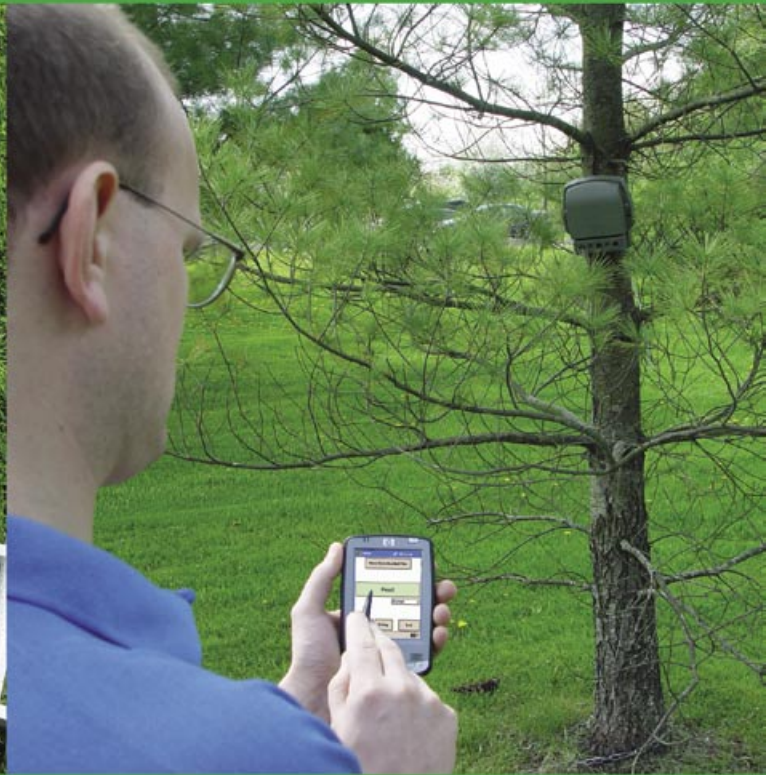# JPDA

Portable Data Retrieval for JAMAR Equipment

Reference Manual

JAMAR
Technologies, Inc.
Traffic Analysis & Distance Measuring
Equipment, Software and Supplies

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800-776-0940
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You may also contact us by e-mail at:

support@jamartech.com

For more information on our products, the latest news in product development, and to download software updates, visit our web site at:

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For information on all known issues with JPDA, go to:

www.jamartech.com/jpdasupport.html

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Hatfield, PA 19440

Table of Contents

Chapter 1

Introduction and Installation

Introduction

Figure 1-1:
JPDA

Welcome to JPDA, a JAMAR Technologies software program designed to run on a Personal Digital Assistant (PDA). JPDA works with several of JAMAR's product lines, including the TRAX automatic traffic data recorders and the Scanner people counters. This software makes retrieval of data a more convenient process. With JPDA software running on your choice of PDA, it is possible to download data from multiple data recorders without taking them back to the office.

The primary job of JPDA is to retrieve the data in your data recorders and get that data back to your office, where it can then be processed with either JRead or TRAXPro.

Supported PDAs
JPDA currently runs on Pocket PC based PDAs. It does not currently support Palm PDAs. In general, almost any Pocket PC version PDA made in the last couple of years should work. There are several companies that sell Pocket PC PDAs, with the most popular being those made by Hewlett Packard (the iPaq series). Regardless of brand, Pocket PC PDAs look very much the same since they run the same operating system.

The requirements for running JPDA are:
• Pocket PC based PDA
• Windows Mobile 2003 or Mobile 5.0 operating systems of Pocket PCs. (Note that SmartPhone operating systems are not supported).
• Bluetooth capability for wireless data retrieval (Scanner Counters)

Software Updates
Updated versions of JAMAR software are released periodically and are posted on the JAMAR web site. To download the latest version of JPDA, go to **www.jamartech.com** and then select Downloads from the list of options.

Software Support
If you encounter any problems while using the program, or have any questions on specific operations, refer first to this manual. For up to the minute information on all known issues with the program, refer to the JPDA support web page at: **www/jamartech.com/JPDAsupport.html**.

Installation

It is a simple process to install JPDA on your PDA. It is required, though, that you have set up an ActiveSync partnership with your desktop computer. If you are unsure of how to do this, consult the instructions that came with your PDA.

It is recommended that you place your PDA into its cradle and allow ActiveSync to run prior to starting the installation procedure. The installation software will use ActiveSync to copy the files to your PDA.

Place the JPDA CD into the CD drive of your computer. The computer should recognize the new CD and show you the Installation Options, including one to **Install JPDA**. Select this option.
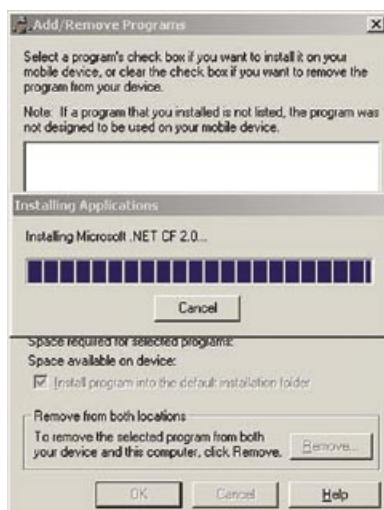

Figure 1-2: .NET Installation

Installing .NET Framework

If this is a new installation, you must first install the .NET framework for your PDA's operating system. If you are unsure of what operating system is running on your PDA, on the PDA go to the Start menu, then select *Settings*, select the *System* tab and click on *About*. Note that JPDA only supports the Windows Mobile 5.0 or 2003 operating systems.

Click on the installation button for your PDA's operating system, and the installation of the .NET framework will begin. During installation you'll see a screen similar to Figure 1-2.

Once the installation is complete, you'll see a screen prompting you to check your PDA to see if any additional steps are needed. On the PDA itself, you may be prompted to restart.

Installing JPDA

Once the .NET framework is installed, you are ready to install JPDA. Click on the *Install JPDA* option on your computer. When the first installation screen appears, click *Next*.

Next you will see the License Agreement displayed on the screen. If you agree to the terms of the agreement, select the *I accept the terms in the licence agreement* option and click the **Finish** button.

Active Sync connects to the PDA and begins installing the program. When complete, you'll see a screen prompting you to check your PDA to see if any additional steps are needed.

Once you've installed your JPDA software, the icon for JPDA has been added to your list of applications on your Programs Screen of the PDA. You tap on the **JPDA** icon to run the software.

Installing JRead

JRead is a utility program who's purpose is to allow you to transfer JPDA data to your computer for processing, and is recommended for use with data from Scanner counters. For data from TRAX counters, the TRAXPro software can be used for the same purpose.

JRead can also be used to directly download your data recorders, and uploading settings to your data recorders, if you do not want to use a PDA. (Refer to the Appendix for more details on this.)

The JPDA CD **Installation Options** should still be running on your computer. If not, re-insert the CD.

Select the **Install JRead** option and the installation for the program will begin. When the Welcome screen appears, click *Next*. The next screen details the license information for the program. To accept the license agreement and continue with the installation, click *Yes*.

The Read Me file for the program will then be displayed. Click *Next* to continue.

The Choose Destination Location screen then appears. You can use this screen to select where the program is installed. To use the default location, click *Next*.
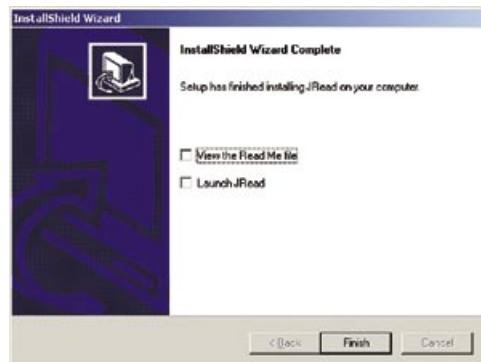
Figure 1-3:
JRead Install
Complete

The Select Program Folder screen allows you to select the program folder for the installation. To use the default location, click *Next*.

At this point you have provided all the information necessary to start installing the program. A summary of the information is provided. Click *Next* to begin copying files.

Once all the files have been copied, the InstallShield Wizard Complete screen will appear.

Chapter 2

Using JPDA to Retrieve Data

Getting Started

Once you have installed JPDA, you are ready to start using the program. Tap on the JPDA icon in the Programs menu. This loads the Main screen.

Main Screen

The Main Screen is arguably the most important screen in the software. Nearly all of the software's functions can be accessed from this screen. The main options on this screen are:
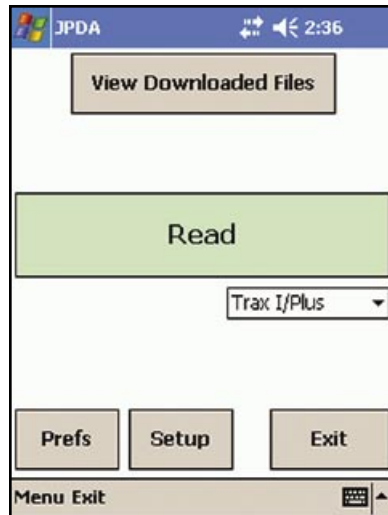
View Downloaded Files - View a list of downloaded files.
Read - Retrieve data from a data recorder.
Prefs - Set the Preferences for the program.
Setup - Upload settings to a data recorder.

Once you initiate a task from the Main screen, you will be presented with another screen specific to that particular operation, such as reading the data collector. When the task is completed, you will return to the Main screen.

If this is your first time using JPDA (if you're reading this, it probably is), then you will need to provide JPDA with the proper Preference Settings. Tap the **Prefs** button at the bottom of the screen. This opens the Preference screen.

