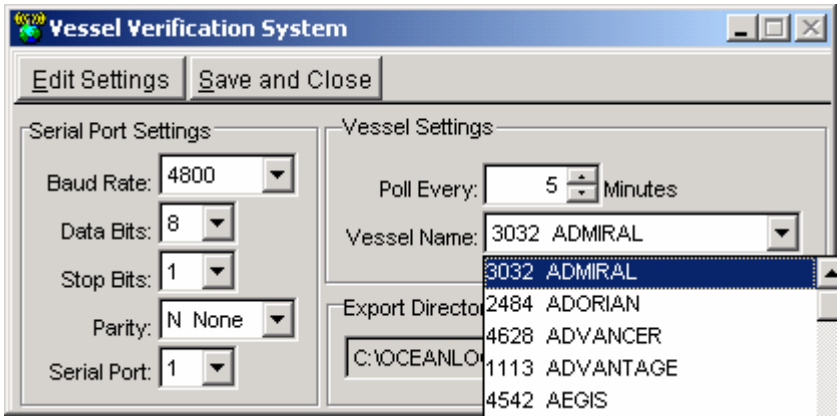
Another consideration in setting the polling rate has to do with the eventual file size that will be created in the GPS Log Archive. The VVS stores 49 bytes per polling record. The following chart illustrates how those records grow at the different settings, over different periods of time. Please note that the five-minute polling rate, that we recommend, can store up to three months of data on a single, high-density floppy disk.

GPS Log Parameters		All file sizes are in kilobytes.				
Polling Rate (in minutes)	Number of files per hour	Size of file in one hour	Size of file in one day	Size of file in one week	Size of file in one month (30 days)	Size of file in three months (90 days)
1	60	2.940	70.560	493.920	2,116.800	6,350.400
5	12	0.588	14.112	98.784	423.360	1,270.080
10	6	0.294	7.056	49.392	211.680	635.040
15	4	0.196	4.704	32.928	141.120	423.360
20	3	0.147	3.528	24.696	105.840	317.520
30	2	0.098	2.352	16.464	70.560	211.680
40	1.5	0.074	1.764	12.348	52.920	158.760
60	1	0.049	1.176	8.232	35.280	105.840

Another consideration in setting the polling rate has to due with transmission costs from a vessel. If you are in a fishery that is required to have either a VMS or VVS and you are asked to email those positions for the last hour or two (or more), your transmission costs may be calculated in bytes. The following chart provides you with that Setting/Time comparison.

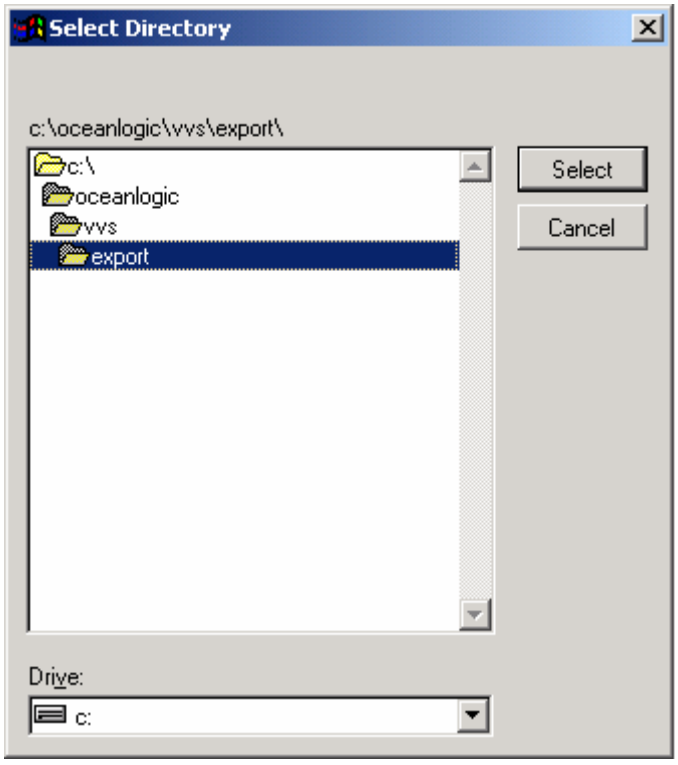
GPS Log Parameters		All file sizes are in bytes.				
Polling Rate (in minutes)	Number of files per hour	Size of file in one hour	Size of file in one day	Size of file in one week	Size of file in one month (30 days)	Size of file in three months (90 days)
1	60	2,940	70,560	493,920	2,116,800	6,350,400
5	12	588	14,112	98,784	423,360	1,270,080
10	6	294	7,056	49,392	211,680	635,040
15	4	196	4,704	32,928	141,120	423,360
20	3	147	3,528	24,696	105,840	317,520
30	2	98	2,352	16,464	70,560	211,680
40	1.5	74	1,764	12,348	52,920	158,760
60	1	49	1,176	8,232	35,280	105,840

