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Abstract

Field Operator Guide for the
Los Alamos National Laboratory
BioWatch Sample Management System
Version 2.0.9

Matthew Nelson, Dmitry Keselman, Joseph Longo, and Valarie Morris

The BioWatch Sample Management System is software developed by Los Alamos National Laboratory to support the Department of Homeland Security BioWatch program. Field Operators use the software to keep track of samples and to provide information on the sample management process to other users and software programs within BioWatch. The information tracked about a sample includes the date and time the filter media is assembled in a filter holder, deployed to the field, placed in and removed from a collector, and received from the field, and identifies who performs each task. Field Operators can also use the software to prepare and print forms to document the chain-of-custody transfer of the samples.

The BioWatch SMS Field Operator Guide provides easy-to-understand procedures for each task a Field Operator performs. This guide gives basic information about using the computer and other equipment, instructions about checking and editing data, and provides reference information, including appendices of error messages and solutions, words used interchangeably, and safety warnings plus a glossary and an index.

Chapter 1. Introduction

The BioWatch Sample Management System (SMS) tracks filters for air sample collections from the time the filter is assembled until the time the samples reach the field office or laboratory for testing. When you enter data about air sample collections, the BioWatch SMS creates computer records that accurately show the history of samples. This is an important part of the Department of Homeland Security (DHS) effort to protect the population against biological attacks and, if an attack occurs, to provide the evidence required for legal action.

Intended Users and Requirements

The BioWatch Sample Management System (SMS) tracks filters for air sample collections from the time the filter is assembled until the time the samples reach the field office or laboratory for testing. When you enter data about air sample collections, the BioWatch SMS creates computer records that accurately show the history of samples. This is an important part of the Department of Homeland Security (DHS) effort to protect the population against biological attacks and, if an attack occurs, to provide the evidence required for legal action.

Field Operators use the BioWatch SMS during the entire process of entering and tracking data about air samples, which includes:

- Loading new filter media into filter holders
- Dispatching filters
- Collecting data about field operations
- Receiving filters
- Checking, editing, and printing data
- Creating and checking chain-of-custody forms (optional)

Field Operations Supervisors also use this guide for procedures, error messages related to Field Operator tasks, and other information depending on the needs of their jurisdictions.

Note You can click on the bar code to go to the **Data View and Edit** screen to correct the data.

User Requirements

Before using the BioWatch SMS, all Field Operators are required to complete training courses. Check with your Field Operations Supervisor to be sure you have taken all the required training.

Cautions and Safety Warnings

The caution and warning sign in this guide alerts you to the tasks that require you to use special care on your job. After the sign is the information you need to know.

General Cautions

CAUTION

Two general cautions apply to all of your work and tasks.

- All data is for official use only (FOUO). This means that you cannot give any information about the data to the public or talk about the data to the public.
- You must carefully follow all procedures. This reduces the chance of making any errors in tracking samples or leaving out important data.

Warnings for Safe Equipment Use

Various warnings apply to safe use of handheld computers and bar code scanners due to the laser light in the equipment and the electromagnetic fields in handheld computers.

WARNING

Avoid harmful exposure to laser light and electromagnetic fields.

- For more information, see **Chapter 3. Bar Codes, Bar Code Scanner**, and Handheld Computer.
- For details about the safety warnings, see **Appendix C. Safety Warnings**.

What's New

The BioWatch SMS version 2.0.9 software has many new features to make your job easier. These improvements include the following:

- 64-bit Windows 7 and 8 operating system support makes SMS compatible with modern 64-bit operating systems.
- New tabs on the user interface including a **Sites** tab to enter and maintain a **Site Number** database that is used to definitively track the location where filter holders are deployed in the field.
- Removal of obsolete collector types from the SMS software and operator manuals.
- Various user-interface improvements and bug fixes based on user feedback to streamline day-to-day operations such as data entry and editing and fix issues experienced in SMS version 2.0.8.

In addition the BioWatch app for the handheld computers has been updated to include the **Site Number** field.

Site Numbers

Previous versions of SMS assumed that the collectors were always located at the same locations and used **Collector ID** to define the location where the filter holder was deployed. The **Collector ID** does not uniquely define a deployment location due to the fact that collectors are regularly swapped out for maintenance purposes. As such, SMS now associates the deployed filter holders primarily with the **Site Number**, which is a definitive indicator of the location where the air sample took place regardless of the maintenance schedule of the collectors in the network. The **Collector ID** to which the filter holder was deployed is still recorded in the database but it is not used as an indicator of the filter holder's location during the sampling period.

New Tabs

The **Sensor Mapping** tab from SMS 2.0.8 has been split into the **Collectors** and **Sites** tabs to allow supervisors to manage the collector and site databases. Detailed descriptions of these tabs are found in the *BioWatch SMS Field Operations Supervisor Guide*.

Console Type Defaults to StandAlone

Occasionally the **Campaign.init** file gets corrupted, which caused a bug that would prevent users from logging into SMS due to an inability to select the console type (standalone or multi-computer). In case of corruption of this file, SMS now uses

the default console type of **StandAlone**, which may be adjusted to **Multi-Computer**, as appropriate, before the user logs in.

Data Entry Checks

Data is checked for compliance with format requirements and previous entries in the various databases to ensure consistency of the data be entered and to avoid unwanted duplication or overwriting of old data.

Editing Barcode Lists in Filter Holder Entry Sub-Tabs

More traditional editing is enacted: the user can use the **DELETE** key instead of customized red square button in the low right hand side of the barcode panels. Selection for deletion may still be done in groups of codes, using the mouse and the **CTRL** and **SHIFT** keys.

DataDump Tab Block Editing

Multiple records from the **DataDump** tab can be selected for deletion as a group. Blocks may be selected for deletion by pointing at their panels (not in their text fields) and clicking on them with the left mouse button. The border of the selected blocks turns red. To deselect a block, the user needs to click on the block again.

Selection of a Database File in the DataDump panel

A new feature in the **DataDump** tab is the **Manually Select Janam Database** checkbox in the left upper corner. The purpose of this box is to allow the user to manually browse for a specific handheld record database when the proper database file is not loaded by default when the **DataDump** button is pushed after a **HotSync** of a handheld computer.

Data View and Edit Enhancements

In order to make the manual editing of the dates and times in the **Data View and Edit** tab more user friendly, the up and down date and time adjustment buttons have been replaced with text edit boxes so the date and time can be changed by selecting the desired field with the mouse and entering the new value using the keyboard. When the **Save** button is pressed this panel will also check that the sequence of the actions occurred in order, that all of the entries conform to format requirements, and that entries such as **field operator PIN**, **Collector ID**, and **Site Number** are found within their respective databases. In addition, since SMS 2.0.9 uses data only from Portable Sampling Unit (PSU) collectors, all of the PSU-specific information is available directly from the **Data View and Edit** panel.

Chain-of-Custody Panel

The Chain-of-Custody form has been modified to include the **Site Number** and can be sorted by **filter holder barcode**, **Collector ID**, or **Site Number**. In addition the user has the option of exporting the selected data to a CSV file using the **Output CSV File** checkbox. If this box is checked, the detailed information on the records selected when the **Get the Barcodes** button pressed will be written to an Excel file located in the **DataFiles** folder of the current campaign.

How to Use This Guide

Use this guide to find out how to use the BioWatch SMS software to record your sample handling tasks. Carefully follow the steps in each procedure described in this guide for all of your tasks.

Workflow for Field Operators

The next table shows the general workflow of tasks for Field Operators. With one exception, tabs are available for each task in the BioWatch SMS.

Table 1. Workflow for Field Operators

Workflow Task	Required or Optional	Tab or Selection
Load the filter holder(s).	Required	LoadH
Dispatch the filter(s).	Required	Dispatch
Enter or transfer the sample data collected.	Required	DataDump
Receive the filter holder.	Required	Receive
Receive the filter holder at a second location.	Optional	FL Receive
Check your data and edit to correct any errors.	Required	Check Data and Data View and Edit
Check the exposure history of the collector(s).	Required	Exposure History
Create the Daily XML File.	Required	Dump Today's Collection (selection in Actions menu)
Create a chain-of-custody form.	Optional	Chain-of-Custody
Compare the bar codes.	Optional	Check the Chain-of-Custody

Finding Information Quickly

When you need to find information quickly, use the table of contents or the index. To find the meaning of the special words used for BioWatch work, check the glossary. For a list of words that mean the same thing, see **Appendix B**.

Words with the Same Meanings.

Reference Information

At the back of this guide are several sections of reference information, including the appendices.

Appendices

Appendix A. Troubleshooting is the troubleshooting section with lists of computer error messages and information messages. Next to each message are instructions to solve or fix any problems.

Appendix B. Words with the Same Meanings lists the words that are often used to mean the same thing. You might hear or see these words during your BioWatch work. To help clear up any confusion about certain words, check Appendix B.

Appendix C. Safety Warnings gives information about the safe use of equipment, which applies to laser devices and electromagnetic field devices. This appendix covers the safety warnings and information you need to know about when using bar code scanners and handheld computers on your job.

Glossary and Index

Following Appendix C is a **Glossary** that describes the words used in your work.

Using Computers and Other Equipment

To use the BioWatch SMS software, you need a desktop computer, a bar code scanner, and a handheld computer. See the following chapters for details:

- **Chapter 2.** Computer Basics covers the information you need to use the desktop computer.
- **Chapter 3. Bar Codes, Bar Code Scanner,** and Handheld Computer tells you how to use a bar code scanner, gives you the basics about bar codes and describes how to use a handheld computer to record sample information in the field.

Note The BioWatch SMS must be installed on the desktop computer and the new BioWatch handheld software must be installed on the handheld computer.

Standalone, Client, and Server Computers

The desktop computers your jurisdiction may use are standalone computers, client computers, and server computers. Most procedures are the same for the three types of computers.

Note Client computers and server computers are sometimes referred to as multi-computers. This is an example of the terms sometimes used to mean the same thing that you can find in **Appendix B. Words with the Same Meanings.**

When a Client or Server Procedure is Different

When a procedure is different for a client or server computer, its procedure is clearly identified in this guide. The red **Important** notes give you critical information. For example, it may tell you to go to the client or server procedure if you are using a client or server computer.

Important If your computer is a client, go to the client procedure.

Overview of the BioWatch SMS Software

The BioWatch SMS software makes it easy to enter, track, check, and edit electronic records for your BioWatch filters. You can also check the chain-of-custody and create chain-of-custody forms, but these tasks are optional.

Types of Collectors

All BioWatch jurisdictions now use Portable Sampling Units (PSUs) to collect air samples.

Note You may hear about the Distributed Sampling Unit (DSU), Dry Filter Units (DFUs), or Airborne Sample Analysis Platforms (ASAPs), all of which are collectors that are no longer used to collect samples.

For details and procedures about using each type of collector, see **Chapter 4. Using Portable Sampling Units.**

Tabs on the Computer Screen

After you log in, the BioWatch SMS activates the **Data Entry**, **Filter Holder Entry**, and the **LoadH** tabs. Active tabs have a blue background.

Figure 1. Blue background shows the active tabs

When the **LoadH** tab is active, you can click any of the other sub-tabs of the Filter Holder tab to get to the screens where you enter the various types of data. If you wish to load data from the handheld computers, click the **DataDump** tab. Its background turns blue, showing it is now active and the **LoadH** tab's background turns white, showing it is no longer active.

Use Tabs from Left to Right

The tabs are set up from left to right in the order that you usually do the tasks on your job. Loading a holder is the first task when entering data about a filter. Notice that the **LoadH** tab is on the far left.

The next task is to enter information about dispatching the filter, so next you click the Dispatch tab. To continue to the next task, click the next tab to the right.

Help Information and Help Buttons

Some **Data Entry** tabs display information that tells you what to enter, lists common errors, and describes how to correct the errors. One example is the **LoadH** tab.

