ProFlex500 PDL Radios - preparing for field work

Confirm that PDLCONF and either GNSS Solutions or Evaluate are installed on your computer.

The PDLCONF software is available from the Pacific Crest web page at

http://www.paccrst.com/

GNSS Solutions and Evaluate are both available from the Magellan ftp server at

ftp.promagellangps.com

This document will depend on use of the manuals for the hardware and software illustrated and are not intended to replace those instructions. The WinComm software used to illustrate these instructions is a tool included in GNSS Solutions. See appendix B of the GNSS Solutions Reference Manual for details.

Configure the Rover Radio

Restore all the factory settings on the ProFlex500 rover using Power+Log+Scroll as described in the ProFlex500 getting started manual.

Connect the serial interface cable to port A on the ProFlex500 rover.

Connect the serial interface cable to a com port on the PC. The photo illustrates how that was done with a computer that does not have nine pin serial ports using a USB-to-Serial adaptor.
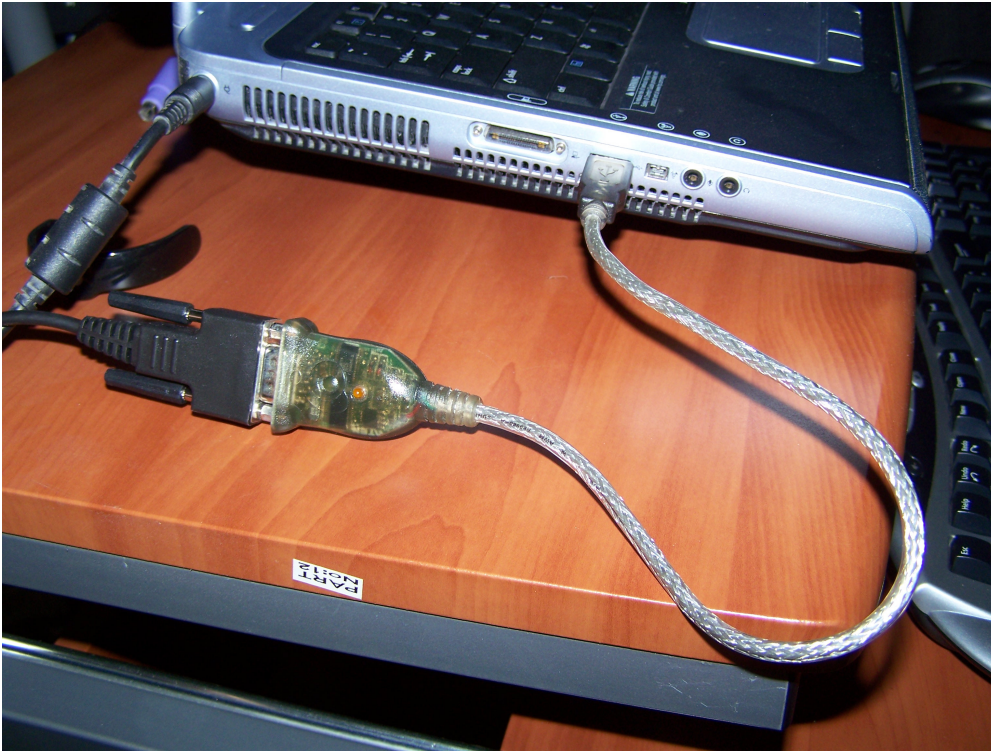