4.2.7. Vessel Name: Select your vessel. Note that the number in front of the vessel's name is the federal permit number. This will help you to select your vessel.

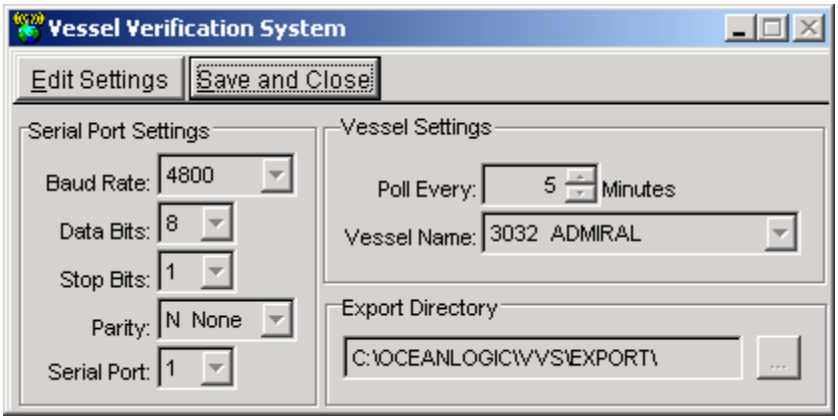


If your vessel is not here please contact OceanLogic immediately

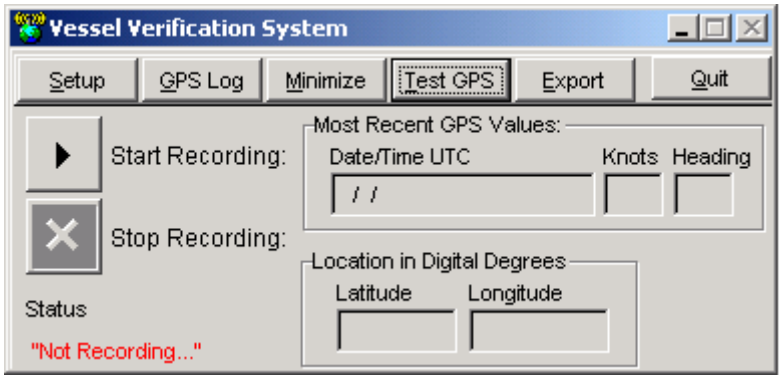
4.2.8. Export Directory: You must set the Export Directory. Click the button with the three dots "…". (Those are called ellipses.) A window will open up allowing you to browse to any directory on your computer, however the VVS will default to the C:\OceanLogic\VVS\Export directory. If you don't have any objections to this, click the Select button.



You've just finished the setup process! Now click the Save and Close button.



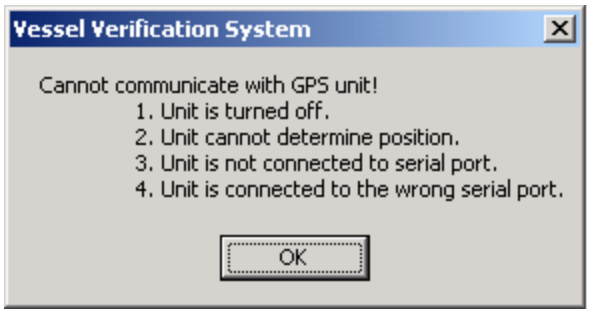
4.3. Testing the GPS connection: All things considered, you are now ready to test your setup of both the GPS and VVS. Go back to the Main Screen (you should be there upon saving and closing the Setup window) and click the Test GPS button.