Figure 2-1:
Main
Screen

Preferences Screen

The Preferences screen allows you to adjust the major parameters of JPDA. You can select the port number and baud rate that will be used to communicate with the data recorder by selecting the desired option from each drop-down box.
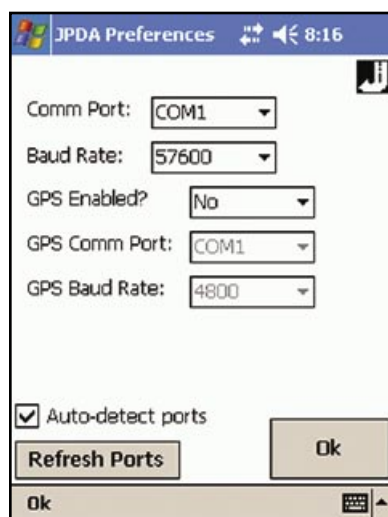
Set the **Comm Port** to **1** if you'll be using a cable to connect to your JAMAR data recorder through your PDA's cradle port connector.

If you'll be connecting via wireless Bluetooth, select the *outbound* bluetooth port of the PDA. This is typically the second port listed with the (BT) suffix in the list of ports, but not always. (For more details on determining which is the outbound Bluetooth port of your PDA, refer to the Troubleshooting chapter.)

If you'll be connecting using an adapter plugged into the CF slot, select the port option listed with the (CF) suffix.

Figure 2-2:
Preferences
Screen

Note that when the *Auto-detect Ports* checkbox on the lower left of the screen is on, JPDA will only list the ports it sees as being available on your PDA. However, some PDAs that do not use standard protocols (most notably the Dell Axim X50/51) will need to have this check box turned off. Refer to the Appendix for more details on how to configure these types of PDAs.

Set the **Baud Rate** as desired. This controls the speed of the data transfer. The higher the number, the faster the transfer. Some older PDA's may not be able to handle baud rates over 9600 or 19200 baud. For now, select 57,600 as the baud rate.

JPDA allows you to use a GPS receiver to store the exact location of the study along with the data. This is explained in detail in Appendix 1 at the end of this manual. For now select **No** from the *GPS Enabled?* drop down box.

Now JPDA's settings are tailored to your equipment and the program is ready to be put to work for you. Tap **Done** to return to the Main screen.

Reading Data from a JAMAR Data Recorder

The main purpose of JPDA is to allow you to retrieve data from a JAMAR data recorder. Data collectors that can be used with the program include TRAX traffic data recorders and Scanner people counters.

Use the dropdown menu just below the Read button to select the data recorder from which you want to retrieve data. Once the type of recorder has been selected, tap the big *Read* button.
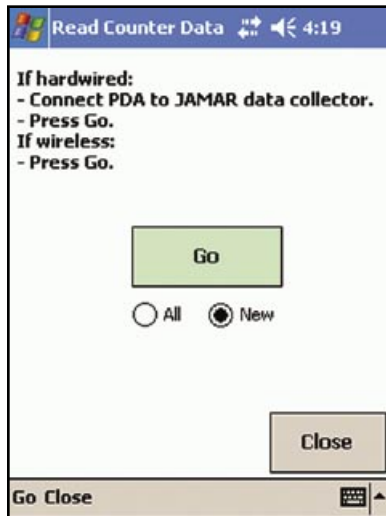
Figure 2-3:
Read Data
Screen

The **Read Counter Data** screen is fairly easy to use. There's just one option on the screen to deal with: whether you want to read *all* the studies in your data recorder, or just the *new* studies in the recorder.

JAMAR data recorders can have multiple studies from different times stored in memory. JPDA is able to recognize which of these studies have already been downloaded and which are new. The All/New option lets you take advantage of this.

When you download your data, if you only want the new studies done since you last downloaded, you should select the *New* option. However, if, for whatever reason, you want to download all the studies stored in memory (both old and new), select the *All* option.

The default option is to download just New studies. We recommend leaving this selected unless you have a specific reason to change it to All.

Once you have the option you want, you are ready to read your data. If you are using a hardwired connection (a cable connected from the PDA to the data recorder), make sure the cable is properly connected, then press Go. If you are using a wireless Bluetooth connection (no cable connected to the data recorder), just press Go.

Figure 2-4:
Downloading
Screen

Reading Data with Hardwired Connection

If you are using a hardwired connection to the data recorder, when you tap the Go button JPDA will attempt to connect. If successful, the screen will change to show the message 'Downloading...'' and will show the number of blocks of data that are being read in. (Each block represents approximately 1000 characters.) JPDA doesn't know how many blocks the data recorder is going to send, so it just processes each block until the recorder is done sending them.

Note that if JPDA is not able to connect, the screen will show an error that the download has timed out. In this case, see the troubleshooting chapter for issues to check.

Once the download is complete, the View Downloaded Count screen will appear. Refer to page 2.4 for more details on this screen.

Reading Data with Wireless Bluetooth

If you are using a wireless Bluetooth connection to connect to a Scanner counter, when you tap the Go button JPDA will attempt to find all the nearby Bluetooth devices. You'll then see a screen

Figure 2-5:
Select
Bluetooth
Device

similar to Figure 2-5. (Note that some PDAs that don't use standard Bluetooth Protocols, like the Dell Axim X51, use a different, more cumbersome process. Refer to the Appendix for more information on this.)

This screen allows you to select the Bluetooth device you want to connect to. Each Scanner is listed with its serial number, so if you have multiple devices you can choose a specific one.

Important: Do **not** check the *Always use the selected device* box at the bottom of the screen if you will be retrieving data from more than one Scanner, either now or in the future. This should only be checked if you know you'll always only be using the Bluetooth connection of your PDA with one specific Scanner.

Tap the Scanner you want to connect to and JPDA will attempt to connect.
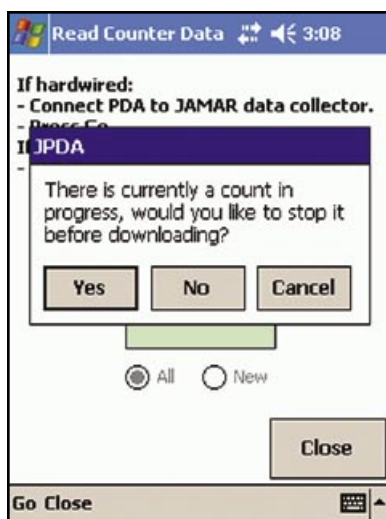

Figure 2-6:
Stop Current
Study?

If JPDA is able to connect, it will check to see if the Scanner currently has a study in progress. If there is a study in progress, the screen shown in Figure 2-5 will be shown, with JPDA asking if you want to stop it so it can be downloaded.

If you select *No*, the study currently running will continue to run and JPDA will attempt to download any previous studies stored in memory. If you select *Yes*, JPDA will then ask you if you want to start a new study once the currently running one is stopped.

Note: These options are very useful if you are continuously collecting data at a location and periodically retrieving the data from the Scanner.

Once JPDA begins retrieving data from the Scanner, the screen will change to show the 'Downloading..." screen (as previously shown in Figure 2-4) and will show the number of blocks of data that are being read in. Each block represents approximately 1000 characters. JPDA doesn't know how many blocks the counter is going to send, it just processes each block until the counter is done.

Note that if JPDA is not able to connect, the screen will show an error that the download has timed out. In this case, see the troubleshooting chapter for issues to check.

Once the download is complete, the View Downloaded Files screen will appear.
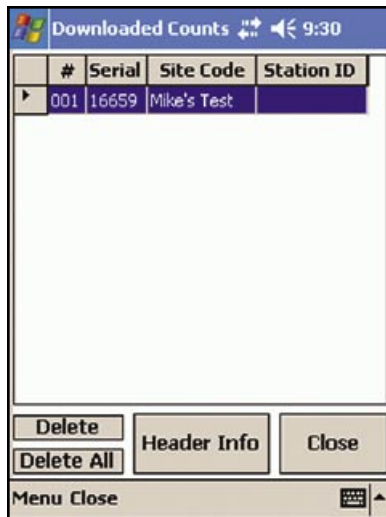
Figure 2-7:
View
Downloaded
Files

Figure 2-8:
View
Downloaded
Files

View Downloaded Files

When you have finished downloading data from your data recorder, the View Downloaded Files screen appears, as shown in Figure 2-7.

Note that you can also access this information at any time from the Main screen by tapping the *View Downloaded Files* button.

This screen allows you to see what data files are currently stored in JPDA. The serial number of the data recorder from which the file was read is listed, followed by any Site Code and Station ID that were stored with the file.

Note that this screen can be used if you want to delete any of the data files stored in JPDA. To delete an individual file, highlight it by tapping on it, then tap the *Delete* button. To delete all the files, tap the *Delete All* button.
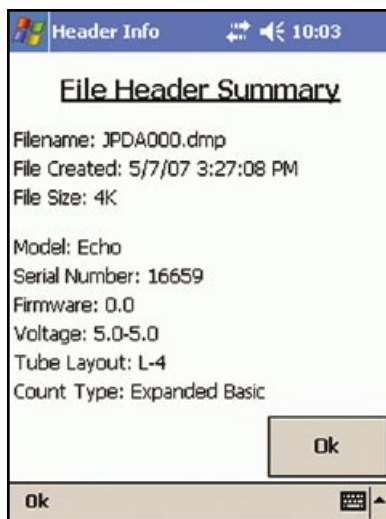
If you want to see more details of a particular file, highlight the file by tapping on it, then tap the *Header Info* button.

This screen, shown in Figure 2-8, provides additional information about the file you selected.

The information provided includes the date and time the file was read into JPDA, the type of data recorder it was from, the serial number of the data recorder, and more.

Tap OK when you are done looking at the file details and you'll be returned to the list of downloaded files. Tap Close to return to the Main screen.

Retrieving Data from JPDA to your Computer

Once you have read the data from your data recorder into JPDA, you'll need to transfer that data to your laptop or desktop computer for data processing. This transfer can be done with either our TRAXPro program, which is mainly for use with data from TRAX recorders, or our free JRead program, which is mainly for use with data from Scanner recorders.