Sometimes it is hard to know what com port number is assigned to the USB-to-Serial adapter. Start WinComm and look at the list of com ports before the adapter is connected to the PC.
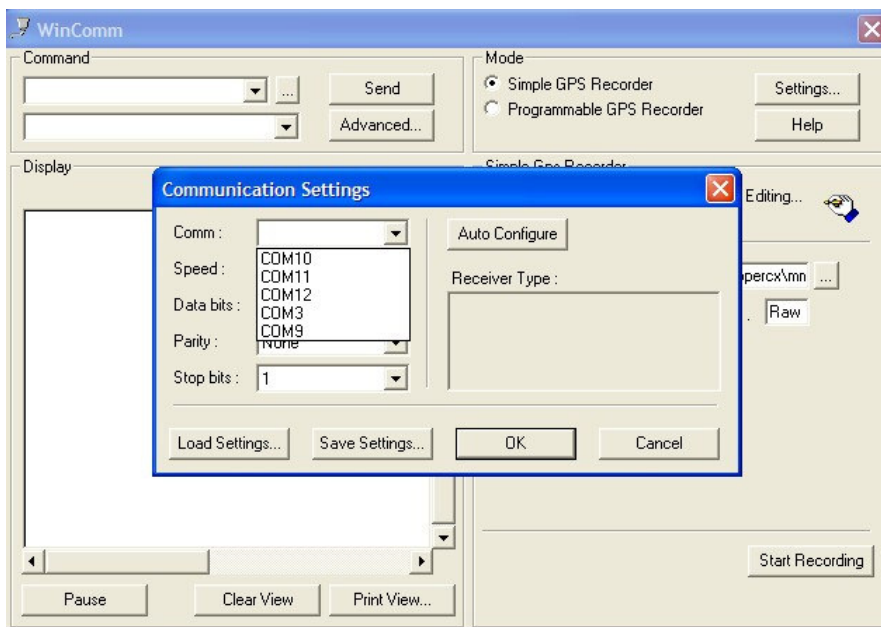
Close WinComm, connect the USB-to-serial adapter, start WinComm, and check the list of com ports. The com port added to the list is the USB-to-serial adapter. In this example the new port is COM4.
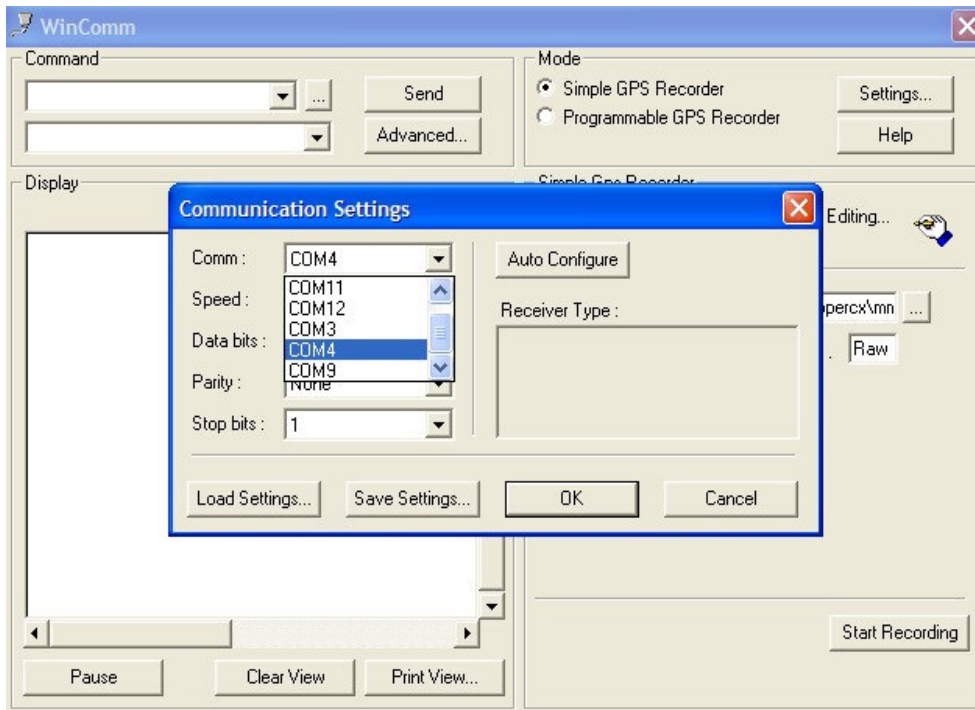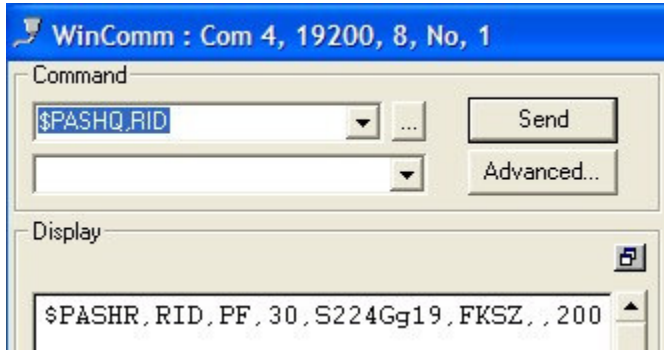

With the correct port selected all is ready. Click OK to make the connection.
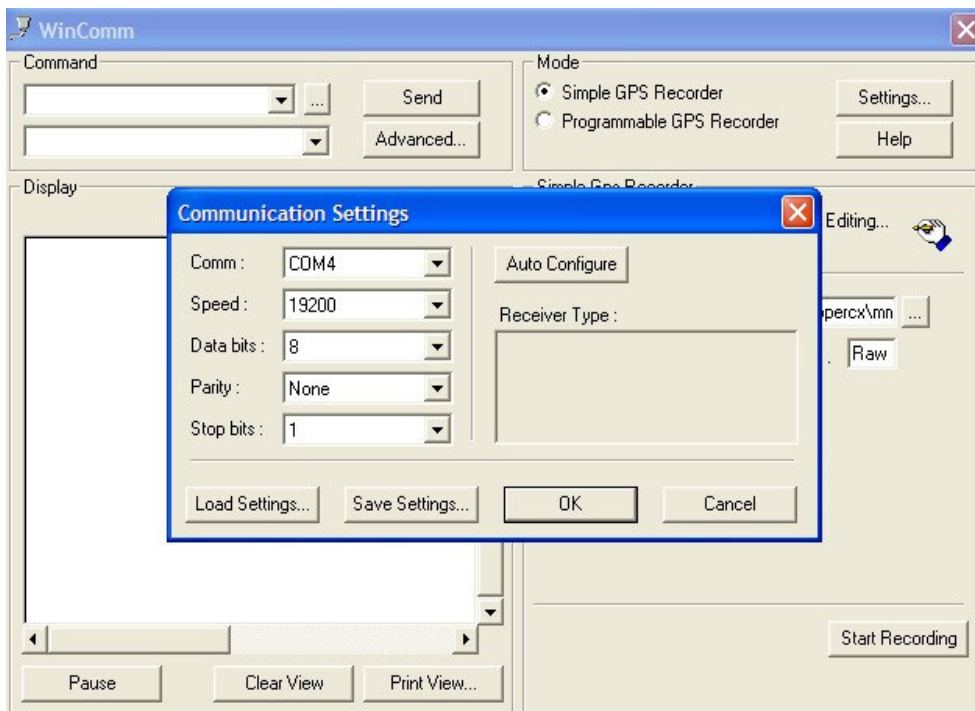
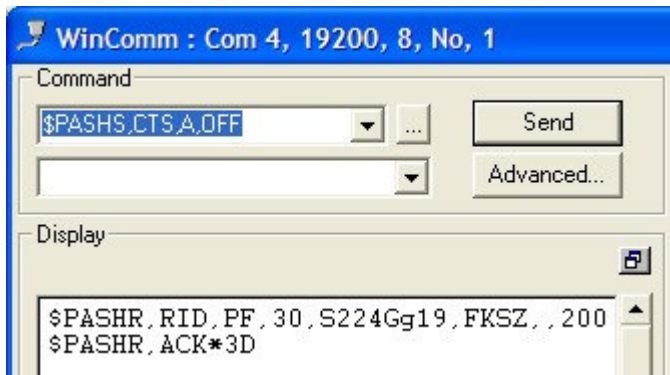Verify the connection to the ProFlex500 by sending the query