If everything is working okay, then you will see this screen.

You are now ready to proceed to Section Five: Basic VVS Operations. If you see the Error Message, take a break, go get a cup of coffee and then read on.

4.3.1. GPS connection error messages: If there are problems in the setup, then you will receive this message.



Check to make sure that:

4.3.1.1. The GPS is turned on (See GPS owner's manual);

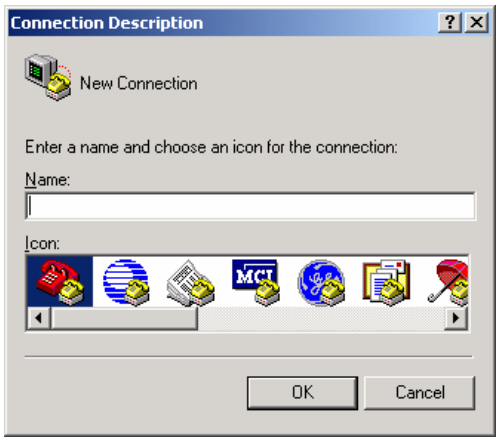
4.3.1.2. Check that the GPS is receiving a signal (See GPS owner's manual);

4.3.1.2.1. Please note that if the GPS loses a signal after it has been acquired, the GPS Log will continue to report the outputs from the GPS. These output records will not change from the last valid output record.

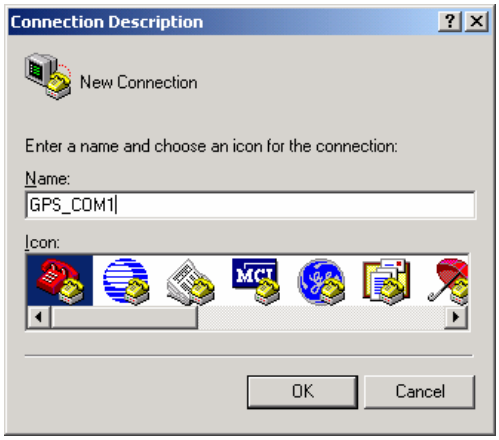
4.3.1.3. Check that the GPS cable is connected to the computer's serial port and that you computer is receiving a signal.

You can check to see if your computer is receiving a GPS signal through a software program that comes with every Microsoft Window's operating system. The program is called **HyperTerminal**. Before you use the HyperTerminal program, make sure that the VVS software is turned off. Remember, only one software program can use a COM port at any one time.

4.3.1.3.1. Go to the Start button on Main Toolbar
4.3.1.3.1.1.Select Programs
4.3.1.3.1.1.1. Select Accessories
4.3.1.3.1.1.1.1.Select Communications
4.3.1.3.1.1.1.1.1. Select HyperTerminal
4.3.1.3.2. After you see the HyperTerminal startup screen, you will see a window that will ask you create a connection file.

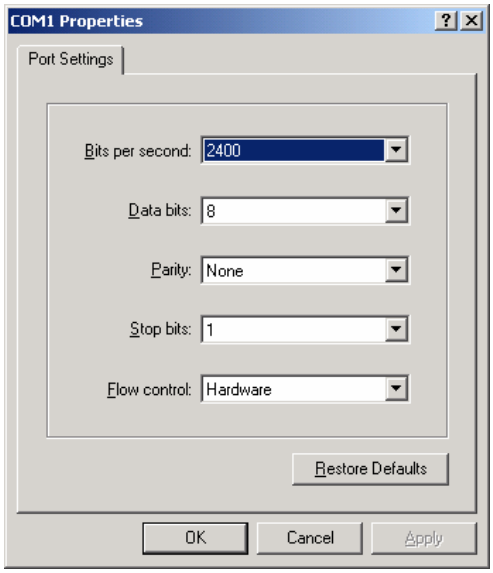


4.3.1.3.3. Call this file anything you want, but we (writing this manual) will call it GPS_COM1. It is a descriptive title, telling me what the purpose of the file is for: I am looking to establish a GPS connection through COM port 1.