Figure 2. Screen information to help use the **LoadH** tab

Some **Tracking** tabs have special buttons you can click to get detailed information about checking data.

Figure 3. **Help** buttons on some **Tracking** tabs

The top button, which displays on the **Check Data** tab, gives information about checking for errors. The bottom button, which displays on the **Check the Chain-of-Custody** tab, gives information about comparing lists of bar codes and samples.

For more information about checking data, see

- **Chapter 5.** Checking and Editing Data to find out about checking and editing all data
- **Chapter 6. Daily XML File and Chain-of-Custody Form** for details about checking data on the BioWatch Chain-of-Custody Form

Technical Support

If you have a problem you can't solve by using the Help menu on your screen or the troubleshooting information in **Appendix A. Troubleshooting**, do the following:

1. Sit in front of your computer with the software running.
2. Call one of the following to describe the problem.

Matthew Nelson at 505.665.3842 (office) or 505.412.8856 (mobile);

Dmitry Keselman at 505.665.3255 (office); or

Joseph Longo at 505.667.2452 (office) or 505.500.2056 (mobile)

When you call, you can also give suggestions about what would be helpful to include in future software or documentation to make the system easier for you to use.

Conventions Used in This Guide

The following conventions are used in this guide:

- A solid bullet (•) indicates a single-step procedure or an item in a list.
- Keyboard keys are shown with bold small capital letters. For example, **ENTER**, **TAB**, and **SHIFT**.
- Keys that you press at the same time are separated by a plus (+) sign. For example, **CTRL + TAB** means that you hold down the **CTRL** key while pressing **TAB**.
- The names of tabs, menus, buttons, and dialog boxes appear in bold type. For example, On the **Actions** menu, select **Get All Data**.

Italics are used for two different purposes. They can show a required format for your data, such as *hh/mm/ss*. In **Appendix A**. Troubleshooting, the italics are used in some error messages to show that the BioWatch SMS replaces the words with specific text. For example, if you enter **1234** in a field, the error message shows **1234** instead of *xxxx*.

Chapter 2. Computer Basics

Before using the BioWatch SMS, all Field Operators are required to complete training courses. Check with your Field Operations Supervisor to be sure you have taken all the required training.

- Mouse and keyboard skills
- Opening the BioWatch SMS and logging on
- Main functions and their tabs
- Elements of the screens
- Uses of collector, task, and data check tabs
- Resizing windows
- Changing an operator
- Logging off and closing the BioWatch SMS

Using the Mouse

You use the mouse to get from one place to another on the computer and to tell the computer what to do.

Left Button on the Mouse

Your mouse has either two or three buttons. Always use the left button for your work. Never use the middle or the right buttons for the BioWatch SMS software.

One Click Only

Many steps tell you to click a button or a place on the screen. For example, click the **Actions** button. Click one time only.

CAUTION

Double-clicking on a screen may cause serious problems.

Note The only item you double-click is the icon on your desktop that starts the BioWatch SMS software. We've tried to fix the problems that happen due to other double-clicks, but we may not have fixed them all.

The Pointer

The pointer follows every movement of your mouse on the screen. When you move the mouse to a certain location on the screen, the pointer is an arrow. When the arrow changes to a blinking line, you are at a field where you can enter data.

Using the Keyboard

You use the keyboard to enter, delete, and print data in the BioWatch SMS screens. To edit data, first delete the incorrect data and then enter the correct data. You can use key combinations to make your work easier.

Key Combination Shortcuts

You can use key combination shortcuts in some of your computer keyboard work. For example, you can use these shortcuts to copy, cut, and paste data. Other times you can use a key combination instead of clicking a button. You can tell when this is possible by looking at the first letter of the button name. If it's underlined, as shown in Figure 4, you can use a key combination.

Figure 4. Click or use key combination

Instead of clicking the **Yes** button, you can hold the **ALT** key and then press the **Y** key.

For your reference, the next table shows the most common keyboard shortcuts you can use in your work. These shortcuts can come in handy!

Table 2. Key combination shortcuts

Key Combination	Action
CTRL + C	Copies the highlighted data *
CTRL + X	Cuts the highlighted data *
CTRL + V	Pastes the data
ALT + Y	Same as clicking a Yes button
ALT + N	Same as clicking a No button

* Before you can copy or cut data, you need to highlight the data.

To highlight data

- Drag the pointer to select the data you want to copy or cut.

Entering Data

Be sure the pointer is blinking where you want to enter data. With the exception of the **Barcodes** area, you must see the pointer before you can enter data.

Note You can enter data in the **Barcodes** area after you click the area and it turns yellow.

To see the pointer blink, do the following:

- On your keyboard, press the **TAB** key to go to the place where you want to type.
- or*
- Using the mouse, click where you want to type.

To enter data

1. When the pointer is blinking where you want to enter data, use the numbers and letters on your keyboard to type your entry.

Note If you notice any incorrect numbers or letters, press **BACKSPACE** to delete them and retype your entry.

2. If you need to make an entry in another place on the screen, press the **TAB** key until you reach that place.

or

Use your mouse to click the place.

3. After completing all your entries, on the screen click the **Submit** button or the **Commit** button to send the data to the BioWatch SMS.

Note The **Submit** button and the **Commit** button work the same. When you click them, the system checks your entries. If the data passes all checks, it goes to the **Sample Database**.

Deleting Data

Some areas and screens, such as the **Barcodes** area and the **Entry History** screen, have a small red square in the bottom right corner. This is the red **Delete** button.

If you don't highlight any bar codes or messages before you click the red square, the system deletes all the data in the area or screen.

Important If you don't want to delete all the data, be sure to highlight specific bar codes or messages before clicking the **Delete** button!

To delete all the information in the area or screen

- With no bar codes highlighted, click the red square.

To delete one bar code or message

1. Click the bar code to highlight it.
2. Click the red Delete button to delete the bar code.

To delete more than one bar code or message

1. Click one bar code you want to delete to highlight it.
2. Hold the **CTRL** key and then click each of the other bar codes you want to delete. All the bar codes you want to delete are now highlighted.
3. Click the red **Delete** button to delete the bar codes.

To delete three or more bar codes or messages in a series

1. Click the top bar code of the series you want to delete to highlight it.
2. Hold the **SHIFT** key and then click the bottom bar code of the series you want to delete. The top, bottom, and all the bar codes in between are now highlighted.
3. Click the red **Delete** button to delete the bar codes.

Note In most of the other places on the screens, the pointer must blink where you want to delete data.

To delete data from other areas and screens

1. When the pointer is blinking where you want to delete data, press the **BACKSPACE** key to delete data to the left.

or
Press the **DELETE** key to delete data to the right.
2. If you need to delete data in another place on the screen, press the **TAB** key until you reach that place.
3. After deleting what you want on the screen, click **Submit** or **Commit** to send the data to the system.

Printing

The only time you need to print is when your supervisor asks you to print the **BioWatch Chain-of-Custody Form**, described next, or the results of your data checks. For details about printing data check results, see *Printing the Data Check Results*.

To print a BioWatch Chain-of-Custody Form

1. At the bottom of the **BioWatch Chain-of-Custody Form**, click the **Print the Chain-of-Custody** button to display the **Print** window.

Figure 5. Example of a print window

2. In the **Print** window, check to see that **Print range** is set to **All**. If not, click **All** and then click **OK** to print the form.

Opening the BioWatch SMS and Logging On

This section shows you how to start the BioWatch SMS software. It also tells you how to log on.

To start the BioWatch SMS software

- On your computer desktop, double-click the **Shortcut to BioWatch_Run_208** icon. One example of the icon is shown next.

If you don't see this icon on your desktop, check with your supervisor to find out which icon on your screen to double-click to start the BioWatch SMS.

Important This is the only time you double-click.

For a few seconds, a black window with white text displays. This is the screen of the disk operating system (DOS) for Windows called the **DOS Console** screen.

```

C:\> Shortcut to BioWatch_Run

just read1: #
got odd value
just read2: #campaign number
we have found campaign number
campaignNum has been set to 20
just read4: #campaign location
we have found campaign location
campaignLoc has been set to Los Alamos, NM
just read6: #last Archive name
we have found last Archive name
lastAR has been set to null
just read8: #comcon type
we have found comcon type
we just read      StandAlone
theComCon has been set to      StandAlone
just read10: #locking port number
we have found locking port number
we just read 47257
just read12: #####
  
```

Figure 6. **DOS Console** screen

Then the **BioWatch Black Eagle** screen, the main startup screen, displays with a warning window for official use only (OUO) in front of the eagle's face.

Figure 7. BioWatch Black Eagle screen with OUO Warning window

To log on the BioWatch SMS

1. In the **Official Use Only** warning window, click **Continue**. The window disappears and now you can see the full face of the black eagle.

Figure 8. BioWatch Black Eagle screen after you click **Continue**

2. The white pointer (now a line) blinks in the **Enter Operator Identification** field. Type your 4-digit or 8-digit personal identification number (PIN) and then press the **TAB** key and go to the next step.

or

If after typing your PIN, you see that the data in all the remaining fields is correct, click **Start** to start the program and display the first **Data Entry** screen. In this case, you can ignore the other steps in this procedure.

3. The pointer now blinks in the **Enter Campaign City Name** field. If this field is blank, see your supervisor.

or

If you see the city name, press the **TAB** key to go to the next field.

4. Now the pointer blinks in the **Enter Campaign Number** field. If this field is blank, see your supervisor.

or

If you see a number, press the **TAB** key to go to the next field.

5. The pointer blinks in the **Select ComCon Type** field. This identifies the type of communication console or type of computer — **StandAlone** or **Multi-Computer**. If the type is correct, click the **Start** button to start the program and display the first **Data Entry** screen.

or

If you need to change the type of computer, click the right scroll arrow, select **StandAlone** or **Multi-Computer**, and then click the **Start** button to start the program and display the first **Data Entry** screen.

BioWatch SMS Opening Screen: Data Entry

The first screen that opens after you have logged in to the BioWatch SMS is the **Data Entry** screen.

When you start up, the background of the **Data Entry** tab is blue to show that it is active.

When you see this first **Data Entry** screen, you can start entering data.

To activate the Entry History tab or the Tracking tab

- Click the tab. The background of the tab turns from white to blue to show that the tab is now active.

Elements of the Data Entry and Other Screens

The **Data Entry** screen is organized into sets of tabs, fields, and buttons. The tabs are organized in a context-dependent functional hierarchy from the top to the bottom of the screen so that the selected tab at each level determines the tabs, fields, and buttons available for that screen.

Many elements of the **Data Entry** screens are common to other BioWatch SMS screens. Figure 9 shows the elements of the **Data Entry** screen and other screens. The labeled elements are described after the figure.

Figure 9. Elements of the **Data Entry** screen and other screens

Three Rows of Tabs

Starting in the top left corner of the screen, below the title bar, there are three rows of tabs, labeled in Figure 9 as Main Tabs, Database Tabs, and Task Tabs.

Type of Computer

Depending on the type of computer you're using, the top left corner of the title bar shows **StandAlone Console**, **Client Console**, or **Server Console**.

About the Main Tabs

This section gives a brief description of each of the three main functions of the BioWatch SMS and their tabs. All rows of tabs are arranged in their order of use, from left to right.

At the top of the screen is a tab for each main function — **Data Entry**, **Entry History**, and **Tracking**.

Data Entry tab

When this tab is active, you can click a collector tab so that you can enter, check, and edit the sample collection data for the collector.

Entry History tab

When this tab is active, you can see a list of the most recent messages that the BioWatch SMS sent to the **Messages** area. Up to 100 messages display in the area.

Tracking tab

When this tab is active, you can check and edit the sample collection data and see the exposure history of each collector. You can also print a chain-of-custody form and check the chain-of-custody.

The next section shows one screen for each of the three main tabs and describes the elements of these screens.

Other Elements of the Data Entry Screen

Area

An area is a place on the screen for one or more data items. For example, you can enter one or more bar codes for the collectors in the **Barcodes** area.