$PASHQ,RID
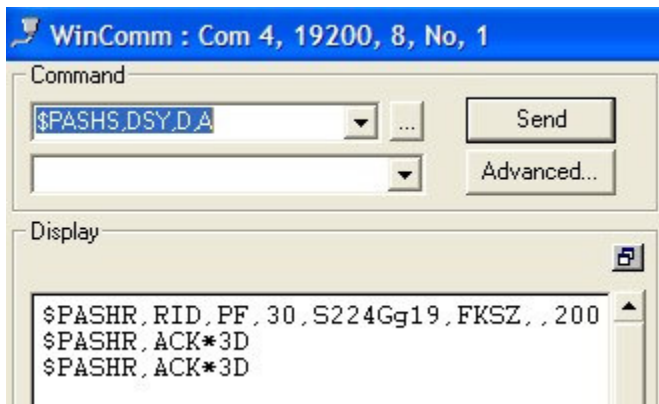
Verify the $PASHR response before going to the next step.

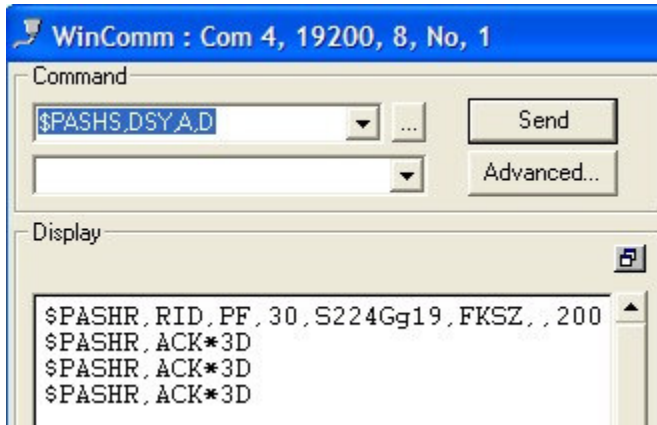A series of commands follows. Each command and the response to watch for is illustrated as follows:
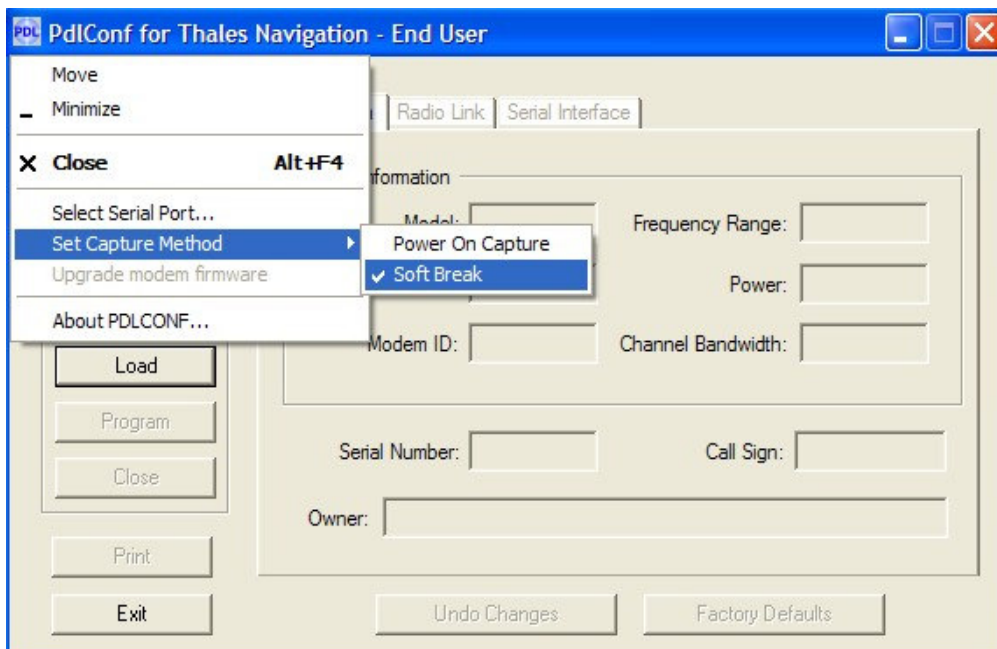
$PASHS,CTS,A,OFF