Retrieving Data from JPDA with TRAXPro

Note: Using TRAXPro to retrieve and process your data is mainly recommended for data from TRAX recorders. If you are using Scanners, refer to the next section for information on how to use JRead to retrieve your data.
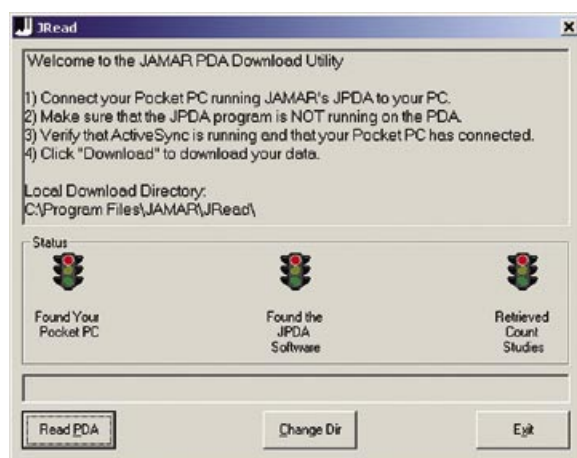
Figure 2-9: TRAXPro JRead Utility

Once you have data stored in JPDA, connect your PDA to your desktop computer, then run TRAXPro. To retrieve the data, go to the *File* menu then select *Acquire*, *TRAX/JPDA*, *JPDA with JRead*. The TRAXPro JRead utility screen will then appear.

Click the *Read PDA* button when you are ready. TRAXPro connects to the PDA using the Active Sync connection and copies a temporary file, containing all the data in JPDA, from the PDA into a folder on your computer. You will then see the screen shown in Figure 2-10.

Figure 2-10: TRAXPro File List

This screen lists all the studies that have been transferred from JPDA to TRAXPro. All the studies will be colored light red, indicating that they have not yet been processed. Note that once a study has been processed from the list, it will be colored green.

To process a file, click on it on the list, then click the Process button. The file you selected will then be opened. Refer to the TRAXPro manual for more details on how to process your data from this point.

Retrieving Data from JPDA with JRead

JRead was included with your JPDA CD. If you have not already installed the program, do so now. Directions on how to do this can be found in Chapter 1.

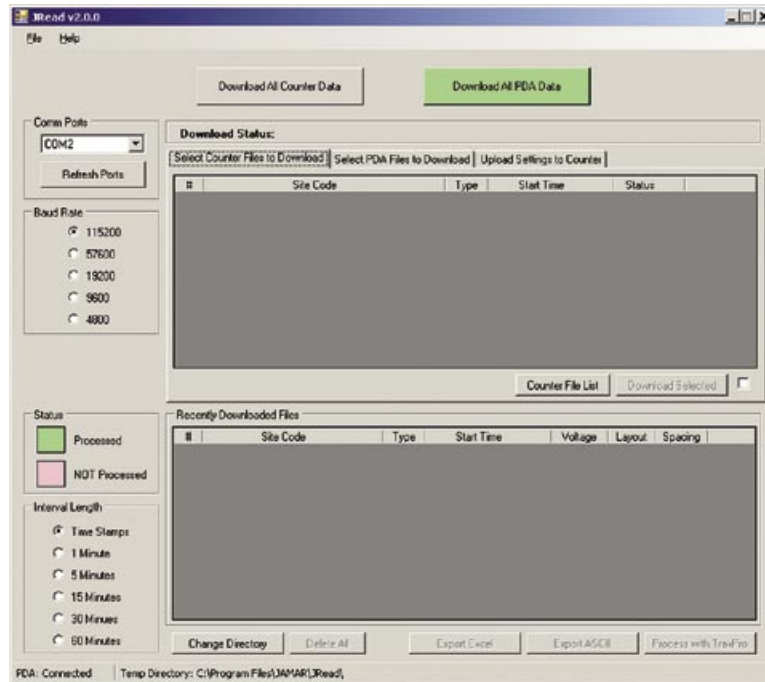Once JRead is installed, plug your PDA into your computer and let them connect via ActiveSync.

Figure 2-11:
JRead
Main Screen

Figure 2-11 shows the screen you see when you run the JRead software.

Near the top of the screen are two buttons that provide different ways of getting data into JRead. The *Download All Counter Data* button can be used if you want to download a TRAX or Scanner directly into the program (refer to the Appendix for more details on this), while the *Download All PDA Data* button can be used to retrieve data your data from JPDA.

Note that the *Download All PDA Data* button will be colored green and enabled if the program sees an ActiveSync connection from your computer to a PDA. If JRead does not see this connection, the button will be greyed out and disabled. (The connection status of the PDA can also be seen in the box at the bottom left of the program.)
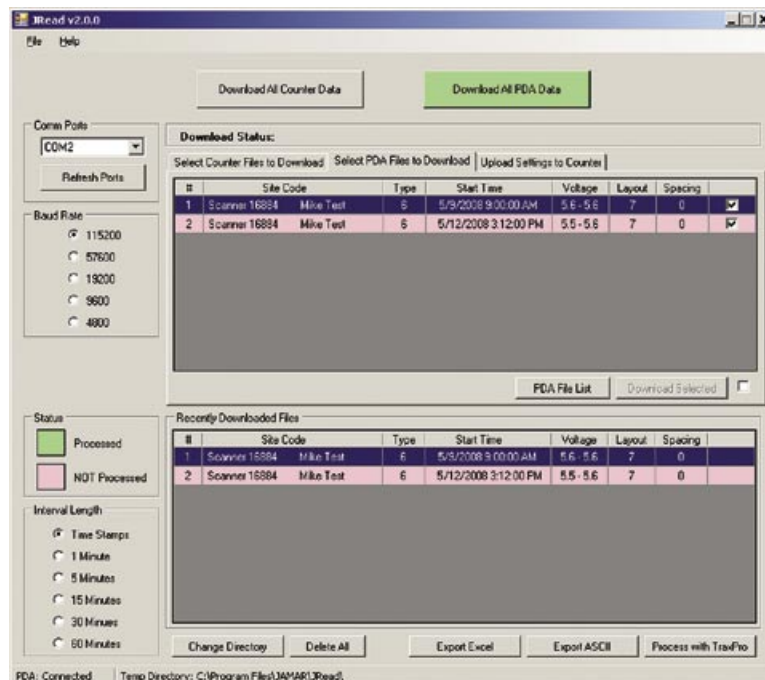

Figure 2-12:
JRead with
File List

Click the *Download All PDA Data* button when you are ready. The software connects to the PDA using the Active Sync software and copies a temporary file, containing all the data in JPDA, from the PDA into a folder on your computer. The JRead screen will then update to show the list of files that you have transferred, as shown in Figure 2-12.

The list of files is shown is two places - the top box under the *Select PDA Files to Download* tab (we'll discuss this shortly) and the bottom box under *Recently Downloaded Files*.

The Recently Downloaded Files list has all the studies that have been transferred from JPDA, with the currently selected study highlighted in black. All other studies will be colored light red, indicating that they have not yet been processed. Note that once a study has been processed from the list, it will be colored green.

The buttons along the bottom of the screen list several options for how to process the studies, including *Export Excel*, *Export ASCII* and *Process with TRAXPro*. **Note that which of these options are available depends on what type of data recorder was used to collect the data selected.** With data from a Scanner recorder, all three options are available. With data from a TRAX recorder, only the *Process with TRAXPro* option is available. (Note that while you can process the data you transferred into JRead with TRAXPro, an easier way to do this is to directly retrieve your JPDA data with TRAXPro. Refer to page 2.7 for more details on this.)

Export to Excel or ASCII

The *Export Excel* and *Export ASCII* selections both work in the same manner. The only difference is that one provides an Excel file while the other provides a comma delimited text file.

To export a file into either of these formats, the first thing you need to do is select the interval length for the data. This is done by using the *Interval Length* field on the left. The options are: Time Stamp, 1 Minute, 5 Minutes, 10 Minutes, 15 Minutes, 30 Minutes and 60 Minutes.

The Time Stamp option produces a file listing the individual time stamp (to the second) of every recording in the study. The other options will group the data into the interval time selected. Below are examples of the Excel exported time stamp and 15 minute interval formats.

Figure 2-13: Excel Exported Data

In the Time Stamp format, each recording in the study is listed with its time stamp and the direction in which it was recorded. For example, in the Time Stamp study shown here, the first recording occurred at 9:00:06 AM, traveling in the first direction.

Once you have selected the Interval Length you want, highlight the file you want to export by clicking on it, then click either the *Export Excel* or *Export ASCII* button. You will be prompted to assign the file a name and select a folder to save it in.

Once you click Save, a window will appear listing the path where the file was created. This window allows you to either directly open the newly created file with Excel or Notepad (depending on if Excel or ASCII export was used) or open the folder where the file was saved.

Selectively Retrieving Data from JPDA with JRead

While we just discussed the steps for retrieving all the data you have stored in JPDA using JRead, another option that you have is to selectively choose which JPDA data to retrieve and process.

This is done using the *Select PDA Files to Download* tab near the top of the screen. Once your PDA is connected, click the *PDA File List* button and a list of the files in the PDA will appear in this tab. The checkboxes to the far right can be used to select the files you want to retrieve, then the *Download Selected* button can be used to transfer them to your computer. The files you selected will then appear in the Recently Downloaded Files box and can be exported.

Chapter 3

Using JPDA to Configure Data Recorders

Configuring Scanner Counters

JPDA can be used to configure a number of settings in JAMAR data recorders. Which settings, and how they can be configured, largely depends on the type of data recorder being used. The following section provide more details on how this is done with a Scanner counter. Refer to page 3.4 for information on TRAX data recorders.

Uploading Information to the Scanner

First, select *Scanner* from the dropdown list below the big Read button on the Main screen. Next, tap the *Setup* button and the Setup screen will appear.

Figure 3-1:
Scanner
Setup

If you are planning to do a time-stamped study with the Scanner, this screen allows you to load information related to that study into your recorder. To do this, you will need to connect to the recorder using either a wireless Bluetooth connection or by plugging into the comm port on the recorder. This tutorial covers using a wireless connection; however, the steps are essentially the same using a hard wire connection.

When the Setup screen comes up, it shows the time and date in the *Set Clock* field at the top. These are read in directly from the time and date set on the PDA. If they are not correct, close JPDA and reset the time and date on the PDA itself.

If the Set Clock checkbox is checked, then JPDA will set this time and date into the recorder when you perform the upload.