Scroll Bars

Some areas have scroll bars, which are located to the right and below the area. You can click and hold an arrow at the end of a scroll bar to move your view of the area up and down or left and right to see text that doesn't fit in the display.

Field

A field is a place on the screen for only one data item. For example, you enter one date in the **Lot barcode** field and one PIN in the **Loader PIN** field.

.

Database tabs

This is where you select a database with which to work, either adding or editing data. Most of the databases are only used when first setting up SMS and with occasional updates as necessary for things such as personnel changes and updates to the deployment location of collectors for collector maintenance. The tab that will be used daily is the **Filter Holder Entry** tab, where you enter data for the filter holders. From the **Filter Holder Entry** tab, you go to a specific task tab for the next level of detail. For a brief description of the various database tabs, see ***About the Database Tabs***.

Task tabs

This is where you do most of your work. Each tab is labeled for one task. For a brief description of the task tabs, see ***About the Task Tabs***.

Help for Task tab

On the left side of many task tabs is a **Procedure** area, which gives you information about how to use the tab, about possible errors, and how to correct errors.

Messages area

The **Messages** area displays messages about each entry you submit from the **Data Entry** tab. A message shows the time, the names of the active tabs, and a note if the entry was successful. For example, **10:21 PSU_LoadHTab: successful record store for barcode(s) P100001**. If the entry was invalid, the message may include instructions for correcting the error.

Actions button

When you click the **Actions** button, a menu displays showing the actions you can select. The next two figures show the **Actions** menus on standalone, server, and client computers.

Figure 10. **Actions** menu on standalone and server computers

Figure 11. **Actions** menu on client computers

If you want to see general information about the software, select **About the Code...** at the top of the menu. The other actions on the menu are described in this guide when you use them.

Msgs button

When you click the **Msgs** button, the **Messages Posted** window displays a list of information and error messages sent from the BioWatch SMS. Each message shows the date and time along with details about the software transactions, which is useful when troubleshooting.

Many of these messages report normal conditions. For example, a message might say that it didn't find a Personnel Database on a client computer (the database is only on servers) or that the network is now up and running.

Figure 12. Messages Posted window

The colors on the **Messages Posted** window have different meanings, which are described in the next table.

Table 3. Colors in the Messages Posted window

Color	Means
Yellow background	You haven't clicked the message or OK to show that you read (acknowledged) the message.
White background	You clicked the message to show that you read (acknowledged) message.
Green circle	The message is informational.
Red circle	The message shows a possible error.

The options buttons below the list of messages let you delete messages older than 8, 24, or 48 hours. You can also keep the most recent 100, 400, or 800 messages and delete the older messages.

Operator Comments area

You can type notes in the **Operator Comments** area about unusual situations. For example, you might enter a note if a chain-of-custody form was not signed or if

you noticed that the bag holding the sample was torn. The BioWatch SMS keeps comments in an archive for future reference.

The three buttons you use in the **Operator Comments** area are the **Comment** button below the area and the **Clear** and **Commit** buttons to the right of the area.

Comment button

When you want to type a comment in the **Operator Comments** area, click the **Comment** button.

Clear button

If after typing a comment in the **Operator Comments** area you want to rewrite it, click the **Clear** button to delete it and start over.

Commit button

When you want to send the comment you typed in the **Operator Comments** area to the archive, click the **Commit** button.

Submit button

When you complete all your entries on a task tab, click the **Submit** button to send all the data to the BioWatch SMS.

Note On a few tabs, such as the **DataDump** tab, the **Submit** button is located in the center of the screen.

Exit button

When you are ready to end a work session, click the **Exit** button.

About the Database Tabs

The primary database tab that field operators will typically use is the **Filter Holder Entry** tab. At the end of the row of collector tabs are one or more other tabs. The only one you use is the **TransactionBacklog** tab, which only displays on client and server computers.

Note You do not use the **Personnel Entry**, **Collectors**, **Sites**, or **Administration Security** tabs that display on standalone and server computers.

Filter Holder Entry

You use this tab to go to the task tabs where you enter data for Portable Sampling Units. Start with the left task tab and continue to the right, using each tab to enter all the required data. The task tabs that display for the **Filter Holder Entry** tab are **LoadH**, **Dispatch**, **DataDump**, **Receive**, **FL Receive**, and **Return**.

TransactionBacklog

You use this tab when you check data on a client computer. If the network happens to go down during your work session, this tab displays any unsent data so that you can resend the data to the server when the network connection is restored.

For details about using the **TransactionBacklog** tab, see *Checking the Transaction Backlog*.

About the Task Tabs

You can use task tabs when **Filter Holder Entry** tab is active. A brief description of each task tab is given in this section. For details about using the task tabs see **Chapter 4. Using Portable Sampling Units**.

LoadH

Prepared filter holders are available at the first field operations location. You use the **LoadH** tab when you load the holder or magazine. When you enter bar code numbers, the date, and your PIN in the **LoadH** tab, the BioWatch SMS creates a database record for each bar code and adds it to the Sample Database. Submitting data in the **LoadH** tab certifies the following:

- A filter is in the holder.
- The holder has a bar code.
- The holder is in a sealed bag with the necessary paperwork.

Dispatch

When you enter data in the **Dispatch** tab, you record the bar code of the collector you took to the field and your PIN. Submitting data in the **Dispatch** tab certifies that the holder has been taken from the first field operations location and given to a Field Operator.

DataDump

You use the **DataDump** tab to document what happened to the filter holder in the field. You record and submit the start and stop times, flow rates, duration, PINs of the Field Operators, and any observations about the field activities with the **DataDump** tab.

Receive

When you return a filter holder to the first field operations location, you use the **Receive** tab to enter the bar codes and your PIN. The BioWatch SMS automatically enters the time. At this point, you no longer have custody of the holder or magazine. If you receive a filter holder in the field laboratory (the first location), you do not use the **FL Receive** tab.

FL Receive

Using the **FL Receive** tab is optional. The letters FL mean field lab. If the first receiving station is the first field operations location, use the **Receive** tab to document receipt of the sample from the field. When the sample is later transported to the field lab (the second location), use the **FL Receive** tab to document the arrival at the second location.

Return

Only use the Return tab when you're entering data about a holder or magazine that was dispatched to the field with filters never exposed. The filter holder and all bag materials must still meet the requirements for a LoadH before you can use the Return tab. In this tab, you enter the bar code of the holder or magazine and your PIN.

CAUTION

Never use the **Return** tab for filters already exposed.

Important If you use the **Return** tab for filters that are already exposed, the BioWatch SMS erases all information in the Sample Database except for the **LoadH** data and you must reenter the data from the paper records.

Elements of the Entry History Tab and Screen

The **Entry History** tab displays the success and failure messages that result from changes to information in the Sample Database. The **Entry History** tab has only

one screen. You can see the messages on the **Entry History** screen after you click the **Submit**, **Commit**, or **Save** buttons.

The messages that display on the **Entry History** screen include the following groups of messages:

- Messages shown in the **Messages** area (see Figure 13)
- Messages from entries in the **Tracking** tab's **Data View** and **Edit** tab

Most of the elements on the **Entry History** screen are the same as those on the **Data Entry** screen, which is shown in Figure 9. This section shows and describes the unique elements of the **Entry History** screen.

Figure 13. Elements of the **Entry History** screen

Last 100 SMS Ops Messages

This area displays a list of up to 100 of the most recent messages sent from the BioWatch SMS.

Delete button

Use the red **Delete** button to delete messages in the **Last 100 SMS Ops Messages** area. For the various ways to delete one or more messages, see **Deleting Data**.

Elements of the Tracking Tab and Screens

When you click the **Tracking** tab, five other tabs display below it to help you track and check data. The main elements of these screens are shown in Figure 14 on the **Check Data** tab, the first **Tracking** screen. Details about each of the other screens are described when you use them in **Chapter 5**. Checking and Editing Data.

The **Tracking** screens (Figure 14) share many elements of the **Data Entry** screen (Figure 9).

Figure 14. Elements of the **Tracking** screens

data check tabs

The **Tracking** tab takes you to the five data check tabs that you use in your work — **Check Data**, **Data View and Edit**, **Exposure History**, **Chain-of- Custody**, and **Check the Chain-of-Custody**.

options buttons

You click an option button to select it. A black dot inside the option button shows it is selected.

special buttons

Each **Tracking** screen has buttons specific to the screen. In the **Check Data** tab, you can click two data check buttons — **Check Today's Collections** or **Check The Entire Database**.

print button

After you click **Check Today's Collections** or **Check The Entire Database** to check data and display any errors, you can print the screen showing the results. Click the **Print This Screen** button to document the results of your data checks.

help button

You can click a help button to get more information. The **Help** button on the **Check Data** tab gives information about using the tab, identifying PINs, and checking today's collections and the entire Sample Database. It also describes various types of errors.

The help button on the **Chain-of-Custody** tab gives basic information about the **BioWatch Chain-of-Custody Form** with details about the header, samples, PINs, and printing. The help button on the **Check the Chain-of-Custody** tab describes how the system compares bar codes on the **BioWatch Chain-of- Custody Form**.

instructions

This line of text tells you what to do in the next part of the tab. For example, above the three options buttons is the instruction: **Check the PINs to use for the Check of Today's Collection**.

message from SMS

Here you can see a variety of messages sent from the BioWatch SMS. In Figure 14, the message says: No data checks have been made. After you click one of the data check buttons, the message may give you the date and time of the last data check.

About the Data Check Tabs

The data check tabs give you different ways to check data for errors. You also use these tabs to edit data and print chain-of-custody forms. For details about using each tab, see **Chapter 5. Checking and Editing Data**.

Check Data

Use the **Check Data** tab to check for any errors in your data. You can check two groups of samples — today's collection or the entire Sample Database.

If the BioWatch SMS finds data problems with any samples, it shows the number of errors it found and displays a list of the errors and any related bar codes.

Examples of some common errors are incorrect collector type, invalid PIN, and blank data entry.

Data View and Edit

Use the **Data View and Edit** tab to view a record, find errors in a record, edit data in a record, and save changes to a record. After editing data in a record to correct an error, return to the **Check Data** tab to see if any errors remain.

Exposure History

Use the **Exposure History** tab to see the time display showing when a filter holder was in a collector and whether it was received. When the **Exposure History** tab is active, another row of tabs displays below it so that you can select the type of holder. To the right of the holder tabs is the **Settings** tab, which lets you select a time frame from one day to one week.

Figure 15. Exposure History tabs

Chain-of-Custody

Use the **Chain-of-Custody** tab to select samples for display on the **BioWatch Chain-of-Custody Form**. You can also print the form from this tab.

Check the Chain-of-Custody

Use the **Check the Chain-of-Custody** tab to compare the bar code numbers of filter holders and the bar code numbers listed on a chain-of-custody form.

Resizing a Window

You can change the size of some windows by dragging the lower right corner of the window. You can also use the **Maximize** and **Minimize** buttons.

Dragging a Window's Corner

You can drag the lower right corner of some windows to make the window larger. For example, if you see a shortened window title, such as the title **Identity Se ...** shown in the next figure, you can enlarge the window to see the complete title.

Figure 16. Window with shortened title

To make the window wider and longer

- Drag the lower right corner of the window down and to the right.

Now you can see **Identity Setter**, the complete title of the window in our example.

Figure 17. Larger window with complete title

Minimizing and Maximizing a Window

In the top right corner of the title bar are the **Minimize** button and the **Maximize** button. These two buttons are available on all windows.

When you minimize a window, the full screen hides and becomes a button on the taskbar at the bottom of your console. When you maximize the window after minimizing it, the window reappears.

To minimize a program window

- Click the **Minimize** button (the left button, which looks like a minus sign). The window disappears.

To maximize a program window after minimizing it

- On the taskbar, click the name of the window you want to restore. The window reappears.

To maximize a help window

- Click the **Maximize** button (the right button, which looks like a box). The window fills the screen.