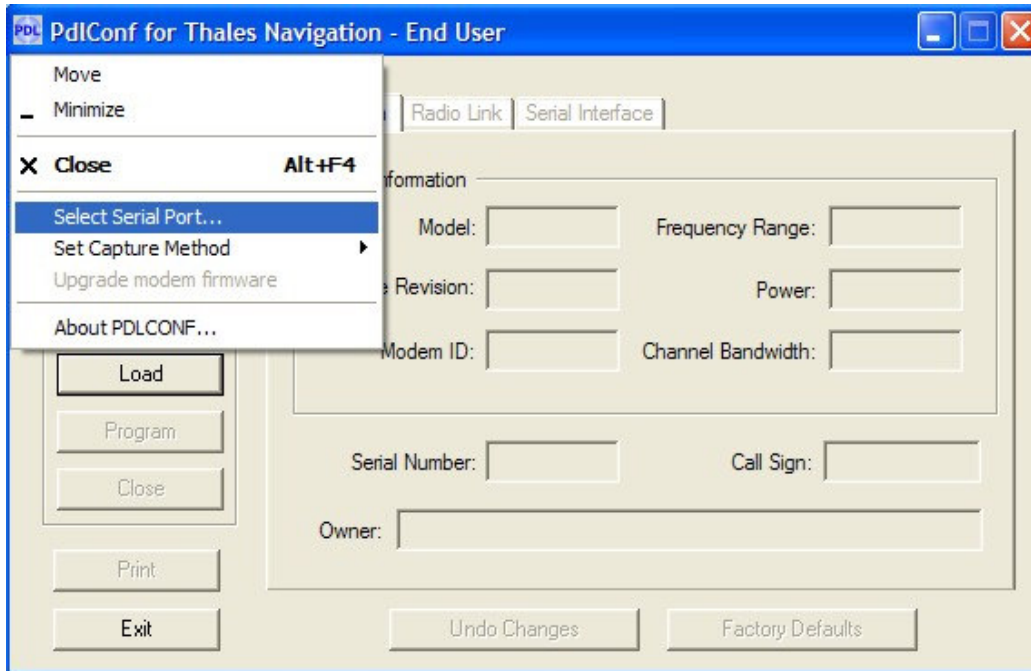$PASHS,DSY,D,A

$PASHS,DSY,A,D

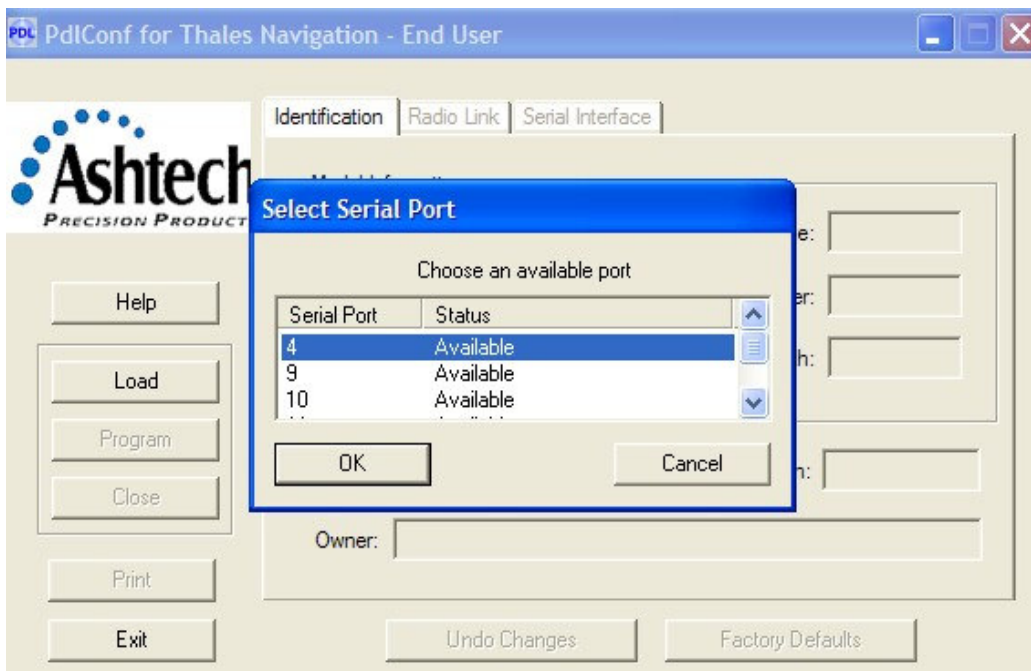Close WinComm, leave the ProFlex500 connected to the PC, and start the PDLCONF software.

A left click on the little PDL button in the top left corner of the PDLCONF software window will reveal a menu. Set the capture method to Soft Break.

Select Serial Port…

Choose the Serial Port (COM) for the ProFlex500 connection.

Click on the Load button to read the current settings in the PDL radio.

Examine the Identification tab information. Edit the Owner field as appropriate. Verify the firmware version and frequency range. Compare the channel bandwidth with the base radio to be used. Make note of the serial number for company records if needed.

The Radio Link tab has several settings that will determine whether the radios will work together.

Matching frequency tables are essential. Compare the rover frequency table with the base radio frequency table and the radio license to ensure compliance with regulations. If the channel tables are not correct request assistance from a dealer or radio service company who has the dealer version of PDLCONF.

Modify all other settings to match the screen shot on this page with the objective of making the rover radio work with the base radio.