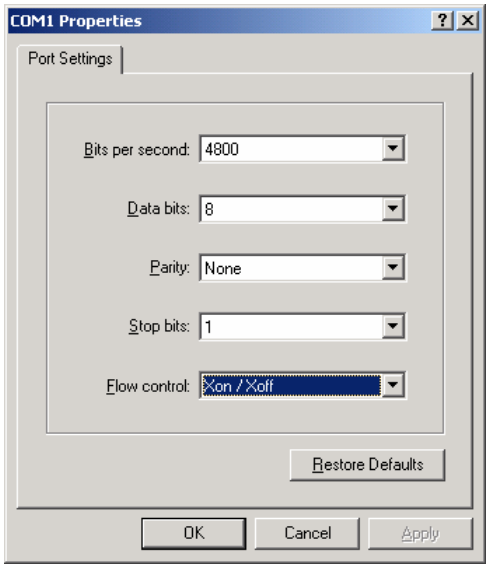


4.3.1.3.4. The next window is asking for connection details. Choose COM 1 (or another COM port as appropriate).

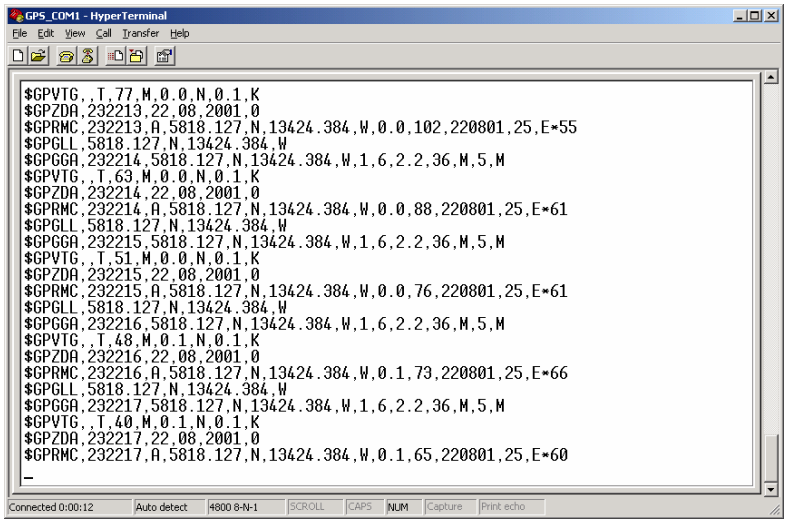
4.3.1.3.5. The next window is the Properties window. Shown below are the HyperTerminal program's default values.



4.3.1.3.6. The HyperTerminal properties should match those of the VVS. Change the values if necessary. Note that the Flow Control values should be Xon/Xoff.



4.3.1.3.7. If you have a connection to your GPS, you will begin to see data coming across your screen similar to the screen below.



If you don't have data coming across your screen, check your settings (in the Properties window) and check your COM ports. If you are still not having any luck, then the problem is most likely occurring before the data is reaching the computer.

4.3.1.4. Finally, check that the correct serial port is selected in the VVS software. Refer back to section 4.2.5.

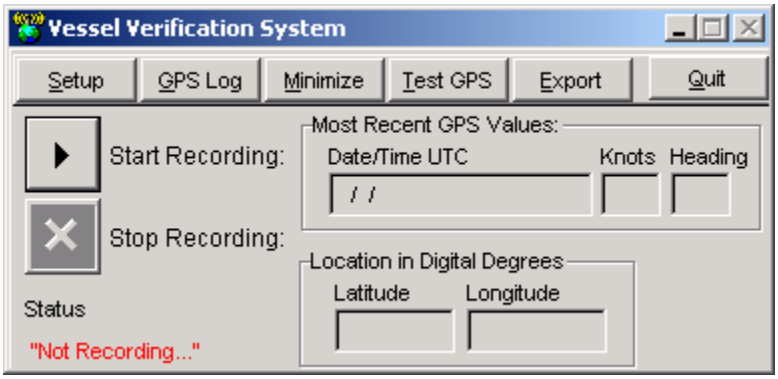
These are the common problems. If you made up your cables, make sure that the wiring is correct. If you are running your GPS signal through a signal-splitter make sure that not only is the wiring correct, but that you are running power to the splitter box. There's no question that trouble-shooting can be a headache, but the problems will be in this area and they should be relatively easy to isolate. The signal path is short and the two systems (GPS and VVS) are closed. There are only a few places where problems can occur.