After maximizing a help window, the right button becomes a double box. This is the special **Minimize** button for a help window.

To restore a help window to its original size

- Click the **Minimize** button (the new double box).

Changing an Operator

You might need to take over from another operator when the BioWatch SMS software is already running. If this is the case, use the **Actions** menu to log on.

To log on a BioWatch SMS console that's already running

1. Click the **Actions** button and select **Change Operator** to display the Enter new operator window.

Figure 18. Enter new operator window

2. Type your PIN and then click **Save** to log on. This also logs off the previous operator whose PIN displays in the **INFORMATION_NOTICE** window, showing the operator change from the previous operator's PIN to your PIN.

Figure 19. INFORMATION_NOTICE window showing old and new operator PINs

3. Click **OK** to begin your work session.

Logging Off and Closing the BioWatch SMS

When you complete your work session, you need to log off the BioWatch SMS console and close the program.

To log off and close the BioWatch SMS program

1. In the lower right corner, click the **Exit** button. A screen displays asking if you really want to exit.

2. Click **Yes** to exit. This logs you off the BioWatch SMS program and displays the **DOS Console** screen.

3. Follow the instruction in the last line of the screen, **Press any key to continue . . .** and press any key on your keyboard. The **DOS Console** screen disappears and the BioWatch SMS program closes.

CAUTION

Never click the **X** in the top right corner of the screen.

Important

Clicking the **X** in the top right corner of the **DOS Console** screen kills the program and may corrupt the databases or cause a loss of data in the databases.

Chapter 3. Bar Codes, Bar Code Scanner, and Handheld Computer

This chapter gives you basic information about bar codes and about using a bar code scanner to read them. The chapter also covers what you need to know about handheld computers.

About Bar Codes

A bar code is the sample ID label on a filter holder, magazine, or cartridge. You scan the label with a bar code scanner or with your handheld computer, which has a built-in bar code scanner.

Match Character and Digits

The ID for each bar code starts with one letter, called its match character, followed by six or 16 digits. The match characters are shown in the next table. Due to the fact that the BioWatch collector network only uses PSU collectors, only the PSU filter holder match character is currently used. All other match characters shown in Table 4 are provided for reference when looking at older databases.

Table 4. Match characters for filter holders, magazine, or cartridge

Type of filter holder, magazine, or cartridge	Match character
PSU holder	P
DFU holder	D
DSU holder	H
DSU magazine	M
ASAP cartridge	A

The match characters for PSUs, DFUs, and DSUs are followed by six digits. The match character for ASAPs is followed by a 16-digit hexadecimal number.

Note A hexadecimal number uses numbers from 0 to 9 and letters from A to F

Unique Bar Codes

Bar codes for other collectors are unique only in the Sample Database. After the database is trimmed, you can use a bar code again.

A duplicate bar code causes an error that prevents a data submit. How do you know if a bar code is already in the Sample Database? After using the **LoadH** tab to enter a bar code, a message displays in the **Messages** area saying that the bar code is already in the database.

If this happens, see *To handle a message saying a bar code is already in the database*.

About Bar Code Scanners

A bar code scanner is an electronic device that uses laser light to convert bar codes into digital information for storage and processing in a computer. It is sometimes called a scanner or a wand.

WARNING

Avoid exposure to laser light.

As with any very bright light source, such as the sun, avoid staring directly into the light beam to prevent hazardous light exposure.

For details about safety warnings when using bar code scanners, see **Appendix C**.
Safety Warnings.

Using the Bar Code Scanner to Scan Bar Codes

Use the bar code scanner connected to your desktop computer to scan bar codes into the **LoadH**, **Dispatch**, **Receive**, **FL Receive**, and **Return** tabs.

Note The bar code scanner built into your handheld computer cannot scan bar codes into these tabs.

To scan a bar code using a bar code scanner

- If you are sitting at your computer while using the bar code scanner, check the keyboard to make sure the **CAPS LOCK** key is off.

Important If the **CAPS LOCK** key is on, the match character in the bar code is entered as a lower case letter and the BioWatch SMS software does not accept the bar code.

1. Point the bar code scanner at the bar code.
2. Click the trigger of the bar code scanner, making sure the red scan beam covers the entire bar code. A beep sounds to let you know the scan was successful.

If your bar code scanner isn't working

1. Report the problem to your supervisor.
2. Manually enter the data.

About the Handheld Computer

A handheld computer is a small computer you can hold in your hand to collect data in the field. It is sometimes called a Palm® pilot or a PDA, which stands for personal digital assistant.

Many jurisdictions use the Symbol SPT 1800 or Janam Technologies handheld computer, while other jurisdictions use other types of handheld computers. The warnings in this guide apply to the Symbol SPT 1800 and Janam Technologies handheld computers.

Some or all of the warnings in this guide may apply to other handheld computers; however, other handheld computers may have additional warnings. For the specific warnings about other models of handheld computers, see the user manual for the model.

Warnings about Using Your Handheld Computer

The handheld computer uses laser light for scanning. Because the handheld computer is a Global System for Mobile Communications (GSM) device, it produces electromagnetic fields and transmits radio frequency (RF) energy.

Important Observe all warning notices.

WARNING

Avoid exposure to laser light.

As with any very bright light source, such as the sun, avoid staring directly into the light beam to prevent hazardous light exposure.

WARNING

Observe warnings about electromagnetic fields and RF energy.

The following list summarizes the warnings about electromagnetic fields and RF energy related to your handheld computer:

- Use only belt clips, holsters, or similar accessories that maintain a separation of 2.0 cm or 4/5 inch between your body and the back of the handheld computer, including the antenna.
- Avoid any third-party belt clips, holsters, and similar accessories that contain metallic components in their assemblies. These accessories may not comply with Federal Communications Commission (FCC) RF exposure compliance requirements.
- Only use the handheld computer in the normal operating position. This is the position that complies with the internationally recognized standards covering Specific Absorption Rate (SAR) related to human exposure of electromagnetic fields.
- People with pacemakers must keep at least 15 cm or 6 inches separation between the handheld computer and the pacemaker to avoid any possible interference with the pacemaker. If you suspect any interference, immediately turn off the handheld computer.
- People with pacemakers must not carry the handheld computer in their breast pocket.
- People with hearing aids or other medical devices may experience some interference with the RF energy of the handheld computer. If so, see your hearing aid or other medical device supplier to discuss solutions.
- Do not use your handheld computer while your vehicle is in motion.
- RF energy may interfere with a vehicle's electronic systems, including safety systems, that are improperly installed or inadequately shielded. Check with the manufacturer.
- Do not use the handheld computer at a gas station or other refueling station due to restrictions on use of radio devices at these locations.

For details about safety warnings for using handheld computers, see **Appendix C. Safety Warnings**.

Cradle

A cradle is the base unit for the handheld computer. The cradle is plugged into a wall outlet to power the handheld computer and to recharge its batteries. The cradle is connected to a desktop computer to transfer data into the **DataDump** tab.

The synchronize or **HotSync** button, used for transferring data, is located on the cradle.

Figure 20. **HotSync** button

To connect the handheld computer to its cradle

- Slide the bottom of the handheld computer onto the cradle and gently push down to firmly connect it to the cradle.

Important You cannot transfer data to the desktop computer if the handheld computer is not properly connected to its cradle.

Batteries

It is important to keep the batteries in handheld computers recharged to avoid losing the software installed on the handheld computer. When batteries run low, you need to replace or recharge the batteries.

To find out if your batteries are running low

Check the **battery charge** icon at the top of the handheld computer's screen. If the battery is all black with a white line in the center, the battery's charge is full.

Figure 21. Battery with full charge

To keep your batteries recharged

- When not using handheld computers, keep them on their cradles so they can recharge.

Important If a battery dies, the software is lost and your supervisor must reinstall the software on your handheld computer.

If you need to replace batteries, be ready to replace them within 10 to 15 seconds. After that time, the handheld computer loses its software and your supervisor must reinstall it.

To replace batteries

1. Have the new batteries ready before you remove the old batteries.
2. Remove the old batteries and quickly, within 10 to 15 seconds, insert the new batteries.

The Stylus

The stylus is the small pointed tool you use to tap your entries on the screen of the handheld computer. A quiet beep sounds each time you tap an icon.

Note When you aren't using the stylus, put it back in its slot on the back of the handheld computer

Icons

An icon is a small picture on your screen. Some icons give you information. For example, the **battery charge** icon in Figure 21 shows the level of charge in the battery.

Other icons take you to other screens. For example, if you want to go back to the **Home** screen (the first screen) just tap the **Home** icon.

Figure 22. **Home** icon

IR Port

On the back of the handheld computer is an IR (infrared) port. This is the port you use to beam, or transfer, data between two handheld computers.

To position two handheld computers for beaming

- Hold the two handheld computers 5 to 10 inches apart and line up their IR ports.

Powering On and Off

The **on/off** button of many handheld computers is located on the lower left side. It's usually red, but can be another color depending on the model.

To power on or off

- Press the **on/off** button to turn the handheld computer on when it's off or off when it's on.

Note The handheld computer automatically turns off when you haven't used it for a certain length of time.

Elements of a Handheld Computer Screen

The next figure shows the elements of the main screen on a handheld computer.

Figure 23. Elements of the main screen on the handheld computer

battery charge

This is the icon showing whether the battery is fully charged or if its charge is getting low. The bar at the top of Figure 23 shows a fully charged battery.

drop-down arrow

Tap this arrow to display a menu with a list of application categories, including **All**, **Main**, or **System**. To the right of the drop-down arrow in Figure 23 is **All**,

which means that the screen is displaying all choices. If you select **Main** from the menu, **All** changes to **Main**.

scroll bar

Tap the arrow at the top or bottom of the scroll bar to move the display on the screen up or down so that you can see the items that don't fit on the small screen.

current time

This shows the current time of day.

icon

Figure 23 shows the **BioWatch Black Eagle** icon in the top row along with 11 other icons that you can tap to go to a specific screen.

Note Except for the **BioWatch Black Eagle** icon, the icons shown in Figure 23 are examples only. These icons or others may display on your screen.

Keyboards for Entering Letters and Numbers

The handheld computer has two keyboards. One keyboard is for letters and the other keyboard is for numbers. Under the screen, in each lower corner of a rectangular box on most handheld computers, are the **abc** and the **123** icons.

To enter letters or numbers in a field

1. Tap the data entry field.
2. Tap the **abc** or the **123** icon to display the letters keyboard or the numbers keyboard.
3. Enter the new data.
4. After you've completed your entries, tap the **Done** button.

The Letters Keyboard

When you tap the **abc** icon, the letters keyboard displays. The keyboard looks like the keyboard of a regular computer.

Figure 24. Letters keyboard

Before you enter letters, decide if you need to enter capital letters. The BioWatch SMS records an error if a small letter is entered when a capital letter is required.

To enter one capital letter

- Tap the **shift** key and then tap the letter. The **shift** key disengages so that the next letter you tap is a small letter.

To enter a series of capital letters

- Tap the **cap** key and then type the letters. All the letters you tap are capital letters until you tap the **cap** key again to return to small letters.

The lines at the top of the keyboard display each of your entries as soon as you tap a key. After completing your entries, tap the **Done** button.

The Numbers Keyboard

When you tap the **123** icon, the numbers keyboard displays. Notice that on each side of the number pad are various keys you can tap.

Figure 25. Numbers keyboard

The lines at the top of the keyboard display each of your entries as soon as you tap a key. After completing your entries, tap the **Done** button.

Common Keys on the Two Keyboards

Some keys are the same on both keyboards. These keys are shown in the next table along with a description of what happens when you tap the key.

Table 5. Common keys on the letters and numbers keyboards

Key		What it does
Tab		Moves the pointer to the next tab.
Backspace		Deletes a letter or number to the left.
Enter		Not in use.
Done		Saves your entries.

Notice that the period and the comma keys are next to each other on both keyboards. Be careful to tap the correct key.