In a high RFI (Radio Frequency Interference) environment a Digisquelch set to Moderate may give more dependable performance at short ranges. It will limit the maximum range of the radios but range limitations may already be imposed by the RFI. Digisquelch set to High is appropriate whenever there is uncertainty about the environment. If RFI prevents success with the radios switch to the Moderate setting.
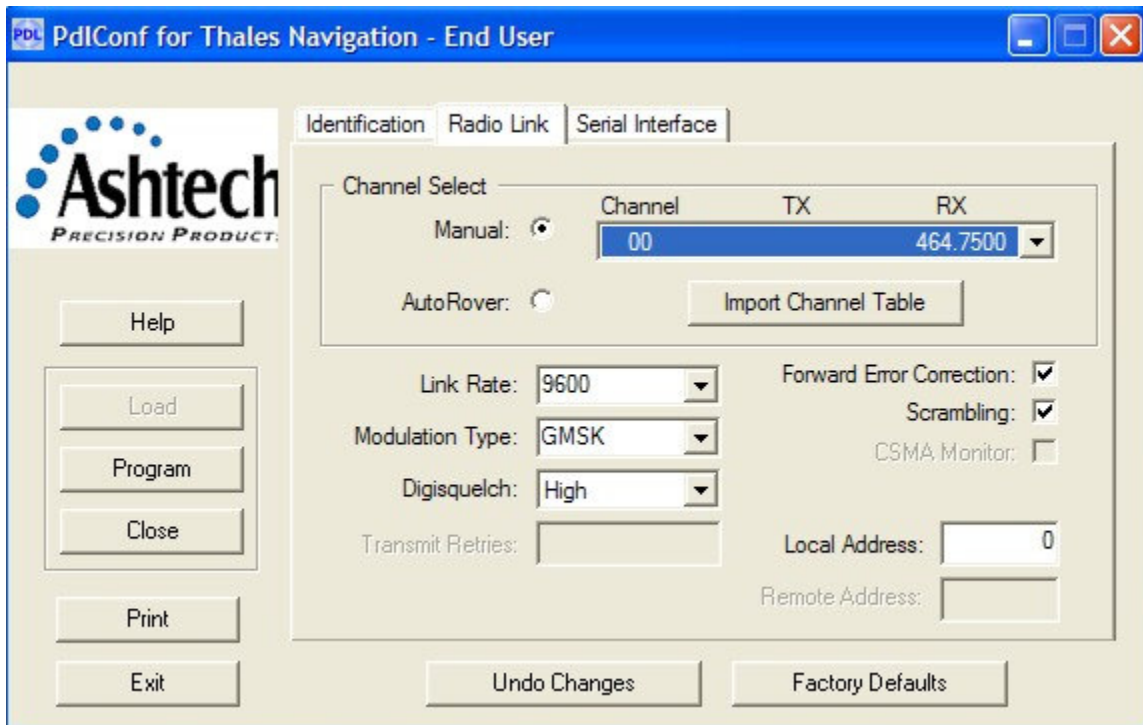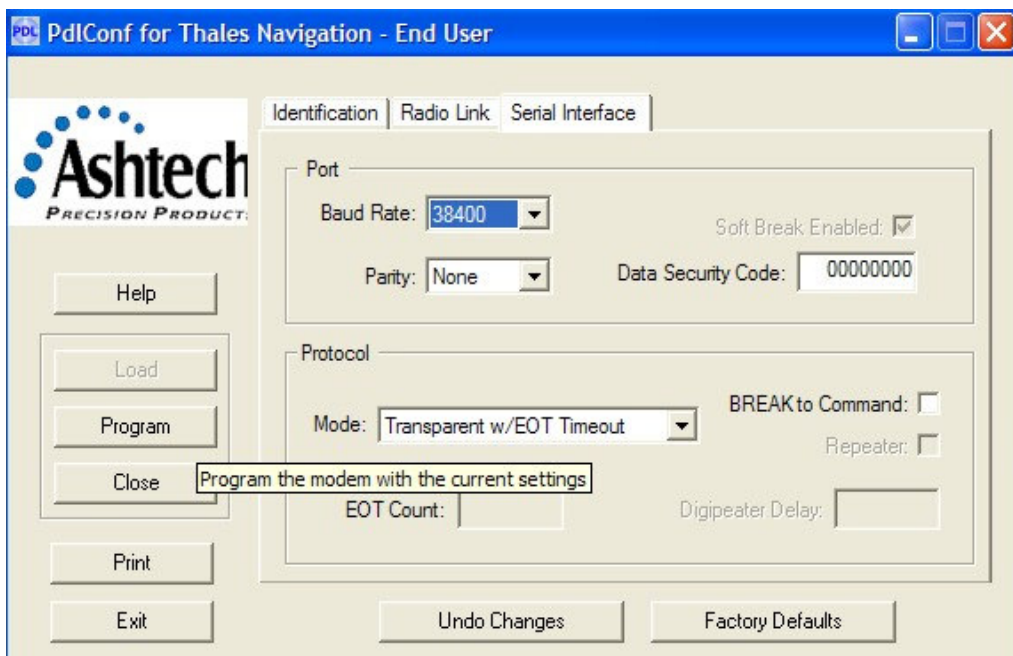
The Serial Interface tab includes a baud rate selection that must be 38400 for success with the ProFlex500 rover. Any other setting for the baud rate will make the radio so it will not work with the ProFlex500. Match the Serial Interface settings with the screen shot on this page.
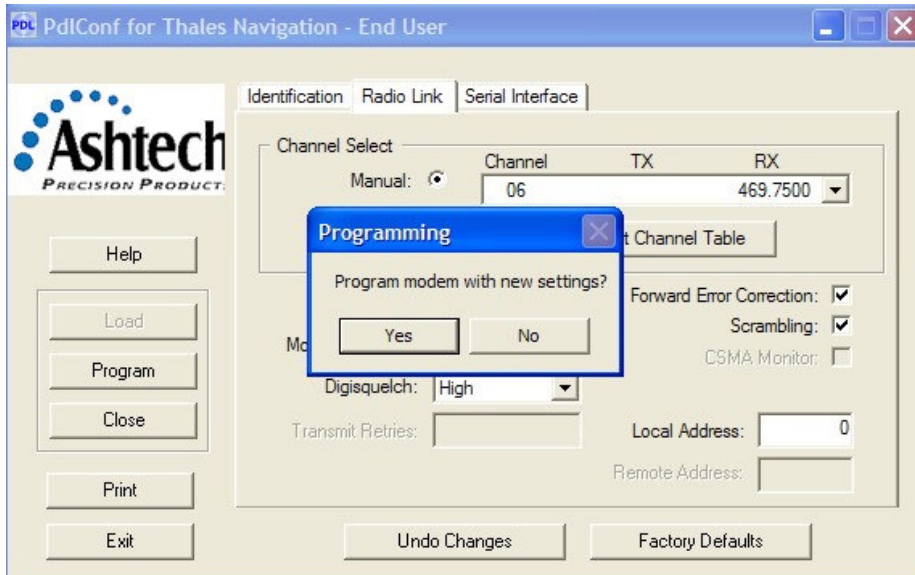
Baud Rate: 38400
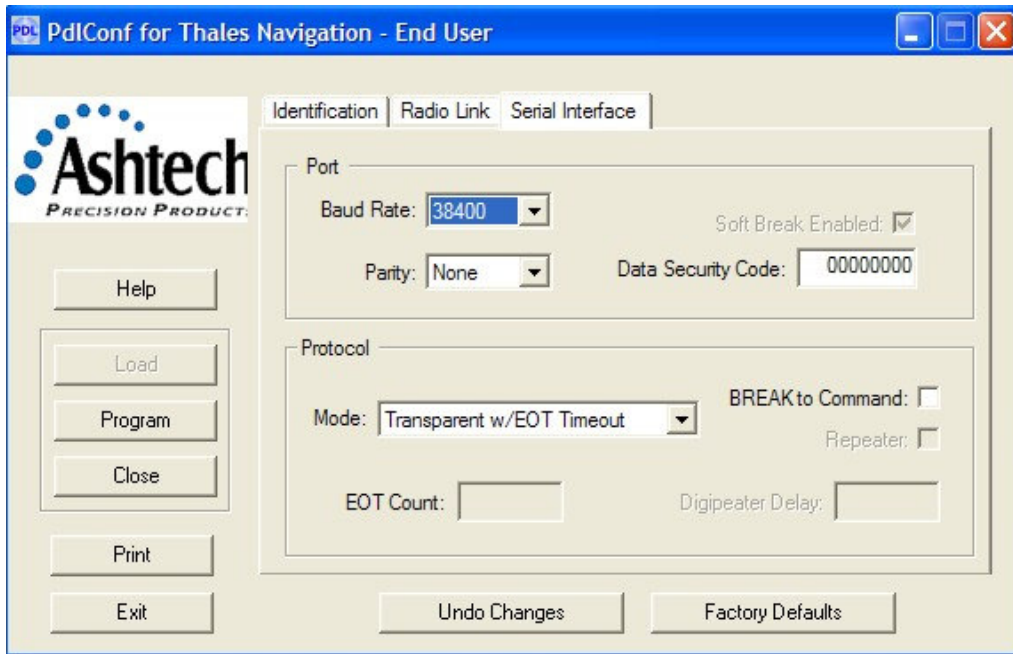
Click the Program button to program the changes into the rover radio.