Below the clock field are the Site Code and Station ID fields. Whatever you put in here will show up in the corresponding fields when the count is processed, and can be printed on reports with the data. You can fill in the fields however you wish.

Note that it takes a little bit of practice to enter text and numbers into a PDA. The easy way to do it is to use the popup keyboard and tap the letters and numbers to enter the information. You can also learn to enter letters and numbers using the handwriting recognition option that is part of all PDAs. With a little practice you can learn to enter the letters and numbers much faster than with the popup keyboard.

Figure 3-2:
Select
Bluetooth
Device

Once you have the information entered that you want, tap the *Upload Info* button to begin the transfer to the data recorder.

If you are using Bluetooth, and the PDA is able to find an available Bluetooth-equipped device nearby, you'll see a screen like the one shown in Figure 3-2.

This screen allows you to select the Bluetooth device you want to connect to. Each Bluetooth-equipped data recorder is listed with its serial number, so if you have multiple devices you can choose a specific one.

Tap on the recorder you want and the setup info will be transferred. You will then be returned to the Setup screen.

If you ever what to check what information is currently stored in your recorder, the *Get Info* button basically does the reverse of the Upload Info button. Tap *Get Info* and JPDA will read in the Site Code, Station ID and GPS info that is currently stored in the recorder.

Uploading Additional Settings to the Scanner

Several other settings specific to the Scanner can be uploaded by clicking on the *Ext.IR* button of the setup screen.
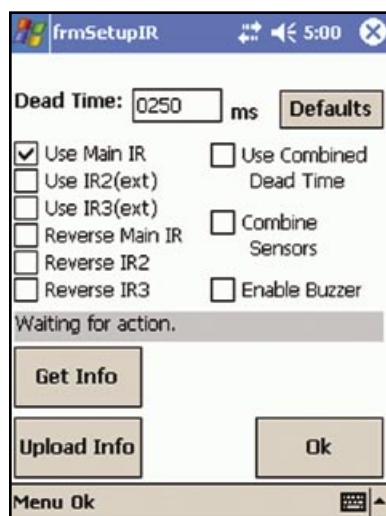
Figure 3-3:
Scanner
Ext.IR Screen

The **Dead Time** setting allows you to enter a period of time, in milliseconds, that the Scanner will wait after it records a count before it will accept another one. This setting can help to prevent 'double-counting' of individual people. The default value is 250 ms. If the Scanner appears to be double counting, increase this value. If the Scanner appears to be missing people that are close together and undercounting, decrease this value.

Additional settings that can be turned on or off are:

Use Main IR: This turns on the main IR sensor, known as sensor 1. In most units, this is the sensor installed internally in the scanner housing.

Use IR 2: Turns on the optional main external sensor, known as sensor 2. Some models of Scanners are equipped with external sensors that plug into the bottom of the unit.

Use IR 3: Turns on the secondary external sensor, known as sensor 3.

Reverse Main IR: This swaps the direction information collected from the Main IR sensor.
Reverse IR 2: Same as above for sensor 2.
Reverse IR 3: Same as above for sensor 3.
(The Reverse options allow you to change the recording direction of a sensor. It allows you to adjust for installation issues that could change the directions, such as moving the Scanner to the opposite side of the trail being monitored.)

Use Combined Dead Time: When multiple sensors are being used, this setting configures the Scanner to use a single DT for the recording of data, both for the unit's display and for time-stamped data. (Under normal use, the Scanner does not require a Dead Time. However, when multiple sensors are being used with an overlapping detection zone, using a DT may be desirable.)

Combine Sensors: When multiple sensors are being used, this setting configures the Scanner to have all enabled sensors report as a single sensor, sensor 1. This is useful for situations where a larger detection zone is desired. If the detection zones from the sensors overlap, it may be necessary to set the *Use Combined Dead Time* option described above.

Enable Buzzer: This setting will turn on a buzzer when a sensor is activated.

Checking the Status of the Scanner

Another option on the Setup screen is Status. Tap this button and you'll be taken to the Status screen, as shown in Figure 3-4.
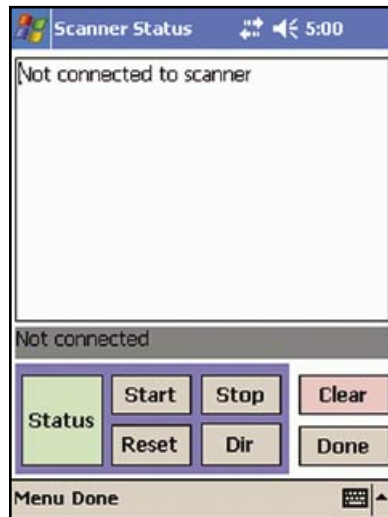
Figure 3-4:
Scanner
Status Screen

The Status screen allows you to control a variety of commands for the Scanner, including starting and stopping a time-stamped study (*Start* and *Stop* buttons), resetting the total on the unit's display (*Reset* button), checking to see a list of time-stamped studies stored in memory (*Dir* button) and deleting all studies from the memory of the recorder (*Clear* button).

In addition, this screen can be used to check the current volume total from the recorder's display.

Tap the green Status button at the lower left of the display to check the current status of the recorder. If you are using Bluetooth, you have to select the device you want, as described in the previous section.

If JPDA is able to connect to the recorder, it will display the unit's status, as shown to the left.
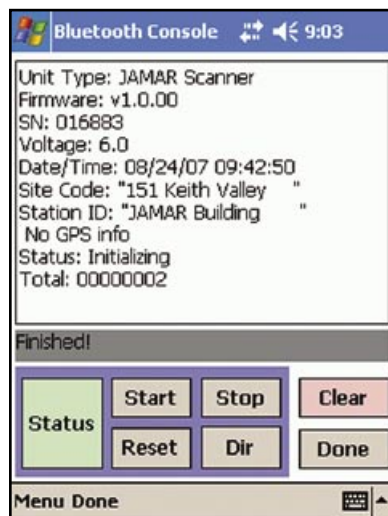
The top line displays the unit type. This is followed by the firmware version. The next line displays the recorder's serial number, which is followed by the current battery voltage. The fifth line displays the Time and Date, which is followed by any Site ID and Station ID information that has been uploaded into the unit. The eighth and ninth lines list any GPS coordinates that have been stored. The next line lists whether the unit is recording a time-stamped count or is idle. The final line list the current total on the recorder.

Figure 3-5:
Scanner
Status Screen
with Info

Now that we've checked the status of the recorder, we can have it start a new time-stamped count for later downloading. To do this, we tap the *Start* button to begin a new time-stamped count. A confirmation screen then tells us the count has started.

Configuring TRAX Data Recorders

JPDA can be used to configure a number of settings in JAMAR data recorders. Which settings, and how they can be configured, largely depends on the type of data recorder being used. The following section provide more details on how this is done with a TRAX data recorders. Refer to page 3.2 for information on Scanner counters.

Which options are available for programming largely depends on the model of TRAX that you have. Older TRAX models will have less options available for use than newer models. The following sections detail using the Setup with a TRAX Flex HS data recorder.

Uploading Information to the TRAX

First, select your model of TRAX from the dropdown list below the big Read button on the Main screen. Next, tap the *Setup* button and the Setup screen will appear.

Figure 3-6: TRAX Flex Setup

When the Setup screen comes up, it shows the time and date in the *Set Clock* field at the top. These are read in directly from the time and date set on the PDA. If they are not correct, close JPDA and reset the time and date on the PDA itself.

If the Set Clock checkbox is checked, then JPDA will set this time and date into the recorder when you perform the upload.

Below the clock field are the Site Code and Station ID fields. Whatever you put in here will show up in the corresponding fields when the count is processed, and can be printed on reports with the data. You can fill in the fields however you wish.

Note that it takes a little bit of practice to enter text and numbers into a PDA. The easy way to do it is to use the popup keyboard and tap the letters and numbers to enter the information. You can also learn to enter letters and numbers using the handwriting recognition option that is part of all PDAs. With a little practice you can learn to enter the letters and numbers much faster than with the popup keyboard.

Once you have the information entered that you want, connect the PDA to the TRAX and tap the *Upload Info* button to begin the transfer to the data recorder. If the connection is made correctly, the status bar in the middle of the screen will show details while the upload is in progress, then display *Counter Correctly Set* when finished.

Checking the Status of the TRAX

Another option on the Setup screen is Status. Tap this button and you'll be taken to the Status screen.

The Status screen allows you to control a variety of commands for the TRAX, including starting and stopping a study (*Start* and *Stop* buttons), checking to see a list of time-stamped studies stored in memory (*Dir* button) and deleting all studies from the memory of the TRAX (*Clear* button).

In addition, this screen can be used to check the current volume total from the recorder's display.

Tap the green Status button at the lower left of the display to check the current status of the recorder. If you are using Bluetooth, you have to select the device you want, as described in the previous section.

If JPDA is able to connect to the recorder, it will display the unit's status, as shown in Figure 3-7.

The top line displays the unit type. This is followed by the firmware version. The next line displays the recorder's serial number, which is followed by the current battery voltage. The fifth line displays the Time and Date, which is followed by any Site ID and Station ID information that has been uploaded into the unit. The eighth and ninth lines list any GPS coordinates that have been stored. The next line lists whether the unit is recording a count or is idle.