Important Before tapping the period or comma key, look carefully to find the correct key. Errors are caused by tapping a comma instead of a period.

Switching Between Keyboards

At the bottom of each keyboard are the **abc** button and the **123** button. This makes it easy to switch from one keyboard to the other keyboard.

To switch from the letters keyboard to the numbers keyboard

- Tap the **123** button.

To switch from the numbers keyboard to the letters keyboard

- Tap the **abc** button.

BioWatch Home Screen

All your work on your handheld computer begins with the **BioWatch Home** screen.

To go to the BioWatch Home screen

- On the main screen, tap the **BioWatch Black Eagle** icon.

The **BioWatch Home** screen displays two **Device** buttons to take you to the **Record List** screens where you can enter data for **PSU** devices (collectors). Next to the **PSU** button on the **BioWatch Home** screen is information about the **PSU** data on your handheld computer.

BioWatch		
Device	Total	Last
PSU	10.....	11/12.....

Figure 26. **BioWatch Home** screen

The **Total** column shows the number of records stored in your handheld computer for each device. The **Last** column shows the date of the last change to any data for the device.

When you tap **BioWatch** in the upper left corner of the **BioWatch Home** screen, an **Options** menu drops down with three selections.

Figure 27. **Options** drop-down menu

The selections on the **Options** menu let you perform special tasks and see information about the handheld computer's software. Each selection is described in the next table.

Table 6. Selections in the Options menu

Selection	Description
Beam	Lets you beam data from one handheld computer to another handheld computer
Preferences	Shows that only PSU records are displayed, permits user notification of the Biowatch 1.0 PSU database upgrade step, and allows user to completely clean out all old records on the handheld computer
About BioWatch	Gives you information about the BioWatch software installed on your handheld computer

Setting Up Your Handheld Computer

This section tells you how to set up your handheld computer. Setting up involves the actions shown in the next table. The table also tells you when the action is required and shows the page where you can find the procedure.

Table 7. What you can setup on your handheld computer

Setup	When required
<i>Setting the Preferences</i>	Always
<i>Correcting the Time and Date</i>	When the time or date isn't correct
<i>Resetting the Owner Name</i>	Rarely. Only when you see an incorrect name
<i>Adjusting the digitizer</i>	When it's out of adjustment

Setting the Preferences

- The preference settings are best left alone. The PSU device is the only device used in the field (2012), and database upgrade notification is enabled.

To set the preferences

1. From the **Main** screen, tap the **BioWatch Black Eagle** icon to display the **BioWatch Home** screen.
2. In the upper left corner of the **Home** screen, tap **BioWatch** to display the **Options** selections and then tap **Preferences** to display the **Preferences** screen.

Figure 28. First **Preferences** screen

3. If you do not want the PSU database upgrade notification to appear during use, uncheck the **Ask to Upgrade PSU DB** box and then tap **OK**.

Figure 29. **Ask to Upgrade PSU DB**

4. If you are experiencing difficulties deleting records from the handheld computer's database you can completely clean out the database by pressing the **Reset Data** button. You will be asked to confirm that you want to completely delete all records from the handheld computer's database to avoid accidental deletion of data as shown in Figure 30.

Figure 30. **Confirm Data Reset** (deletion of all handhelds records).

Correcting the Time and Date

At the start of your workday, check the time and date on your handheld computer. If the time and date are correct, you can continue with your work. If the time and date are wrong, you need to correct them.

To correct the time

1. On the main screen with **All** or **System** to the right of the drop-down arrow, tap the **Prefs** icon. One of the **Preferences** screen displays.
2. Tap the drop-down arrow and select **Date & Time**.
3. Tap the **Set Time** field to display the **Set Time** window.
4. If you need to correct the hour, tap the hour field to turn it black and then tap the up or down arrow to reach the hour you want.
5. If you need to correct the minutes, tap a minute field to turn it black and then tap the up or down arrow to reach the correct number.
6. If you need to change the time from **AM** to **PM** or from **PM** to **AM**, tap the correct field.
7. When the time is correct, tap the **Home** icon to save your changes and return to the **Home** screen.

To correct the date

1. If you've just corrected the time and still see the **Preferences** screen, go to step 2.

or

On the main screen with **All** or **System** to the right of the drop-down arrow, tap the **Prefs** icon. One of the **Preferences** screen displays.

2. Tap the drop-down arrow and select **Date & Time**.
3. Tap the **Set Date** field to display the **Set Date** window.
4. If you need to correct the year, tap the arrows on the sides of the year to go back in time or forward.
5. If the month in black is not the correct month, tap the name of the correct month.
6. If the day in black is not correct, tap the correct day on the calendar.
7. When you finish correcting the date, tap the **Home** icon to save your corrections return to the **Home** screen.

Resetting the Owner Name

The owner name is the name your supervisor assigned to the handheld computer. Do not change the owner name.

The letters in the owner name are case-sensitive. This means that each letter in the name is assigned as a capital letter (upper case) or a small letter (lower case). For example, using a small “b” instead of a capital “B” causes an error in the owner name.

Resetting the owner name is a task that is necessary only in rare situations. If you do a HotSync in a **DataDump** tab and the sync doesn’t work, check the owner name. If the name is incorrect, you need to reset it.

Important Never change the owner name. If you change the owner name, it breaks the HotSync. If someone else changed the owner name, change it back to the proper name, but be aware that the HotSync may not work.

If someone else changed the owner name

1. Reset the owner name to the correct name by following the steps in the next procedure.
2. If the HotSync fails, contact your supervisor to reinstall the software on the handheld computer.
3. Manually enter your data into the **DataDump** tab.

To reset the owner name to the correct name

1. On the **Home** screen with **All** or **System** to the right of the drop-down arrow, tap the **Prefs** icon. One of the **Preferences** screen displays.
2. Tap the drop-down arrow and then select Owner. The next Preferences screen displays this text: **This handheld computer is owned by:** followed by the current owner name.
3. If the name is incorrect, tap the **abc** icon or the **123** icon to change the letters or numbers.
4. Make the corrections and then tap **Done** to save them.

Adjusting the Digitizer

The digitizer is the part of the handheld computer than aligns the touch screen with the display. If you tap a number or letter and it doesn’t show on the screen, the data is probably not aligned and you may need to adjust the digitizer.

To adjust the digitizer

1. On the **Home** screen with **All** or **System** to the right of the drop-down arrow, tap the **Prefs** icon. One of the **Preferences** screen displays.

2. Tap the drop-down arrow and then select **Digitizer**. A screen displays with instructions to tap the center of the crosshair target.
3. Tap the center of the target. A second target displays in the bottom right corner of the screen.
4. Tap the center of the new target. Now, the final target displays in the center of the screen.
5. Tap the center of the target. The adjustment is complete and the display returns to the original **Preferences** screen.

Using the Handheld Computer to Scan Bar Codes

Your handheld computer has a built-in bar code scanner. It's best to use the bar code scanner in your handheld computer to scan bar codes. This helps prevent errors.

At the top edges of your handheld computer are two scan buttons. One is on the left side and the other is on the right side. Use the button that's the most comfortable for you to press.

Note You only need to press one of the scan buttons to scan a bar code.

To scan a bar code

1. Power on your handheld computer and tap the **BioWatch Black Eagle** icon to go to the **Home** screen.
2. Tap the **PSU** button to go to the **PSU Record List** screen where you scan bar codes. When no bar codes are scanned yet, the **Record List** screen is empty as shown in the next figure.

Figure 31. Example of empty **PSU Record List** screen

3. At the bottom of the screen, tap the **New** button to create a new record and display the cursor in the **Operator ID** field. When you're in the **PSU Record List**, a new **PSU Record** screen displays for you to enter data.

Figure 32. New **PSU Record** screen

Note The new **PSU Record** screen has default entries for the **Collector ID**, **Old Holder BC**, and **New Holder BC** fields. If you use a bar code scanner to enter data in those fields, the scanned data overwrites the defaults.

4. Point the handheld computer at your PIN and then press the scan button, making sure the red scan beam covers the entire PIN. The red laser beam captures your PIN and displays it in the **Operator ID** field.

Note If you have trouble scanning any bar codes, you can manually enter the data.

5. Tap the **PSU ID** field to display the cursor in that field and then scan the bar code. Again, make sure the red scan beam covers the entire bar code.
6. Continue to the next fields and scan or manually enter the data. If you're in the **PSU Record** screen, tap **Screen 2** to display the remaining fields and complete your entries.

The screenshot shows a software window titled "PSU" with two tabs: "Screen 1" and "Screen 2". "Screen 2" is active and contains three text input fields. The first field is labeled "ServDate" and contains the text "11/12/12". The second field is labeled "ServTime" and contains the text "5:36 pm". The third field is labeled "Comments" and contains the text "Normal". At the bottom of the window are three buttons: "OK", "Cancel", and "New".

Field	Value
ServDate	11/12/12
ServTime	5:36 pm
Comments	Normal

Figure 33. New PSU Record, Screen 2

7. After completing your entries, tap **OK**.

More About the Record List

The next figure shows an example of a **PSU Record List** screen after creating two new records.

The screenshot shows a software window titled "PSU" displaying a list of records. The list has two columns: "Operator ID" and "Site Number". There are two records in the list. At the bottom of the window are three buttons: "Home", "New", and "Delete".

Operator ID	Site Number
0632	123-456
0632	123-655

Figure 34. Two new records

Each time you tap **OK** after creating a new **PSU Record**, the software adds the new record to the bottom of the **PSU Record List**. If you create more records than can fit on the screen, the screen automatically scrolls down to show the most recently created records.

Operator ID	Site Number
0632	007-538
1154	007-539
1154	007-540
1154	007-541
4017	007-538
4017	007-537
4017	007-539
4093	007-538
4093	007-542

Home New Delete

Figure 35. Screen scrolls up when it's full

Note You can tap the arrows in the lower right corner of the screen whenever you want to scroll up or down.

Editing Data on the Handheld Computer

After you scan data into the handheld computer, the software creates a record for each **PSU ID**. You can edit any of the records to make corrections.

To edit data in a record

1. Power on your handheld computer and tap the **BioWatch Black Eagle** icon to go to the **Home** screen.
2. Tap the **PSU** button to go to the **PSU Record List**.
3. On the **Record List** screen, tap anywhere on the line of the **PSU Collector ID** that you want to edit. This displays the **Record** screen for the **PSU Collector ID**.

Note If you don't see the **PSU Collector ID** you want on its **Record List**, use the scroll arrows to display the rest of the IDs.

The next figure shows an example of a **Record** screen for **PSU 0102**.

PSU	
Screen 1	Screen 2
Operator ID	0632
Collector ID	0102
Site Number	123-657
Final Flow	98
Duration	23.6
Old Holder BC	P100002
New Holder BC	P100005
Initial Flow	98
Operation Type	Initial Final Cont
<input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="New"/>	

Figure 36. **Record** screen for PSU 0102

4. On the **Record** screen, tap where you want to place the cursor to make your edits and then, below the screen in the lower corner of the rectangular box, tap **abc** or **123**, depending on whether you want to edit letters or numbers.
5. When the keyboard displays, make your edits and then tap **Done** to return to the **Record** screen.
6. When you've made all of your edits, tap one of the following:
 - **OK** to save the changes, optionally make any corrections (see next step)
 - or*
 - **Cancel** to discard the changes and return to the **PSU Record List**. If this is the case, continue to the next step.
7. When **OK** is tapped, BioWatch checks five fields for correctness, warning you when a field does not match the expected content. You may tap **Keep** to keep the uncorrected field values and save the record now, or tap **Correct** to return to the **Record** screen to make the corrections.
 - The **Collector ID** has 3-7 digits (for example, 3347).
 - The **Site Number** has 3 digits, a dash (-) followed by 3 digits (for example, 334-767).
 - The **Final Flow** is a percentage 0 to 100 (for example, 45).
 - The **Duration** is an hourly value, by tenths of an hour (for example, 4.0).
 - The **Initial Flow** is a percentage 0 to 100 (for example, 98).