Confirm the decision to program the radio with a click on the Yes button.

Print a report, if needed, to provide a record of the settings in the radio with a click on the print button. Make a pdf of the report as a way to share information with technical support. Click the Close button to detach from the PDL radio. Close PDLCONF.
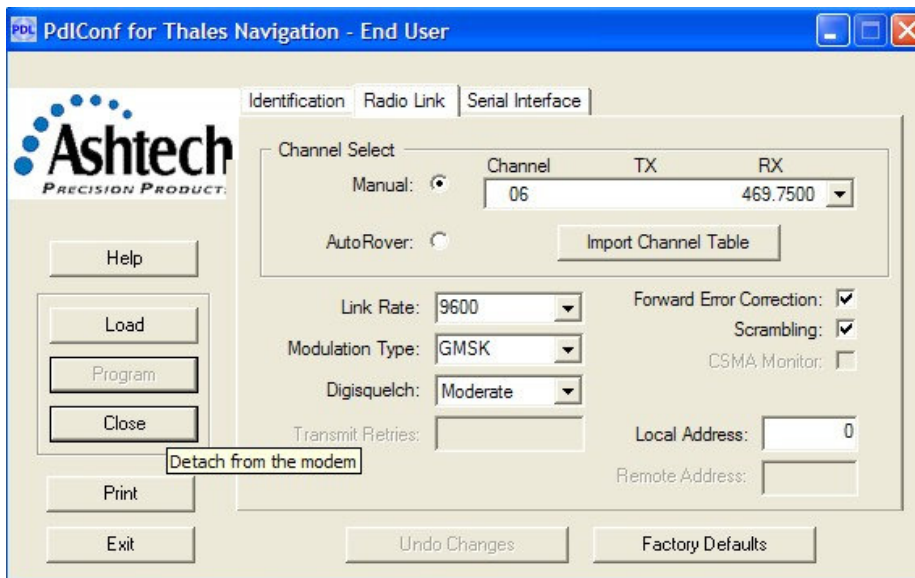
Power off the ProFlex500.

Restore all the factory settings on the ProFlex500 rover using Power+Log+Scroll as described in the ProFlex500 getting started manual. This will not change the radio settings just made with the PDLCONF software. It will cause the ProFlex500 to make a new connection to the PDL radio and recognize the radio configuration changes just made.