Chapter 4
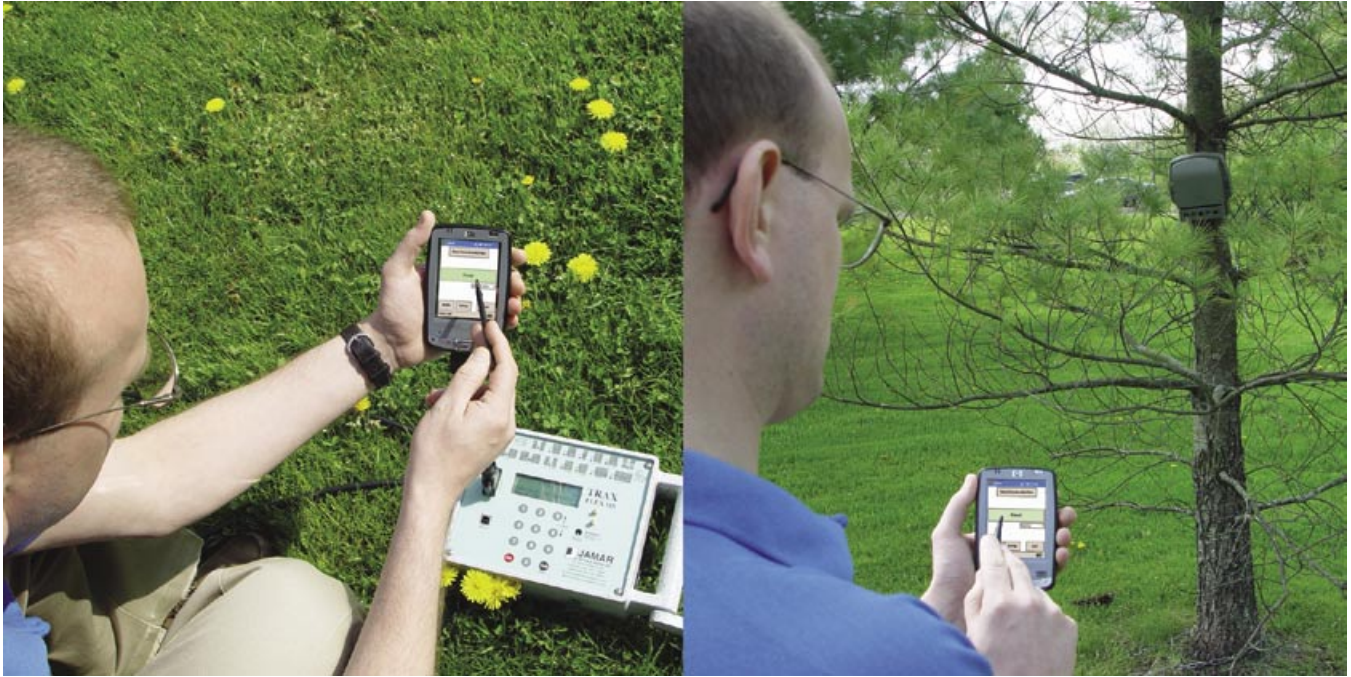
Troubleshooting

Troubleshooting Read Problems

You tried to read your data recorder with JPDA and it didn't work? Don't despair. Think of reading a recorder as a chain, with many individual links in the chain. Every link in the chain has to be perfect for this process to work. Your job is to figure out which of the links is causing the problem. Our job here is to help you do that.

First, let's categorize the problem. Basically there are two broad types of problems:

1) "I just got this stupid system and I can't get it to work." We call this the *Initial Setup* problem. This is the most common problem. Once you get it working once, with all of the links intact, then things tend to work pretty well. The task here first is to verify that all of the links are available and working. Usually the problem is a missing link or an incorrect link.

2) "It was working the other day and now it doesn't work." We call this the *Stopped Working* problem. This isn't as common but in some ways is more annoying. It is more likely a failure of some kind, rather than a setup problem.

It helps to understand the steps JPDA goes through to read a data recorder. These steps are:

1. Connect to Data Recorder
2. Read data from Data Recorder
3. Save data to memory

Errors can occur during any of these steps. We will discuss the three major steps: Connection, Reading, and Saving. If you are trying to solve a specific problem right now then skip to the section that applies to you.
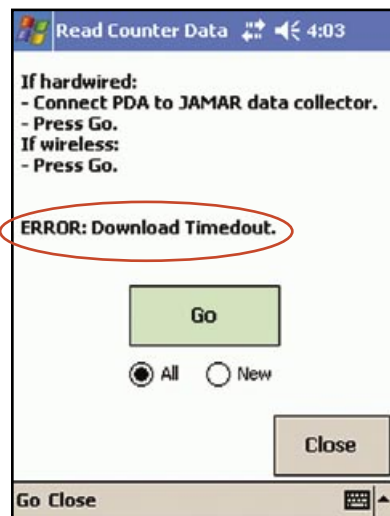
Figure 4-1:
Download
Error

Connection Errors

These are problems where you can't make a connection with the data recorder. JPDA will typically display a screen like the one shown in Figure 4-1.

This error message let's you correct a minor problem (the cable isn't plugged in securely, for example) and then try to read the recorder again.

You also can check and change the settings and make sure the Comm Port Number and Baud Rate are set properly. Tap the **Close** button at the bottom of the screen, then tap the **Prefs** button to show the Preferences screen. Make any changes needed and then tap **Done**. You will be brought back to the Main Screen.

Chances are you have already done this a few times and haven't gotten past this screen, otherwise you wouldn't be reading this section.

Now it is time to carefully and systematically try to find the source of the problem. Here are a few things to check:

1 – Verify that you have the proper components.
This seems obvious but it is the most common problem. If you are using a hardwired connection, cables are a particular source of problems. You must use the proper cable or cables from the data recorder to your PDA. Some PDA cables are designed to connect PDAs to the serial ports on office computers (called sync cables). These usually need adapters (called null-modem adapters) to make them work with JAMAR data recorders. Other PDA cables are designed to connect to GPS receivers or other serial based equipment. These usually are what you want.

Note: Using the wrong serial cable is **overwhelmingly** the most common problem with initial connection problems. Please check carefully that you are using the proper cable.
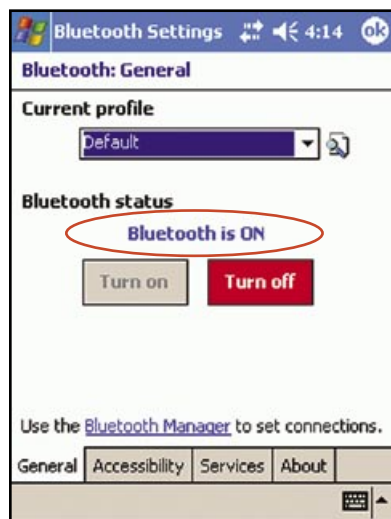
If you are using a wireless connection, check that Bluetooth is active and available on your PDA.

It is possible to disable Bluetooth from running on a PDA. In fact, many PDAs are shipped from the factory with this setting disabled. To check whether or not Bluetooth is turned on, on the PDA go to *Start*, then select *Settings*, *Connection tab*, then select *Bluetooth*. You'll then see a screen similar to Figure 4-2 which can be used to turn Bluetooth on or off.

The Bluetooth status must read 'Bluetooth is ON' for you to be able to connect to a JAMAR data recorder using Bluetooth.

Figure 4-2:
Bluetooth
Setting

2 – Make sure the settings in the Preferences screen are correct.
The Comm Port Number will almost always be 1 if you use a cable that plugs into the cradle connector at the bottom of your PDA.
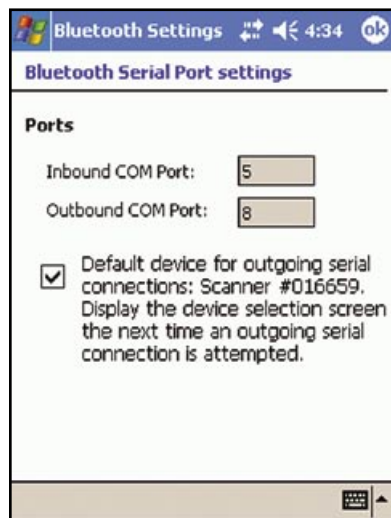
If you are attempting to connect to a JAMAR data recorder using a wireless Bluetooth connection, the Comm Port setting in the Preferences must be set correctly for the outbound Bluetooth port of the PDA.

Ports that JPDA are able to identify as being for Bluetooth will be labelled with a (BT) suffix in the list of available ports. You must select the outbound Bluetooth port in order to proper connect to the JAMAR data recorder. The outbound port is typically (but not always) the second port listed with the (BT) suffix.

You can verify which ports are being used for inbound and outbound Bluetooth traffic by checking the Bluetooth settings on the PDA. To do this, on your PDA go to *Start*, then select *Settings*, *Connections tab*, then select *Bluetooth*. On the Bluetooth Settings screen, tap the *Services* tab. In the list of services, tap on *Serial Port* to highlight it, then tap the *Advanced* button. The Bluetooth Serial port settings screen will then be displayed, as shown in Figure 4-3.

Figure 4-3:
Bluetooth
Port Settings

The Baud Rate setting isn't as critical since the JAMAR recorder will recognize the baud rate setting and adjust accordingly. However, if you have an older (slower) PDA you may need to lower the setting if you can't connect. You never should need to go below 9600 baud, however.

3 – For older TRAX recorders, make sure the TRAX is awake when you try to connect.
The recorder is awake when the LCD display is on. To save power, the serial port electronics are turned off when the display is off. Tap any button on the keypad to wake up the recorder. Newer TRAX recorders and the Scanner and Echo recorders will automatically wake themselves up when they see a connection message coming in.

4 – For older TRAX recorders, make sure the TRAX is not collecting data when you try to connect.
You must end the study by turning off the recorder before you can read the data from the recorder. The normal sequence is to turn off the recorder to end the study, then turn on the recorder and let it boot up to the Main Menu so you can read it. Newer TRAX recorders and the Scanner and Echo recorders can download saved studies while a new study is in progress. Note, however, that the download will not include the in-progress study, only those previously stored.

5 – Make sure the data recorder and PDA batteries are in good shape.
Data communications takes a relatively large amount of power. If the batteries in either the recorder or PDA are marginal, then it is possible the communications will fail even though the PDA and recorder still seem to run properly. This is an uncommon problem, but something to keep in mind.

6 – Make sure another program isn't using the serial port.
If you run a program that uses the serial port and then apparently exit that program, the serial port may still be *owned* by that program. This is potentially a problem in Active Sync, which is the program on Pocket PC PDAs used to synchronize data in your PDA with your computer. If you use a serial connection to the cradle then Active Sync uses the same serial port that JPDA wants to use.

There are two solutions. The best solution is to use a USB interface between your cradle and your computer. A USB interface is much faster than a serial interface, which will help with all of your PDA software, not just JPDA. In this way the serial port on the PDA isn't used and this problem doesn't arise. Almost all PDAs sold now *only* come with a USB interface, so this really is only an issue for older PDAs.