The screenshot shows a handheld device screen with a title bar labeled 'PSU'. Below the title bar are two tabs: 'Screen 1' and 'Screen 2'. Under the tabs, the text 'Operator ID' is followed by the value '3245'. Below this, the text 'Collector ID' is followed by the value 'PSU1003'. A black box with white text titled 'Field Corrections Needed' is overlaid on the screen. It contains a question mark icon, the text 'Collector ID 'PSU1003' incorrect, must be 3 to 7 numbers.', the prompt 'Correct the entries, or keep the entries?', and two buttons labeled 'Correct' and 'Keep'.

Figure 37. Field format check for **Collector ID**.

The screenshot shows a handheld device screen with a title bar labeled 'PSU'. Below the title bar are two tabs: 'Screen 1' and 'Screen 2'. Under the tabs, the text 'Operator ID' is followed by the value '3245'. Below this, the text 'Site Number' is followed by the value '333-88'. A black box with white text titled 'Field Corrections Needed' is overlaid on the screen. It contains a question mark icon, the text 'Site Number '333-88' must have 2 3-digit numbers separated by a '-'', the prompt 'Correct the entries, or keep the entries?', and two buttons labeled 'Correct' and 'Keep'.

Figure 38. Field format check for **Site Number**

The screenshot shows a handheld device screen with a title bar labeled 'PSU'. Below the title bar are two tabs: 'Screen 1' and 'Screen 2'. Under the tabs, the text 'Operator ID' is followed by the value '3245'. Below this, the text 'Final Flow %' is followed by the value '9A'. A black box with white text titled 'Field Corrections Needed' is overlaid on the screen. It contains a question mark icon, the text 'Final Flow % '9A' must be a whole number, with range from 0 to 100.', the prompt 'Correct the entries, or keep the entries?', and two buttons labeled 'Correct' and 'Keep'.

Figure 39. Field format check for **Final Flow**.

Figure 40. Field format check for **Duration**. Figure 41. Field format check for **Initial Flow**.

8. Repeat steps 4 to 7 as needed.

Deleting Records on the Handheld Computer

You can easily delete one or more records from the **PSU Record List** screen by using the **Delete** button.

Before Starting the Next Day's Tasks

At the end of your workday or before you start the next day's tasks, delete all records from your handheld computer.

Important If someone corrects an error in the **DataDump** tab for the last set of transferred data and records are not deleted from your handheld computer, the next data transfer overwrites the correction and the data must be corrected again.

You can avoid problems caused from overwriting corrected data with uncorrected data by deleting all records before starting a day's collections.

To delete one or more records

1. Power on your handheld computer and tap the **BioWatch Black Eagle** icon to go to the **Home** screen.
2. Tap the **PSU** button to go to **PSU Record List**.
3. On the **PSU Record List** screen, tap the **Delete** button to display a message above the **Delete** button. The message tells you how to delete records.

Figure 42. **Record List** screen with records marked for deletion

4. On the **Record List** screen, tap each record you want to delete to mark it. When you tap a record, a horizontal line displays across the record to show that you want to delete the record.

Note If you don't see the **PSU Collector ID** you want to delete, use the scroll arrows to display the rest of the IDs.

5. After tapping all the records you want to delete, look at all the records that are marked. If you tapped a record by mistake, tap it again to unmark it.
6. Tap **Delete** to display the **Confirm Deletions** window, which asks if you're sure you want to delete the records.

Figure 43. **Confirm Deletions** window

7. If you're sure that you want to delete the marked records, tap **Yes**.

or

Tap **No** to return to the **Record List** screen and step 4.

Beaming Records Between Two Handheld Computers

You can beam records between two handheld computers that have an IR port. This is useful in some jurisdictions.

Important Use the **Beam** selection from the Options menu on the **PSU Record List** screen. Do not use the **Beam** selection from the handheld computer's main screen.

Figure 44. Select **Beam** from **Options** menu

To beam records

1. Turn on the receiving handheld computer.

Important The BioWatch software must be running on the receiving handheld computer before it can receive records.

2. Tap the **BioWatch Black Eagle** icon to display the **Home** screen.
3. Turn on the sending handheld computer.
4. On the sending handheld computer's Main screen, tap the **BioWatch Black Eagle** icon to display the **Home** screen. Look at the **Total** column to make sure that at least one device has records to beam.
5. In the upper left corner of the sending handheld computer's **Home** screen, tap **BioWatch** to display the **Options** selections and then tap **Beam**. A fleeting message displays about preparing the BioWatch records and then the **Beam Searching** screen displays.

Figure 45. **Beam Searching** screen

6. With the two handheld computers from 5 to 10 inches apart, align their IR ports so that the ports are pointing directly at each other. Soon after the sending handheld computer beeps, the receiving handheld beeps. The second beep is often an octave lower than the first beep.

Note Another animated beam icon, similar to the **Beam Searching** animation shown in Figure 45, shows when the data is actually beaming between the two handheld computers.

7. After the beaming is complete, a **Transfer** window displays on the receiving handheld computer asking if you want to accept the records.
 - Tap **Yes** to accept the records. A window displays to let you know that the records were successfully received.

or

Tap **No** to return to the **Home** screen.

Figure 46. **Transfer** window asking for confirmation

Transferring Data from Handheld to DataDump Tab

Use the **DataDump** tab to transfer data from your handheld computer to the desktop computer. The data displays on the **DataDump** screen in the **Data Block**. When you submit the new data into the Sample Database, the BioWatch SMS checks for errors and displays any errors it finds in the **Messages** area.

Using the DataDump Tab

For details about using the **DataDump** tab to transfer PSU collector data from your handheld computer to the desktop computer, see ***Transferring Data from a Handheld Computer to the DataDump Tab***.

Checking for a Successful Submit and Any Errors

After submitting the data transferred from your handheld computer, read the **Messages** area to see if the data dump was successful or if errors are present.

Note You can also click the **Entry History** tab to see messages about successful updates and errors.

Here's an example of an error message letting you know about a date/time error in the data submitted from a PSU collector:

09:47 PSU_DataDump: Block 1: Invalid date/time form (need mm/dd/yy hh:mm)

If any errors are present, correct them and submit the data again.

Note If no data is transferred during a HotSync, the owner name may be incorrect. See ***Resetting the Owner Name*** for details and, if you needed to reset the owner name and the HotSync still doesn't work, contact your supervisor.

Fixing Problems with Your Handheld Computer

You can easily fix some problems with your handheld computer by following the steps in this section. If your handheld computer still isn't working properly, report the problem to your supervisor.

To reset a handheld computer that doesn't work

- Turn it off and then turn it back on.
- Use stylus to press the small white **Reset** button inside of the battery cover.
- Remove and replace the handheld computers battery and press the power button to reboot the handheld device.

To fix entries when data doesn't transfer

1. Go to the data entry screen for the collector.

2. If any entries are blank, enter the required data.

Chapter 4. Using Portable Sampling Units

This chapter describes the processes for documenting the various tasks required to deploy a Portable Sampling Unit (PSU) Filter Holder to collect airborne samples in the field and return to the lab for analysis. This includes the following tasks:

- Entering data in the **LoadH** tab
- Entering data in the **Dispatch** tab
- Transferring data from a handheld computer into the **DataDump** tab
- Manually entering data into the **DataDump** tab
- Entering data in the **Receive** tab
- Entering data in the **FL Receive** tab
- Entering data in the **Return** tab

Information in Each Section

Each section also includes general information about using the tab and any special information you might need. For example, each section tells you when you can scan bar codes with the bar code scanner and when to type your entries.

Correcting Errors

At the end of each section are steps you can use to correct some common errors. For more information about the error messages in the BioWatch SMS and what to do to correct the errors, see **Appendix A. Troubleshooting**.

Entering Data in the LoadH Tab

The **LoadH** tab is the first tab you use when entering data in the BioWatch SMS. You can scan data into the tab or manually enter data for one or more bar codes.

Certifying the Filters and Their Holders

The **LoadH** tab creates a record for filters and their holders in the BioWatch SMS Sample Database. The record certifies (confirms as true and accurate) the following about the filters and their holders:

- The filter is in a holder.
- A bar code label is attached to the filter holder.

- The filter holder is sealed in a bag with the correct paperwork.
- The filter holder is available in the field operations facility, ready for dispatch to the field.

Recording Accountability

When you submit data from the **LoadH** tab, the BioWatch SMS creates a record of accountability for the sample in the database. The record includes the following information:

- Bar code number
- Your PIN
- Lot number
- Time and date you submitted the record

To enter data in the LoadH tab

1. With the **Data Entry** tab active, click the **Filter Holder Entry** tab and then click the **LoadH** tab to display the screen.

StandAlone Console - Official Use Only

Data Entry | Entry History | Tracking

Filter Holder Entry | Personnel Entry | Collectors | Sites | Administration Security

LoadH | Dispatch | DataDump | Receive | FL Receive | Return

Procedure

The 'LoadH' (for Load Holder) tab creates an accountability record which is subsequently edited by other operations (like Dispatch).

Data expectations:

1. The 'Loader PIN' field will have a 4- or 8-digit number
2. The 'Lot barcode' field will have a string of characters and numbers
3. The 'Barcodes' field will have one or more barcodes with a format like P123456 (a CAPITAL P followed by 6 digits)

Common (diagnosed) errors:

1. Blank fields
2. An invalid or non-existent PIN
3. Non-printing characters (diagnosed as empty fields)
4. Invalid barcodes (not of form P123456)
5. Redundant (duplicate) entries. These are diagnosed at 'Submit'
6. Attempt to load a record that already exists

Correct barcode errors by deleting the entry and reentering; To delete ALL entries, hit the red delete button at lower right of the barcode field. To delete one entry, select it and then hit the red delete button. To delete multiple (but not ALL) entries, use the shift or control keys to make multiple selections and then hit the red delete button. Note manually-entered barcodes will not display until terminated by a non-alpha or non-numeric character (like an enter or space)

Barcodes

Lot barcode

Loader PIN

Submit

Messages

Operator Comments

Clear

Commit

Action... Msg... Comm...

Figure 47. LoadH tab and screen

2. Click the **Lot barcode** field to turn the field yellow. When a field or area is yellow, you can enter data in it.
3. Scan or type the actual lot ID of the filter media or today's date, using the format specified by your supervisor.

Note Check with your supervisor to see whether to use the lot ID or the date.

4. Click the **Loader PIN** field to turn the field yellow.
5. Scan or type your PIN.
6. Click the **Barcodes** area to turn the field yellow.
7. Scan the bar codes of each filter holder.

or

Type the bar code of one filter holder and then press Enter to enter the bar code and go the next line where you can enter the next bar code.

Note Each bar code must begin with a capital **P**, to show that it's a PSU Filter Holder, followed by six digits

To submit your entries

1. Read your entries to be sure they are correct and, if you see an error, correct it.
2. Click the **Submit** button to submit your entries to the Sample Database.
3. Read the information in the **Messages** area to see if the submit was successful or if errors exist. If errors exist, follow the instructions in the **Messages** area or use the next steps to correct PIN and some bar code errors.

Correcting PIN and Bar Code Errors

Many errors are easy to correct. This section gives you the steps to correct errors in the **Loader PIN** field and some errors in the Barcodes area. After correcting errors, click the Submit button and check for any remaining errors.

You can delete bar codes in different ways, depending on how many and which ones you want to delete. If after deleting any bar codes you need to enter others, repeat steps 6 and 7 of *To enter data in the LoadH tab*.

To correct an error in the Loader PIN field

1. Click the **Loader PIN** field to turn it yellow.

2. Press **BACKSPACE** to delete the incorrect numbers.
3. Scan or type the correct PIN.

To correct the “Empty Barcodes list” message

- Enter all bar codes again and then click the Submit button.