5. Basic VVS Operations

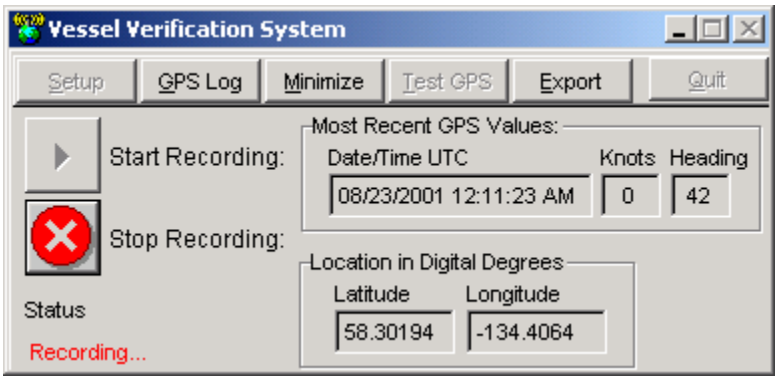
The VVS is incredibly easy to use. Turn it on at the beginning of a trip and forget about it. Occasionally, you may want to make a comment in the GPS Log or at some time export the data that you have been collecting. In any event, once you turn it on, you don't have to interact with it in order for it to be creating value for you.

5.1. Turning the VVS on (Start Recording)

Open up the VVS program and click the Start Recording button.



After a few moments, the VVS will begin to receive data from the GPS and the data fields will be filled in.

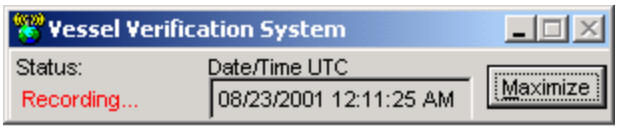


You're underway now. Remember, the data and position may appear to be off, but the time is UTC (Greenwich Mean Time) and the position is in Digital Degrees. At this point you may want to view the log or simply minimize the program.

There are two ways to minimize the program. If you want to clear it off your desktop, then click the minus (-) button in the left-hand box in the upper right-hand corner of the window. A program button will remain on the Task Bar at the bottom

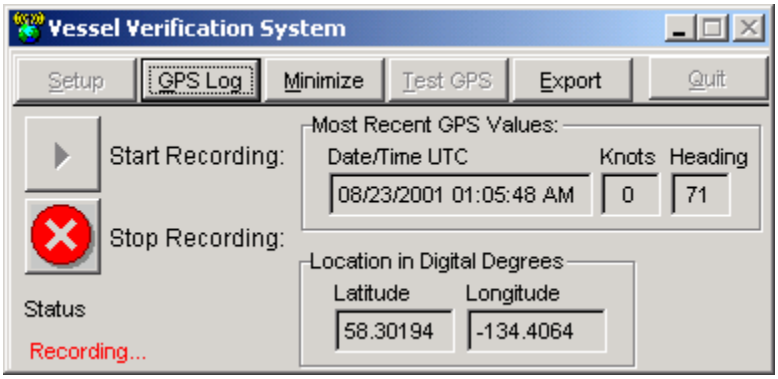
of your screen. Click this button anytime you want the VVS to appear on your screen again.

The way to minimize the window is to click the Minimize button in the program. This will reduce the size of the window and the information content. All you will see is the GPS status, the time and the Maximize button.