If USB isn't an option for you, then you need to learn to disable Active Sync on the PDA before you run JPDA. Look in the Active Sync section of your PDA to find the section where you can disable Active Sync. This is typically under *Start*, *Programs*, *Active Sync*.

Read Errors

These are situations where you can connect to the data recorder, but can't complete the read process for some reason. Here are a few things to check:

1 – Repeat the procedure to read the recorder.
If the *Reading Block x* message always freezes at the same place, then that implies the data coming from the data recorder may be corrupted. If the screen freezes at different points (and maybe sometimes works OK), then that implies something random is occurring, usually with the connection. Check any hardwired cable connections carefully, especially the PDA connector. Make sure the contacts are clean. Try another cable if possible.

2 – Try lowering the Baud Rate.
 Your PDA may be just a little slow for the Baud Rate you have in the Preferences. You shouldn't have to go below 9600 baud, however.

3 – Make sure you have free memory available on your PDA.
It is easy to fill up the memory of your PDA if you are not careful. This isn't much of an issue unless you do Time-Stamped (Basic) studies, since these are the only types of studies that use much memory. If you do Basic studies then you should have a megabyte or more to store the new data.

You may see other error messages on the PDA. If the program breaks at the same point with the same error message each time then there probably isn't much you can do in the field. Bring the data recorder back to the office so you can read the data directly to your desktop computer, then contact us for technical support with the problem with JPDA.

Saving Errors

JPDA reads the data from the recorder and saves it to a temporary file. Normally it just takes a few seconds to save the new data to memory. Slower PDAs may take up to 30-60 seconds to save the data if you had many studies in the recorder and/or collected Basic data.

Problems in this part of the program are usually problems with the data that was transmitted by the recorder, and there normally isn't much you can do about it in the field. Bring the data recorder back to the office so you can read the data directly to your desktop computer, then contact us for technical support.

Conclusion

We obviously don't want you to have any problems reading your recorders with JPDA. But if you do, then we want to know about it so we can try to make the software more reliable.

If you can't read the data recorder with JPDA in the field, then you still may be able to read it in the office with TRAXPro or JRead. Bring the recorder to your office and try it.

If you have no problems reading the data in the office, then the original problem is most likely with JPDA (assuming all connection issues are OK). Please contact us and let us know what happened. We may ask you to email us a temporary file generated by the download for further analysis.
If you can't read the recorder with TRAXPro or JRead either, then the problem is most likely with the data recorder itself or the connection cable. Contact us so we can go over a few things with you and, if necessary, arrange to have you send us the data recorder for repair.

Additional Troubleshooting

PDA is locked up and unresponsive

On occasion a PDA may encounter an error which causes it to stop responding to commands. In situations like this, you may need to reset the PDA in a way similar to rebooting a desktop computer. However, unlike desktop computer, merely pressing the power switch on the PDA does not reboot it.

On most PDAs there is a small, recessed hole on either the bottom or back of the PDA that can be pressed with the stylus to reboot then PDA.

Figure 4-4:
PDA Reboot
Buttons

Error occurs whenever JPDA is started

When you start JPDA, you should be taken to the Main screen of the program. If you encounter an error before the main screen comes up, first try rebooting the PDA as described in the section above. If this does not help, there may be a setting stored in JPDA that is causing a problem whenever the program tries to start.

The Preferences for JPDA are stored in a file on the PDA called JAMARprefs. If you are unable to properly start JPDA, deleting this file may help. To do this, on your PDA go to *Start*, *Programs*, *File Explorer*. Set the directory bar at the top to *My Device*, then select the *Program Files* folder, then *JPDA*. In the JPDA folder, tap and hold on the *JAMARprefs* file and delete it.

JRead reports there is no data in PDA even though there is.

Be sure to close the JPDA program on the PDA before using JRead to retrieve data. If JPDA is running, JRead will not be able to read the data from it.

Appendix

Using JRead to Setup and Download Counters

Using JRead to Upload Information
JRead can be used to directly upload settings to both the TRAX and Scanner data recorders.

Once JRead is installed, it can be used to upload information into the data recorder using the comm (serial) port of the data recorder and a serial cable, such as the JAMAR universal cable. (It is not required that a JAMAR cable be used. Any compatible RS-232 serial cable will work.)

To prepare to upload your information to the data recorder, connect the serial cable to a serial port on your computer (or a USB port using a USB to Serial adapter). Most serial ports are a 9 pin plug, and there may be more than one on the computer. The ports may be labeled on the computer itself with COM 1 listed as 1 or A and COM 2 listed as 2 or B.

On the data recorder itself, you must have the display visible to upload information. If the unit is in power saving mode and the display is not visible, hit either the TAB or DO key to bring it back up. Once the display is visible, start the JRead software.

Once the program is open, use the *Comm Ports* box at the top left to select the comm port that the data recorder is connected to on your computer. The Baud Rate field below this can be used to select the download speed. For most computers, the top setting of 115200 can be used.

Once the comm port and baud rate are set, click on the *Upload Settings to Counter* tab and then click the *Read Settings* button. A list of the various settings that can be uploaded is then displayed, as shown here.
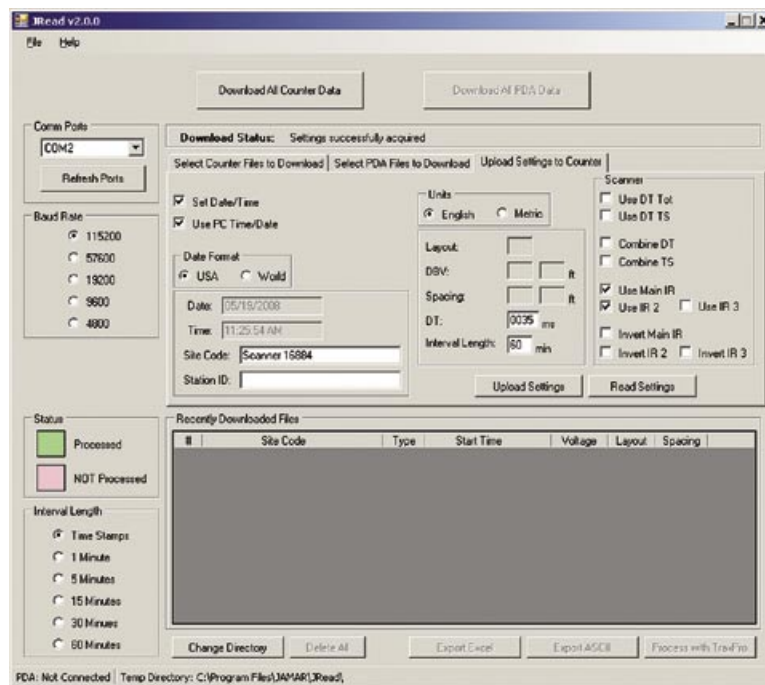

Figure A-1:
JRead
Upload Settings
Screen

JRead can be used with several different types of JAMAR equipment, so only the options in the program that apply to the currently connected data recorder are enabled. In the example shown above, a Scanner is connected.

The most commonly used settings for upload are Time, Date, Site ID and Site Code.

The Time and Date listings in JRead can either be manually typed in or read from your computer's clock. To enter a time or date manually, be sure the *Use PC Time/Date* box is unchecked. If you place a check in this box, JRead will use the computer's clock for the time and date.

The Date Format field can be used to control how the date is listed in the data recorder. The options are USA (month/day/year) or World (day/month/year).

If you want to change the time, date or date format in the data recorder, be sure to check the *Set Time/Date* box. If this box is not checked, JRead will ignore the time, date and format settings when uploading to the data recorder.

The Site Code and Station ID fields are descriptions that can be saved with the Time-stamped study to help you identify the location of the data when processing it. You can enter any information in these fields that will help you identify the count. Note that you are not required to use these fields for your studies, they are provided for those users who would like to use them.

Once you have the Date and Time set the way you want, and have entered any Site information, you are ready to upload this information. First, make sure the display of the data recorder is visible, then click the *Upload Settings* button in JRead. The *Download Status* field located directly above the tab will show the status of the upload and let you know when it is complete.

Note that several other settings specific to the Scanner can be uploaded using the JRead program. These are in the field on the right side of the tab labelled Scanner and can control some of the more advanced options of the Scanner.

Use Main IR: This turns on the main IR sensor, known as sensor 1. In most units, this is the sensor installed internally in the scanner housing.
Use IR 2: Turns on the optional main external sensor, known as sensor 2.
Use IR 3: Turns on the secondary external sensor, known as sensor 3.
Invert Main IR: This swaps the direction information collected from the Main IR sensor.
Invert IR 2: Same as above for sensor 2.
Invert IR 3: Same as above for sensor 3.
(The Invert options allow you to change the recording direction of a sensor. It allows you to adjust for installation issues that could change the directions, such as moving the Scanner to the opposite side of the trail being monitored.)

Use DT Tot: This enables the Dead Time setting for the recording of the total shown on the Scanner's display.
Use DT TS: This enables the Dead Time setting for the recording of time-stamped data.
Combine DT: When multiple sensors are being used, this setting configures the Scanner to use a single DT for the recording of data, both for the unit's display and for time-stamped data.
(Under normal use, the Scanner does not require a Dead Time. However, when multiple sensors are being used with an overlapping detection zone, using a DT may be desirable.
Combine TS: When multiple sensors are being used, this setting configures the Scanner to have all enabled sensors report as a single sensor, sensor 1. This is useful for situations where a larger detection zone is desired. If the detection zones from the sensors overlap, it may be necessary to set the *Combine DT* option.

Using JRead to Download Data Directly

If you do not want to use a PDA to retrieve data, data stored in memory of a TRAX or Scanner can be downloaded directly into JRead. Note that this is more commonly done with Scanners as the TRAX recorders are typically downloaded into the TRAXPro software. The following information assumes you are downloading a Scanner.

The download of data is done through the same comm port of the data recorder used to upload settings, as discussed in the previous section. For connection information, refer back to that section.