To delete one bar code

1. Click the bar code to highlight it.
2. In the lower right corner of the **Barcodes** area, click the red **Delete** button or the **DELETE** key on your keyboard to delete the bar code.

To delete more than one bar code

1. Click one bar code you want to delete to highlight it.
2. Hold the **CTRL** key and then click each of the other bar codes you want to delete. All the bar codes you want to delete are now highlighted.
3. Click the red **Delete** button or the **DELETE** key to delete the highlighted bar codes.

To delete three or more bar codes in a series

1. Click the top bar code of the series you want to delete to highlight it.
2. Hold the **SHIFT** key and then click the bottom bar code of the series you want to delete. The top, bottom, and all the bar codes in between are now highlighted.
3. Click the red **Delete** button or the **DELETE** key to delete the highlighted bar codes.

To delete all bar codes

- With no bar codes highlighted in the Barcodes area, click the red **Delete** button.

To handle a message saying a bar code is already in the database

- If you get an error message saying a bar code is already in the database, this means the bar code is a duplicate. Contact your supervisor for help.

Note Your supervisor is the one who fixes duplicate bar codes

Entering Data in the Dispatch Tab

The **Dispatch** tab is the tab you use after submitting your entries in the **LoadH** tab. You can scan data into the tab or manually enter data for one or more bar codes.

Getting Ready to Place Filter Holders in Collectors

Before you use the **Dispatch** tab, you have taken a properly prepared filter from the field operations facility to place into a collector. Now that you have custody of the filter holder, you are responsible for it until you place it into a collector or return it back to the field operations facility.

Record of Accountability

When you submit data in the **Dispatch** tab, the BioWatch SMS adds the data to its current database record of accountability for the sample. The record includes the following information:

- Bar code number
- Your PIN
- Collector ID number
- Date and time of the Dispatch task

To enter your PIN in the Dispatch tab

1. With the Data Entry tab active, click the Filter Holder Entry tab and then click the Dispatch tab to display the screen.

StandAlone Console - Official Use Only

Navigation: Data Entry | Entry History | Tracking

Filter Holder Entry | Personnel Entry | Collectors | Sites | Administration Security

LoadH | **Dispatch** | DataDump | Receive | FL Receive | Return

Procedure

The 'Dispatch' tab modifies an accountability record to document that filter holders have been taken into the field

Data expectations:

1. The 'Dispatcher PIN' field will have a 4- or 8-digit number
2. The 'Filter Holder' field will have a string of 3 to 7 digits
3. The 'Barcodes' field will have one or more barcodes with a format like P123456 or P1A2B3c4d5 (a CAPITAL P followed by 6 to 9 digits or letters)

Common (diagnosed) errors:

1. Blank fields
2. An invalid or non-existent PIN
3. Non-printing characters (diagnosed as empty fields)
4. Invalid barcodes (not of form P123456)
5. Redundant (duplicate) entries. These are diagnosed at 'Submit'
6. Dispatch of a holder that has NOT been loaded

Correct barcode errors as described on the LoadH tab.

Barcodes

Dispatcher PIN

Submit

Messages

Operator Comments

Clear

Commit

Footer: Actio... | Msg... | Comm... | E...

Figure 48. **Dispatch** tab and screen

2. Click the **Dispatcher PIN** field to turn it yellow.

Scan or type your PIN. Enter all bar codes

1. Click the **Barcodes** area to turn the field yellow.
2. Scan the bar codes of each filter holder.

or

Type the bar code of one filter holder and then press **ENTER** to enter it and go the next line where you can enter the next bar code.

Note Each bar code begins with a capital **P** followed by six digits.

To submit your entries

1. Read your entries to be sure they are correct and, if you see an error, correct it.
2. Click the **Submit** button to submit your entries to the Sample Database.
3. Read the information in the **Messages** area to see if the submit was successful or if errors exist. If errors exist, follow the instructions in the **Messages** area or use the next steps to correct PIN and some bar code errors.

Correcting PIN and Bar Code Errors

This section gives you the steps to correct errors in the **Dispatcher PIN** field and some errors in the **Barcodes** area. After correcting errors, click the **Submit** button and check for any remaining errors.

You can delete bar codes in different ways, depending on how many and which ones you want to delete. If after deleting any bar codes you need to enter others, repeat steps 1 and 4 of *To enter your PIN in the Dispatch tab*.

To correct an error in the Dispatcher PIN field

1. Click the **Dispatcher PIN** field to turn it yellow.
2. Press **BACKSPACE** to delete the incorrect numbers.
3. Scan or type the correct PIN.

To delete one bar code

1. Click the bar code to highlight it.
2. Click the red **Delete** button or the **DELETE** key to delete the bar code.

To delete more than one bar code

1. Click one bar code you want to delete to highlight it.
2. Hold the **CTRL** key and then click each of the other bar codes you want to delete. All the bar codes you want to delete are now highlighted.
3. Click the red **Delete** button or the **DELETE** key to delete the highlighted bar codes.

To delete three or more bar codes in a series

1. Click the top bar code of the series you want to delete to highlight it.
2. Hold the **SHIFT** key and then click the bottom bar code of the series you want to delete. The top, bottom, and all the bar codes in between are now highlighted.
3. Click the red **Delete** button or the **DELETE** key to delete the highlighted bar codes.

To delete all bar codes

- With no bar codes highlighted in the Barcodes area, click the red **Delete** button.

Overview of the DataDump Tab

Use the **DataDump** tab after the **Dispatch** tab. You can transfer data into the tab from your handheld computer or manually enter data for bar codes.

Figure 49. **DataDump** tab and screen

Because the steps are quite different for the DataDump tab when you transfer data from the handheld computer and when you manually enter data, they are given separately in this chapter.

- To transfer data into the **DataDump** tab, see *Transferring Data from a Handheld Computer to the DataDump Tab*.
- To manually select a data file for download in the **DataDump** tab data format, see *To manually select a file for records transfer*.
- To manually enter data in the **DataDump** tab, see *Manually Entering Data in the DataDump Tab*.

Data Recorded in the DataDump Tab

The **DataDump** tab records the following details about your sample collection:

- Bar codes of the new and old filter holder

- ID of the PSU collector
- Deployment Site Number
- PIN of the Field Operator removing the sample
- Date and time of the collection operation
- Flow rates of the air passing through the sample
- Duration of the sample
- Type of replenishing operation
- Comments about any unusual conditions

All your entries in the **DataDump** tab must match those on the **Filter Holder Log Form**.

Replenishing Operations

The three types of replenishing operations you can enter in the **DataDump** tab are **Initial**, **Cont** (for continuation), and **Final**. The next table tells you when to enter each one in the **Operation** field.

Table 8. Description of replenishing operations

Type of Replenishing operation	Enter this operation when
Initial	Putting a collector into the field for the first time at a new site or when replacing a defective collector.
Cont (continuation)	Removing a sample from the previous day and replacing it to start the collection of a new sample. This is the most common entry.
Final	Removing a sample from the previous day. The filter holder will not be replaced with another holder due to site maintenance or for other reasons.

Transferring Data from a Handheld Computer to the DataDump Tab

If you are using a handheld computer, follow the steps in this section to transfer data into the **DataDump** tab.

To transfer data into the DataDump tab

1. With the **Data Entry** tab active, click the **Filter Holder Entry** tab and then click the **DataDump** tab to display the screen.
2. Place your handheld computer in its cradle and then turn it on.
3. Press the **HotSync** button to transfer data to your desktop computer. On your desktop screen, the **HotSync Progress** window displays status messages followed by a **Synchronization Progress** window.

Note One beep sounds when you press the **HotSync** button and then you hear three upward tones.

4. When you hear three downward tones, the data transfer is complete. On the handheld computer, the **HotSync** screen displays a completion message, such as **HotSync** operation complete.
5. On the far left side of the **DataDump** tab, select the **HotSync Performed?** check box.
6. Below **HotSync Performed?**, click **DataDump** to display the data transferred from the handheld computer.

To manually select a file for records transfer

1. On the far left side of the **DataDump** tab, select the **Manually Select Janam Database File** check box and the **HotSync Performed?** check box.
2. Below **HotSync Performed?**, click **DataDump** to display the file chooser dialog that contains files with data records. Double click on the file name that is intended for download or highlight this file name and click **Open** button.

Note The file names are collected from different folders and prepended by their paths for choosing convenience. Operation may be cancelled if the intended file is not found or mind is changed.

To submit your entries

1. Read the entries to be sure they are correct and, if you see an error, correct it.
2. When the data is correct, select the **Checked Data?** check box and then click the **Submit** button to submit your entries to the Sample Database.
3. Read the information in the **Messages** area to see if the submit was successful or if errors exist. If errors exist, use the next steps to correct the errors.

To correct an error

1. Click the field with the error and use the keyboard to make the correction.
2. Click the **Submit** button and then read the information in the **Messages** area to check for any remaining errors.
3. Repeat steps 1 and 2 to correct any other errors.

To delete certain blocks of the data panel

If you want to remove certain data records from the data panel before submitting them to the database, you will first need to mark them for deletion.

After the selected data records have been marked for deletion, press the **DELETE** key or the **BACKSPACE** key on the keyboard. A dialog box will open asking the user to confirm that the deletion is intended. If confirmed, the selected blocks are deleted from the data panel.

To mark a single data block for deletion

- To select a single data block for deletion, click on its block panel (not in its text field) with the left mouse button. The border of the selected blocks turns red.
- To deselect a single data block, left-click on the block again.

To mark a group of blocks for deletion

- To select a group of blocks, click on the block panel to turn the focus on that block and then press the letter **C** on the keyboard. All blocks above the block with the focus on and up to another selected block (or to the top of the list) become selected, as shown by their red borders.

Important Do not click anywhere on the block panel after the focus has been turned on.

- To deselect a group of blocks, when the focus is on a block, press the letter **D** on the keyboard. All blocks above the block with the focus on and up to the first not-selected block (or to the top of the list) become deselected.

StandAlone Console - Official Use Only

Data Entry | Entry History | Tracking

Filter Holder Entry | Personnel Entry | Collectors | Sites | Administration Security

LoadH | Dispatch | DataDump | Receive | FL Receive | Return

☐ Manually Select Janam Database File

☐ HotSync Performed? ☐ Checked Data? **Add Blank Data Block** **HELP**

Data Dump **Submit** **Clean Up**

Old Holder	Collector ID	Site Number	Field Operator ID	Date and Time	New Holder
Initial Flow	Final Flow	Duration	Operation	Comments	

Old Holder	Collector ID	Site Number	Field Operator ID	Date and Time	New Holder
Initial Flow	Final Flow	Duration	Operation	Comments	

Old Holder	Collector ID	Site Number	Field Operator ID	Date and Time	New Holder
Initial Flow	Final Flow	Duration	Operation	Comments	

Messages

Operator Comments

Clear **Commit**

Action... Msg... Comm... E...

Figure 50. Data blocks marked for deletion are indicated by the red borders

To erase the data from the data panel and start over

- If for any reason you want to start over, click the **Clean Up** button to remove the transferred data and then repeat the steps in *To transfer data into the DataDump tab*.

Deleting Records

At the end of your workday or before you start the next day's tasks, delete all records from your handheld computer.

Important This prevents problems caused by overwriting any corrected data with uncorrected data.

To delete all PSU records from your handheld computer

1. Power on your handheld computer and tap the **BioWatch Black Eagle** icon to go to the **Home** screen.
2. Tap the **PSU** button to go to **PSU Record List** screen.
3. On the **PSU Record List** screen, tap the **Delete** button. A message above the **Delete** button displays telling you how to delete records.

Figure 51. PSU Record List records marked for deletion

4. On the **PSU Record List** screen, tap each record to mark it for deletion.

Note If you don't see the PSU ID that you want to delete, use the scroll arrows to display the rest of the IDs

5. Tap **Delete** to display the **Confirm Deletions** window, which asks if you're sure you want to delete the records.

Figure 52. Confirm Deletions window

6. If you're sure that you want to delete the marked records, tap **Yes**.

or

Tap **No** to return to the **PSU Record List** screen and step 4.