Configure the PDL high power base

Connect an antenna to the base radio. Connect the Pacific Crest programming cable and connect a power supply to the programming cable.
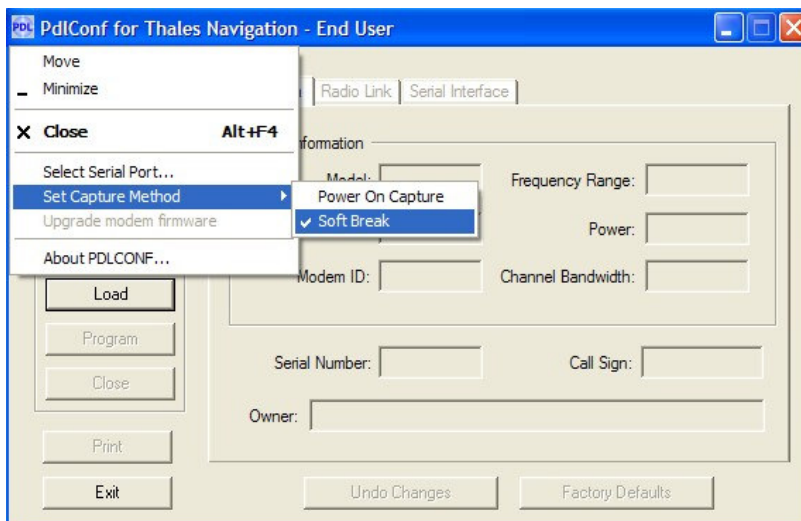

Connect the programming cable to the PC.

Start the PDLCONF software. Left click on the small PDL icon in the top left corner of the PDLCONF window to reveal a menu.


Set Capture Method to Soft Break.

Sometimes it is hard to tell what serial port number is assigned to the USB-to-serial adapter. Start PDLCONF before connecting the USB-to-serial adapter and look at the list of serial ports.
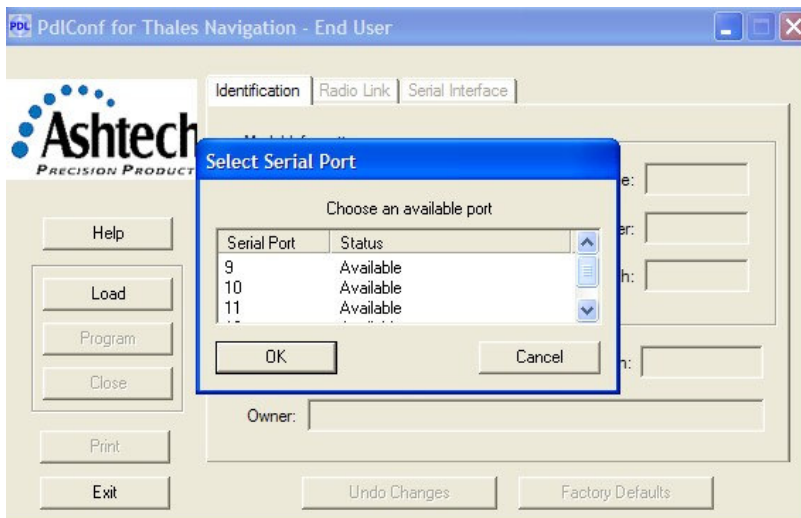
Close PDLCONF, connect the USB-to-serial adapter and start the PDLCONF software again. Select serial port again but this time see what additional port has been added to the list. In this example serial port COM4 was added to the list.
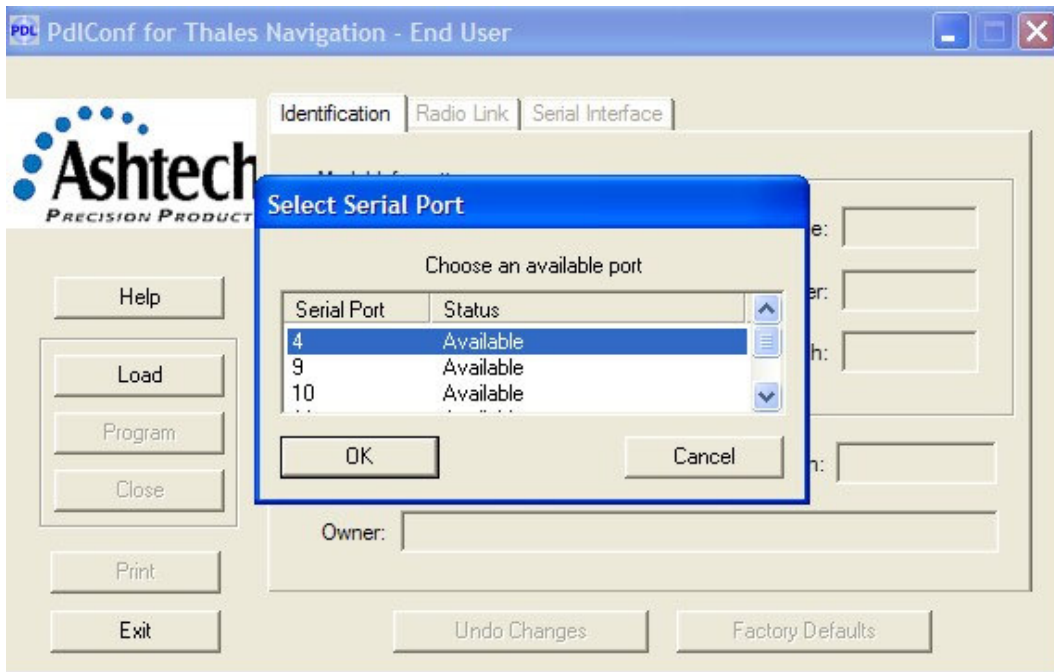
Click on the Load button to read the current configuration from the base radio.
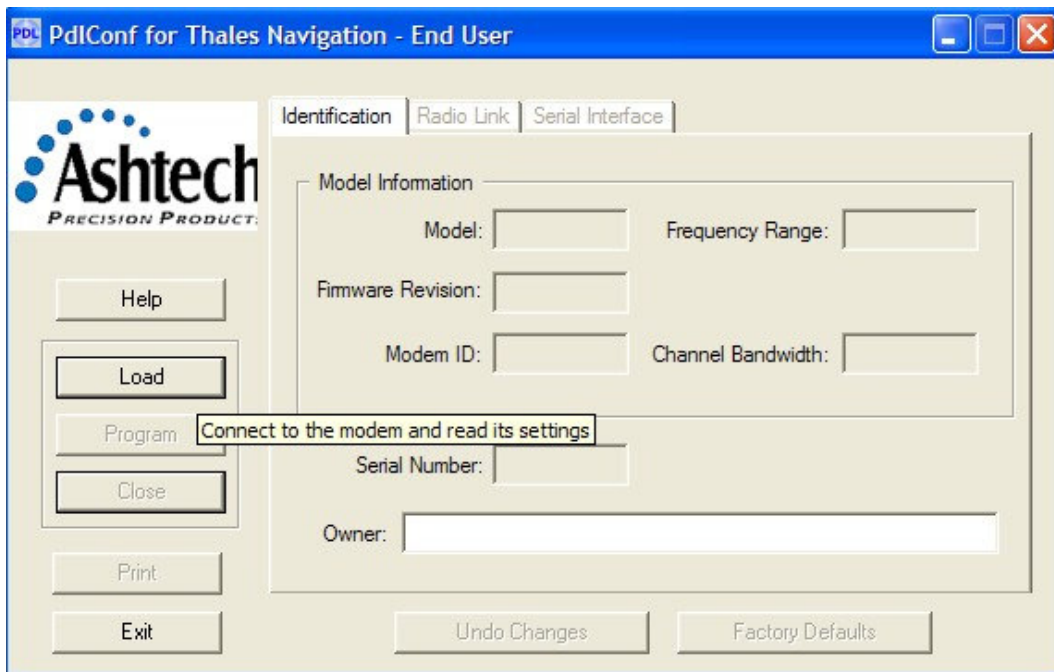
The Identification tab includes fields for the owner's company name and the radio call sign issued by the agency that regulates radio transmitters. In the USA the FCC issues radio license call signs appropriate for the Call Sign field. Compare the Frequency Range and Channel Bandwidth with the report from the rover radio to ensure compatibility. Note the Serial Number for company records.