Note that you cannot download studies that are currently in progress. If you have a study in progress that you would like to download, you must end the study by pressing TAB until *Stop?* is visible, then pressing DO.

On the Scanner itself, you must have the display visible to download data. If the unit is in power saving mode and the display is not visible, hit either the TAB or DO key to bring it back up. Once the display is visible, the download will transfer all time-stamped studies currently stored in memory.

To start the download, start the JRead software then click on the *Download All Counter Data* button at the top. The *Download Status* field will then change to show you the status of the download. Once the download is complete, as list of the files that have been transferred will appear in the *Recently Downloaded Files* field.
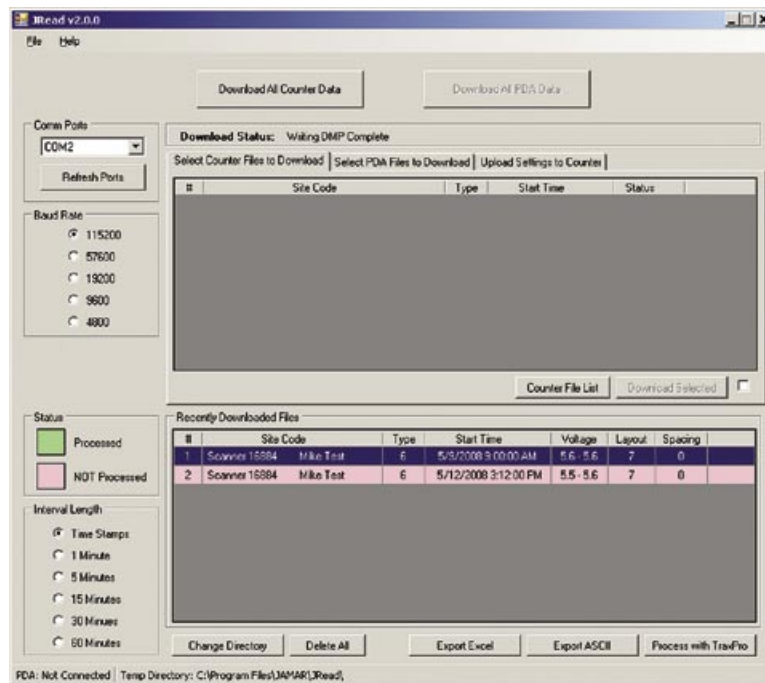

Figure A-2:
Download
Counter Data

The *Recently Downloaded Files* list has all the studies that have been downloaded from the Scanner, with the currently selected study highlighted in black. All other studies will be colored light red, indicating that they have not yet been processed. Note that once a study has been processed from the list, it will be colored green.

The buttons along the bottom of the screen list several options for how to process the studies, including *Export Excel*, *Export ASCII* and *Process with TRAXPro*. (Note that the Process with TRAXPro option is mainly for use with data from a TRAX traffic data recorder and not data from a Scanner.)

Export to Excel or ASCII

The *Export Excel* and *Export ASCII* selections both work in the same manner. The only difference is that one provides an Excel file while the other provides a comma delimited text file.

To export a file into either of these formats, the first thing you need to do is select the interval length for the data. This is done by using the *Interval Length* field on the left. The options are: Time Stamp, 1 Minute, 5 Minutes, 10 Minutes, 15 Minutes, 30 Minutes and 60 Minutes.

The Time Stamp option produces a file listing the individual time stamp (to the second) of every recording in the study. The other options will group the data into the interval time selected. Below are examples of the Excel exported time stamp and 15 minute interval formats.

Figure A-3:
Excel
Exported Data

In the Time Stamp format, each recording in the study is listed with its time stamp and the direction in which it was recorded. For example, in the Time Stamp study shown above, the first recording occurred at 9:00: 06 AM, traveling in the first direction.

Once you have selected the Interval Length you want, highlight the file you want to export by clicking on it, then click either the *Export Excel* or *Export ASCII* button. You will be prompted to assign the file a name and select a folder to save it in.

Once you click Save, a window will appear listing the path where the file was created. This window allows you to either directly open the newly created file with Excel or Notepad (depending on if Excel or ASCII export was used) or open the folder where the file was saved.

Note that downloaded studies will remain in the memory of the Scanner until they are cleared. Refer to page 1-8 for information on how to clear the memory. **Important:** Do not clear the memory of the Scanner until you are certain that the data has been successfully downloaded to you computer.

Selectively Downloading Data with JRead

While we just discussed the steps for retrieving all the data you have stored in your Scanner using JRead, another option that you have is to selectively choose which data in the Scanner's memory to download.

This is done using the *Select Counter Files to Download* tab near the top of the screen. Once your Scanner is connected, click the *Counter File List* button and a list of the files in the Scanner will appear in this tab. The checkboxes to the far right can be used to select the files you want to retrieve, then the *Download Selected* button can be used to transfer them to your computer. The files you selected will then appear in the Recently Downloaded Files box and can be exported.

Using GPS with JPDA

Using Your GPS Receiver with JPDA

Let's assume you have a compatible GPS receiver and PDA. The first thing you need to do is tell JPDA how to find the GPS data. This is done in the Preferences screen.
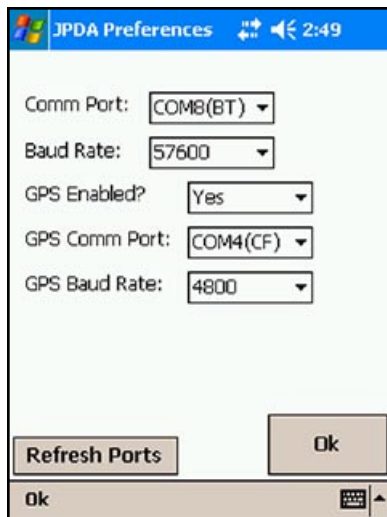

Figure A-4:
Preferences
with GPS
Enabled

From the Main Menu, tap the *Prefs* button at the bottom left. This brings up the Preferences screen as shown to the left.

If the '*GPS Enabled?'* is set to 'No,' then tap on the down arrow and select 'Yes' from the drop down list. This enables the GPS settings, which are now visible on the screen.

The GPS receiver you connect to your PDA communicates with the PDA with a serial connection. JPDA needs to know the serial port number to read the GPS data.

If you use a GPS receiver that plugs into the connector at the bottom of the PDA this is not an issue, that connector is always comm 1. If you use a Compact Flash (CF) GPS receiver plugged into the top of the PDA, you should see a port in the list with (CF) next to it, provided the GPS receiver is plugged in.

You also need to select the baud rate for the GPS receiver, which controls the speed of the GPS data transfer. **Almost all GPS receivers use 4800 baud.** If your GPS receiver is set to an odd baud rate, then you will need to change this value.

Let's assume you find these values and enter them into the software. Tap 'Done' to return to the Main Menu. JPDA will store the values you entered so you won't have to enter them again.

GPS data is stored when you enter the site information for the study. Tap on the 'Setup' button on the Main Menu to show the Setup screen.

Figure A-5:
Setup Screen
with GPS Data

In the Setup screen there are two fields labelled 'Latitude' and 'Longitude.' To retrieve this information from the GPS receiver, tap the 'GPS' button at the lower right of the screen.

JPDA will begin to check for incoming GPS coordinates and if it gets good data, it displays the latitude and longitude on the screen, as shown in the figure to the left.

The '*Upload Info'* button can then be used to transfer this information to the Echo or Scanner recorder.

If the software can't find the GPS receiver, the message "*GPS Data Not Found!"* will appear and the fields will remain blank. Refer to the section below for troubleshooting information.

Troubleshooting GPS Problems

There are two primary types of problems you might have with the GPS option, connection problems and reception problems.

Connection Problems

These are problems that can occur when you first try to use your GPS receiver with your PDA. Several things have to be exactly right for JPDA to see the GPS data. If any of these things are out of whack, you don't get any data. Check the following:

Comm Port Settings – These are the primary problem areas. You need to know the comm port number and the baud rate so that JPDA can talk to the GPS receiver. These values aren't always easy to find.

Output Format – JPDA expects to see a specific format called NMEA, which is a text based format used with all GPS receivers. Some manufacturers also have a different format they use with their own software. There almost always is a way to set the output format to NMEA, usually using software that comes with the receiver. If you use other GPS based software, it may set the receiver to a format that is incompatible with JPDA. This isn't a common problem, but it is something to consider if all else fails.

Cable Issues – If you use a CF or SD type receiver that plugs directly into the top of the PDA, this isn't an issue. Otherwise, you should make sure you only use the cable that came with your GPS receiver. Most PDAs have a unique cradle connector, as do many of the GPS receivers, so you have to get a special cable that has the proper connectors on both ends. The cable that connects a Garmin GPS receiver to a Dell Axim PDA will not work with any other type of receiver or PDA. Usually the best place to get the cable is from the GPS manufacturer.

Note: In general, the sync cable that comes with many PDAs will not work (without a couple of little adapters) with GPS receivers. You should use a cable specifically designed for GPS receivers.

Comm Port Conflict Problems – Another possible source of problems is if the comm port on the PDA is being used by another program. JPDA will try to open that Comm port but since it is in use, you will get an error message saying that the port number is invalid or in use, or something similar.

This is much easier to happen then you might think, due to the way PDAs handle programs. When you exit a program on a PDA it doesn't always get flushed from memory. It often is just suspended but still keeps any resources, like serial ports, in its control.

You might run into this problem if you run software that uses the GPS receiver and then run JPDA. Even if it seems you exited the other program properly, it still may have control of the Comm port and not allow JPDA to use it.

Fortunately there is a fairly simple answer to this problem. Reset your PDA. This is usually done by using a paper clip to press a recessed button on the back or bottom of the PDA. The screen will clear and any programs currently running or suspended will be ended. Nothing is hurt or lost doing this. In general, anytime your PDA is acting odd then you should reset it and usually that will clear things up.

Reception Problems

These are problems that occur after your PDA has successfully connected with the GPS receiver. If the latitude and longitude are obviously wrong, then you have a reception problem.