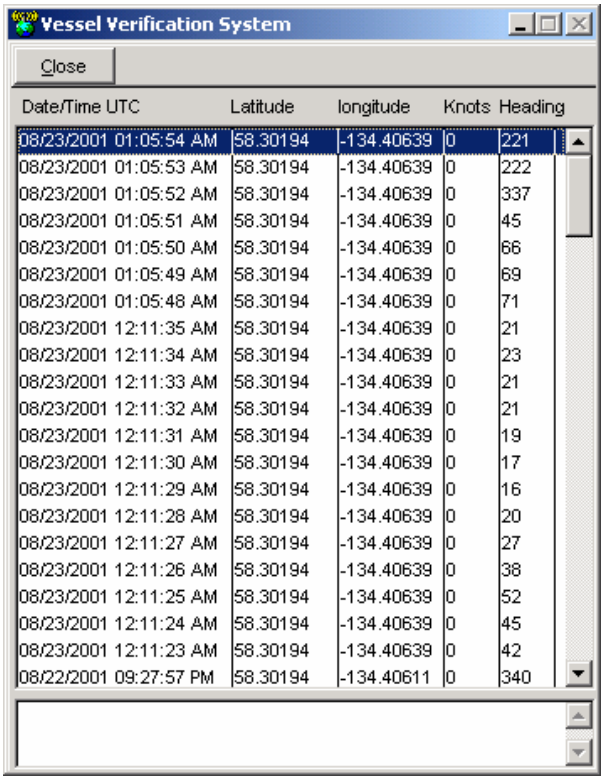


5.2. Viewing the GPS Log

Occasionally, you may want to see the GPS Log. Simply click the GPS Log button in the Main screen.

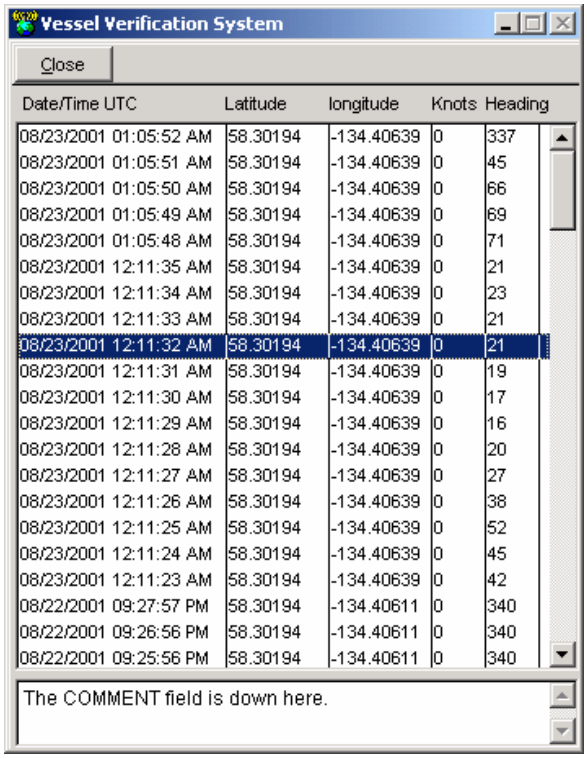


And the GPS Log screen will popup.



5.2.1. Making a comment in the Log

Opening the log is necessary if you need to make a comment. To make a comment, simply place the curser in the comment section at the bottom of the window. Start typing. Very Important: When you have finished typing, click your curser out of the comment box. If you do not do this, you will loss the comment at the next polling cycle.



To return to the Main screen, click the Close button.

5.3. Exporting data

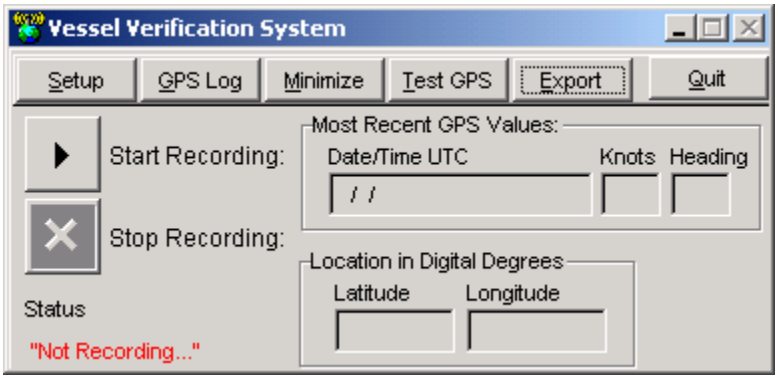
Being able to export your data is one of the most important features of the VVS. This allows you to work with and analysis the data. Data is exported through a simple three-step procedure: click the Export button on the Main screen; define the date and time range of the data you want; and then click the Start Export button.