The Radio Link tab has settings that need to match the screen shot below. The Channel Table must match the rover radio channel table for communication to work. The channel table should be compared with the radio license to ensure compliance with regulations.

The Serial Interface tab settings should match the ones shown here. Flexibility with the Baud Rate is possible. Remember the baud rate setting selected when setting up the base in the field. Baud rates of 9600, 19200, and 38400 all seem to work. Be consistent and remember what was set. The key to successful selection of the base station baud rate seems to have most to do with remembering what was set.

Click the Program button to save the configuration settings to the base radio.

Click Yes to confirm saving the settings to the base radio.
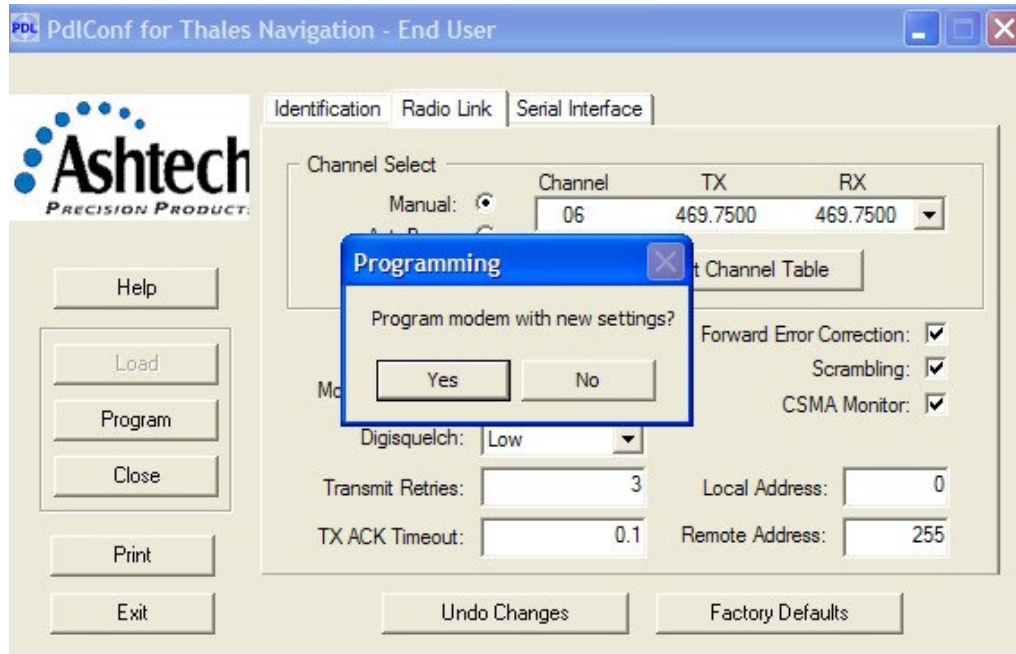
Close the connection to the PDL and Exit from the PDLCONF software. The PDL base station is ready for field work.

Return to the Pacific Crest web page. Find the link to the *Guide to Wireless Data Links* at the bottom left corner of their home page. Download and study that guide. Share it with everyone who will use a radio data link.

http://www.paccrst.com/

Atlas License Company offers help with the FCC license process.

http://www.alcds.com/

Please report errors found in these instructions to Phil Stevenson by email:

pstevenson@promagellangps.com

Phil Stevenson
August 27, 2009

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