GPS receivers need a relatively un-restricted view of the sky so they can receive the radio signals from the satellites. Anything that can block these signals can cause problems. Sometimes moving just a few feet can make a big difference. Obvious things like tall buildings and tunnels can cause problems, but so can thick foliage, power lines, or clouds with lots of moisture in them.

The first time you use a receiver you may have to wait several minutes for the receiver to figure out where it is. If you drive more than 50 miles the GPS receiver may also take some time to get a fix. Be patient and usually the receiver will find the satellites and give you your location.

Some receivers come with external antennas. These are usually are more sensitive then the smaller, built-in antennas. This might be an option if you often find the receiver you have doesn't give the results you expect.

Also make sure the batteries in the GPS receiver and/or PDA are freshly charged. Many receivers have connectors so you can use the cigarette adapter in your car to power the receiver. This might give the receiver enough power to get a fix if the batteries are low.

Normally these are not issues. GPS receivers have become so reliable that if you don't get a good fix within a few minutes when you are at the study site then there probably is a problem with the receiver, and it should be returned for servicing.

From reading this section it may seem like you are unlikely to ever get your GPS receiver to work with JPDA, but it really isn't that bad. Most receivers are well behaved and the documentation helps you figure out how to set it up properly.
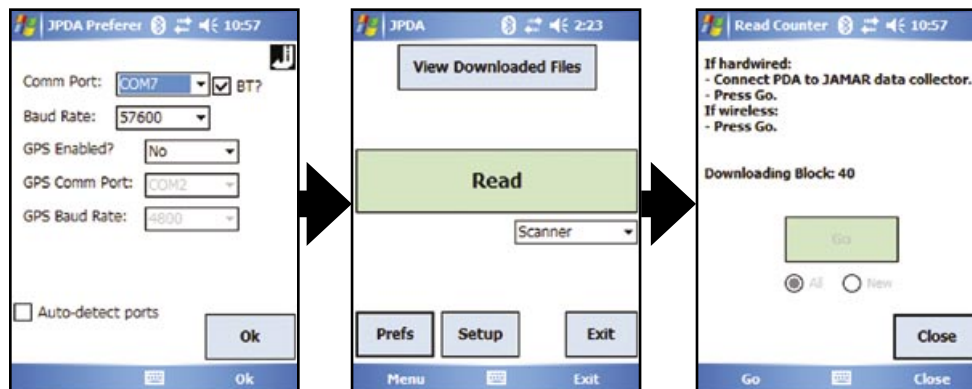
Using Bluetooth with the Dell Axim X51

The Dell Axim X51 and some other PDAs do not use standard protocols for Bluetooth connections. Because of this, the connection process is somewhat more cumbersome.
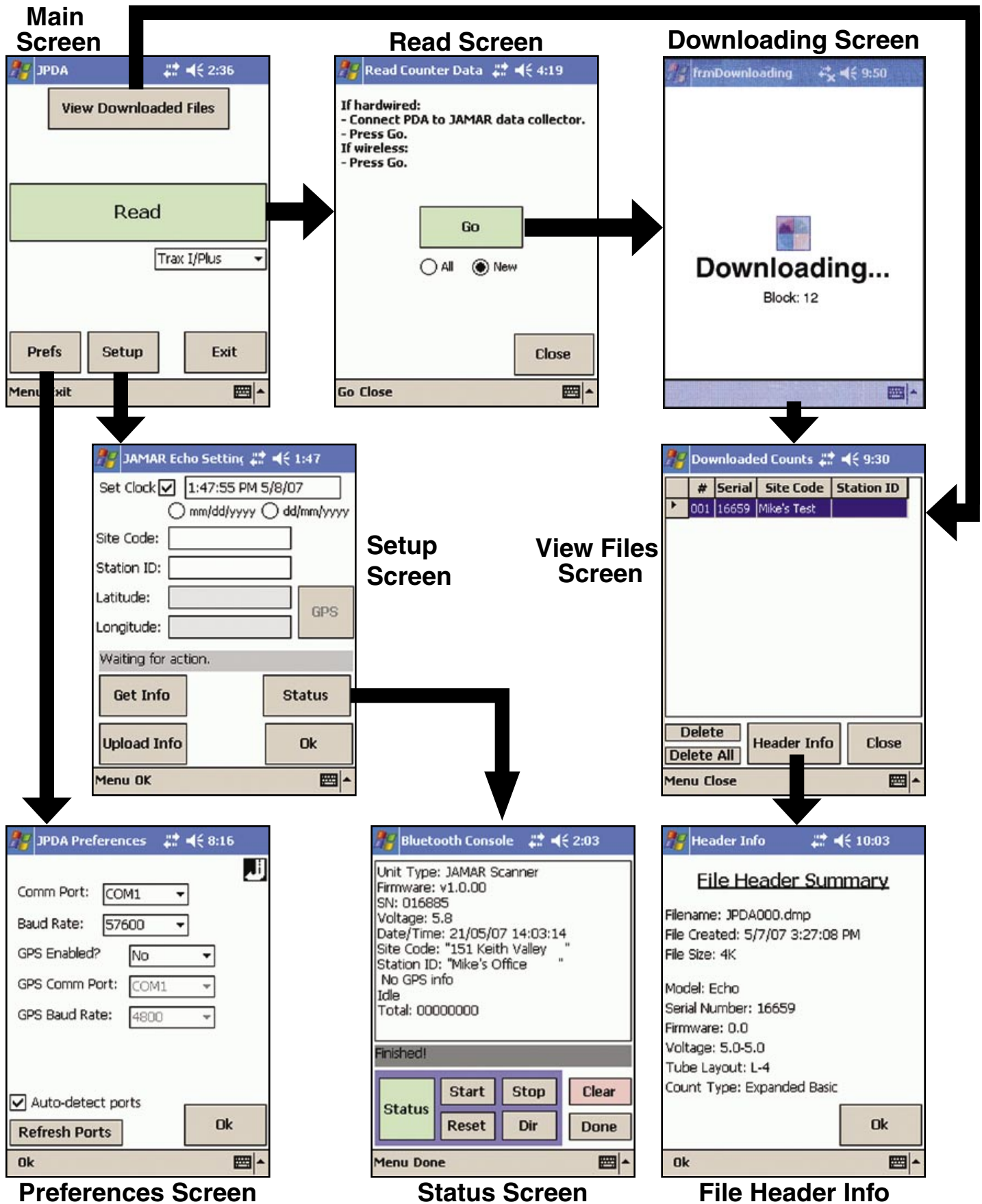
To use these types of PDAs with a wireless connection to a Scanner, first open the Bluetooth settings by going to the *Start* menu, select *Settings*, then click the *Connections* tab and select *Bluetooth*. Click the *Devices* tab and select *New Partnership*. The PDA will then scan for nearby Bluetooth devices. Select the Scanner you want from the list, then click Next. You will then be asked to enter a Passkey for use in secure connections. We recommend using a generic code like 123 then clicking *Next*. You'll then see a message that the Scanner wants to connect to the PDA. Click *Yes* to add it to the device list. Click *Finish* and it will be listed on the *Devices* Tab. The screens for this process are shown below.
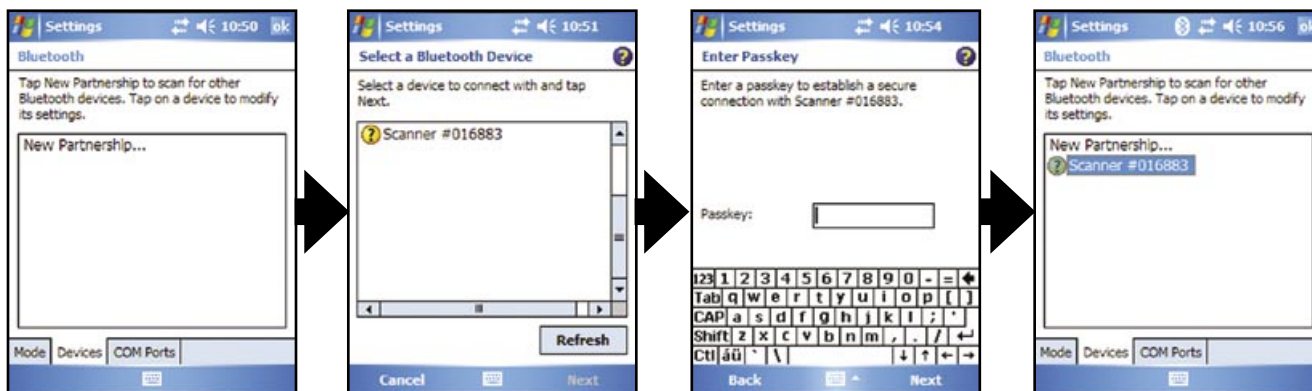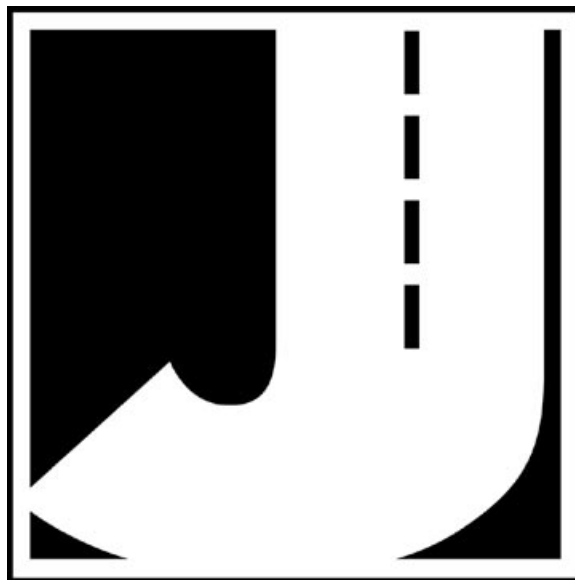

In JPDA, go to the Preferences and turn off the *Auto-detect ports* check box. Then, click the BT box and select the Bluetooth outbound port, typically Com 7. Exit the Preferences and click the *Read* button to connect to, and read data from, the Scanner. The screens for this process are shown below.

Program Flow Chart

Main Screen

Read Screen

Downloading Screen

Setup Screen

View Files Screen

Preferences Screen

Status Screen

File Header Info