The data is exported to folder that you chose during the installation process. If you chose the defaults, then the file will end up in the C:\OceanLogic\VVS\Export directory.

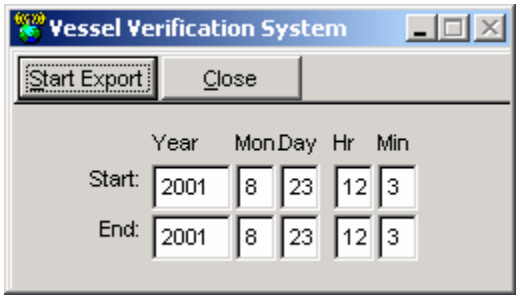
The file's name will be "VVSExport_(with a date/time stamp at the time of export)." Here's an example: VVSExport_20010823_919.txt.

The file is an ASCII text file commonly referred to as a CSV file or Comma Separated Values. These files are easy to read and can be opened up in any text editor such as *Notepad* or *WordPad*. The can be read by any standard word processing program like MS *Word* or Lotus *WordPerfect*. Possibly even more important though, these files can be imported into spreadsheet and database programs. Well get into that in the next section, but first, lets walk through the export procedure.

5.4. From the Main screen, click the Export button.

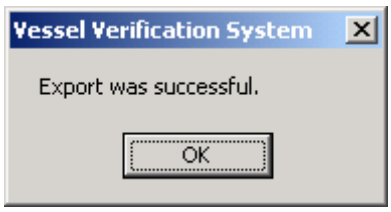


5.5. The Export screen should appear. From here, set the time span that you want for your export.



5.5.1. Remember, the dates and times were recorded in UTC. If you are in (let's say...) Alaska, you are eight hours (Daylight Savings Time) to nine hours (Alaska Standard Time) behind UTC. This is important because if you are exporting data for transmission to an oversight agency, you may end up giving them the wrong information your first time out.

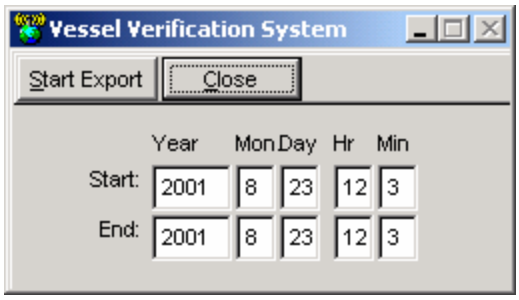
5.6. Click the Start Export button. After a few moments, a screen should pop up telling you that the export was successful. Click OK and you will return to the Export screen.



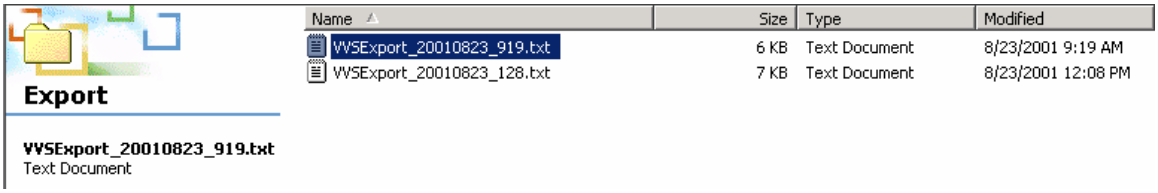
5.6.1. You may receive a message that says, "No records were selected for export."

If so, don't worry. This is common the first few times using the export function just try changing the dates or times to match your time zone.

5.7. Once your records have been exported and you have returned to the Export screen, click the Close button and you will return back to the Main screen.



5.8. Your data is now in a file, labeled VVSExport_(with a date-stamp) in your Export Directory.



Now you can view it with a text editor, word processor, spreadsheet or database or you can email it.

6. How to get more out of the VVS

6.1. Use with Access

6.2. Use with Excel

6.3. Use with a GIS

7. Glossary of Terms