Manually Entering Data in the DataDump Tab

If you are **not** using a handheld computer, follow the steps in this section to transfer data into the **DataDump** tab.

To enter data into the DataDump tab

1. With the **Data Entry** tab active, click the **Filter Holder Entry** tab and then click the **DataDump** tab to display the screen.
2. Click the **Add Blank Data Block** button in the top right corner on the panel.

Figure 53. **DataDump** tab and screen with blank data block

3. Fill in the entries in the data block following the required formats (see **Format for required data fields**, which is the next subsection).
4. Repeat steps 2 and 3 for each data block you need to enter.
5. Follow the steps of the previous section for checking and submitting the data entered.

Format for required data fields

Holder fields – enter the barcode for the filter holders here. The barcodes should have a **P** followed by six digits (for example, P000123).

Collector ID – should consist of 3 to 7 digits (for example, 123, or 1122345).

Site Number – should consist of two sets of three digits separated by a hyphen (for example, 111-222). The first set of digits should be your campaign number and the second is a unique identifier for the site within your jurisdiction.

Date and Time – record the time of the operation using the following format *mm/dd/yy hh:mm* (for example, 04/23/13 11:02).

Flows – non-negative whole numbers in gallons per minute (for example, 95).

Duration – non-negative real number in decimal hours (for example, 24.5).

Operation – there are three possible entries for this field depending on the type of operation performed:

- **Initial** – is used when a collector is first deployed at the site (the new and old holder barcodes should be identical). This is typically used when swapping the collector deployed at a site for maintenance purposes or when a new site is commissioned.
- **Final** – is used when a collector is removed from a site (the new and old holder barcodes should be identical). This is typically used when swapping the collector deployed at a site for maintenance purposes or when an old site is decommissioned.
- **Cont** – is the most common entry which is used when a new filter holder is swapped out for the old filter holder while the PSU is in continuous operation.

Comment – any relevant comments regarding the conditions surrounding the collector or the filter holder. There is no specific format for this field.

Chapter 5. Checking and Editing Data

This chapter gives you information about checking and editing data in the BioWatch SMS. The Tracking tab is where you find the three main tabs to check and edit data:

- **Check Data**
- **Data View and Edit**
- **Exposure History**

After you check for errors in collector records by using the **Check Data** tab, you need to correct the errors by editing the data in the **Data View and Edit** tab. You can print the results of your data check in the **Check Data** tab. After correcting errors, always recheck the collections using the **Check Data** tab again for any remaining errors. The **Exposure History** tab shows you the time frames of filter holder use and receipt.

Sometimes a correction requires deleting bar codes from a standalone computer using the **Actions** menu. However, you must have supervisor permission before deleting any bar codes.

Another part of checking data involves the **TransactionBacklog** tab, which displays on client and server computers from the **Data Entry** tab. If the network goes down, you use this tab to see what data hasn't been sent yet to the Sample Database so that you can resend the data.

The steps for checking and editing data are given in the following sections of this chapter:

- Checking Collector Records for Errors
- Printing the Data Check Results
- Correcting Errors in Collector Records
- Checking the Exposure History of Collectors
- Deleting Bar Code Numbers (with supervisor permission only)
- Checking the Transaction Backlog

Checking Collector Records for Errors

You use the **Check Data** tab to check today's collection and to check the entire Sample Database for errors. Buttons for the two types of data checks, **Check**

Today's Collection and **Check The Entire Database**, are located in the middle of the screen.

When you click either of these buttons, the BioWatch SMS checks the data in the Sample Database for errors and does one of the following:

- If it doesn't find any errors, the screen displays this message: **0 errors were found in the database**
or
- If it finds errors, the screen displays each bar code that has an error and a brief description of the error.

Note You can click on the bar code to go to the **Data View and Edit** screen to correct the data.

Types of Errors

The way BioWatch SMS checks for errors is by comparing data in the databases. These are the types of errors it checks in the data:

- Incorrect location of current record when compared to its last location
- Incorrect time (for example, a **LoadH** time after a start time)
- A missing event (for example, a stop time without a **Dispatch** time)
- A **PIN** or **Collector ID** that isn't in a database
- A duration or flow rate entered with letters instead of numbers

Checking Today's Collection

At the end of your workday, you need to check the day's collection and correct any errors. After the results of the data check display on the screen, you can print the results by using the **Print This Screen** button.

Note For details about using the **Print This Screen** button, see *Printing the Data Check Results*.

To check today's collection

1. With the **Tracking** tab active, click the **Check Data** tab to display the **Check Data** screen.

Figure 54. First **Check Data** screen

2. Under **Select the PINS to use for the Check of Today's Collection**, click one of the following selections described in the next table.

Table 9. PINs to select when using Check of Today's Collection

Selection	Click this selection
The operator's PIN: (followed by your PIN)	To display data only for your PIN.
All PINs	If your supervisor tells you to use this selection. <i>or</i> If a bar code is wrong and you need to see if the PIN for the stop time is incorrect. <i>or</i> If a bar is missing or white in the Exposure History tab. For more information, see Checking the Exposure History of Collectors .
Enter the PINs to use below separated by spaces:	For supervisor use only.

3. Click the Check Today's Collections button to check the data and display the results of the data check.
4. If you see the **0 errors were found in the database** message, go to the next step.

or

If error messages display, correct the errors by following the steps in **To correct errors that display in the Check Data tab.**

5. If your supervisor requires a printout of the screen that shows the results of the data check, continue to the next procedure, **Printing the Data Check Results**.

or

If your supervisor asks you to check the entire database, continue with **To check the entire database.**

Printing the Data Check Results

If your supervisor requires a printout of the results of your data checks, you can easily create a printout for today's collection or the entire database. After you click the **Check Today's Collection** button or the **Check The Entire Database** button, the screen shows how many errors it found.

The BioWatch SMS may not find any errors. If that's the case, the screen displays this message: **0 errors were found in the database**. Otherwise, the message shows the number of errors it found and, in the area below the message, a description of each error.

To print the screen showing the results of the data check

1. When you see (on the **Check Data** screen) the number of error messages that the BioWatch SMS found, click **Print The Screen** to display the **Page Setup** window.

Figure 55. Page Setup as Portrait or Landscape

2. The **Orientation** of the **Page Setup** is **Portrait**. If you want to print the report as shown at the top of the **Page Setup** window, click **OK**.

or

If you want to print the report with the page wider than its height, click **Landscape** for a picture of its **Page Setup** and then click **OK**.

3. When the **Print** screen displays, check the following fields to see that they show the information described and make any corrections:
 - **Name:** shows the name of the printer you want to use.
 - **Print range** is set to **All**.
4. Click **OK** to print the screen showing the results of the data check.
5. If your supervisor wants you to check the entire database and you haven't checked it yet, continue to the next procedure.

Checking the Entire Database

If your supervisor asks you to check the entire database for errors, follow the steps in the next procedure.

To check the entire database

Note If you just checked today's collection and still see the **Check Data** screen, start with step 2.

1. With the **Tracking** tab active, click the **Check Data** tab.
2. Click the **Check The Entire Database** button.
3. If you see the **0 errors were found in the database** message, continue to the next step.

or

If error messages display, correct the errors by following the steps in *To correct errors that display in the Check Data tab*.

4. If your supervisor requires a printout of the screen that shows the results of the data check, print the screen.

Note For details, see *To print the screen showing the results of the data check*.

Correcting Errors in Collector Records

If the BioWatch SMS finds errors when you click **Check Today's Collection** or **Check The Entire Database**, a list of errors displays at the bottom of the screen. The next figure shows an example of the first three of four error messages.

Note Use the scroll bar on the right side of the screen to scroll down to see the fourth error message.

To display the complete list of error messages

1. Hold the arrow at the bottom of the scroll bar to display the rest of the screen.

Figure 56. List of errors shown in **Check Data** tab

2. Use the **Data View and Edit** tab, which you can display from the **Check Data** tab, to correct the errors as described next.

To correct errors that display in the Check Data tab

1. Read the first error message.
2. On the left side of the error message, click the bar code to go to the **Data View and Edit** tab. For example, in Figure 56, click the **P100005** button to see the **Data View and Edit** screen for **P100005**. This screen is shown in Figure 56, which also shows the elements of the **Check Data** screen.

Important *For client computers only:*

The software in the **Data View and Edit** tab has a bug. The **Database Viewer** may display incorrect data when you click a bar code button on the **Check Data** screen. The wrong bar code may display in the Database Viewer in the **Current Record** field. If you see the wrong bar code in this field, go to the **RI Panel** and click the button of the bar code you want. This displays the correct bar code in the **Current Record** field and the correct data for the bar code in the **Database Viewer**.

3. Correct the data in all fields that have errors. The following section describes the fields in the **Database Viewer** and provides instruction on how to edit them.

Note If errors aren't corrected, the Centers for Disease Control and Prevention (CDC) database cannot accept all the data from the BioWatch SMS.

4. Repeat the steps in *To check today's collection* to be sure that no errors remain.

Elements of the Data View and Edit Screen

The next figure shows the elements of the **Data View and Edit** screen. Notice that the screen is divided into two panels — the **Database Viewer** is on the left and the **RI (record item) Panel** is on the right. The **RI Panel** lists all the available bar codes that you can display.

To display data for another bar code

- In the **RI Panel**, click the bar code you want.

Figure 57. Elements of the **Data View and Edit** screen

The new **Data View and Entry** screen displays fields that are directly editable. Users no longer need to click on sensor-specific buttons to enter and view data. In addition, some of the fields have been renamed. For example, in the new **Data View and Entry** screen, the **Route** and **Site Number** fields replace the **Group** and

Location fields, respectively, used in earlier versions of the BioWatch SMS system.

The elements of the **Data View and Edit** screen are listed below.

Type

This field holds the only type of holder for which the **Database Viewer** is currently displaying data. It is called Filter Holder.

Existing or New

When **Existing** displays, this field tells you that the bar code has a history of data in the Sample Database. If you click the drop-down arrow, you can select **New** to create a new record.

Find

You can see the records for another collector of this type by clicking the drop-down arrow. If you don't see the bar code you want, use the arrow at the bottom of the scroll bar to see more selections.

Note The bar codes in the Find field are the same as those in the RI Panel.

Current Record

This field displays the bar code of the record that currently displays on the screen.

Status

This displays the last action under the **Actions** heading for which data was entered.

Collector ID

This field displays the identification number of the collector.

To edit the Collector ID

1. Under the **Collector ID** label, click the **Collector ID** button to display the Identity Setter window.

Figure 58. **Identity Setter** window

Note You can click **Clear** to remove all data from the **Identity Setter** window or use the **BACKSPACE** key to remove data from a field. The name field requires three to seven digits. If you enter one digit, the BioWatch SMS adds two zeros in front. If you enter two digits, the system adds one zero in front.

2. With the pointer in the name field, edit the **Collector ID**.
3. Click **Set** to send the corrected data to the **Data View and Edit** screen.

Site Number

This field displays the **Site Number** where the filter holder was deployed. The **Site Number**, which is assigned by the supervisor and entered in the Sites database, should be in the following format: xxx-xxx, where *x* is any decimal number.

To Edit the Site Number

1. Click on the **Site Number** edit box.

Note You can select all of the previous data from the **Site Number** edit box to prepare the edit box to overwrite the data or use the **BACKSPACE** key to remove data from a field.

2. Overwrite the **Site Number** in the edit box with the desired value making sure to conform to the standard **Site Number** format listed above.

Actions

Under the **Actions** heading are six types of actions for PSU collectors — **Create**, **Dispatch**, **Start**, **Stop**, **Receive**, and **FL Received**.

Times

Next to each of the actions listed under the **Actions** heading is the **Times** heading. Under this heading a time displays for each completed action. If an action isn't

complete, undefined displays. You can click the displayed time or undefined to display the **Edit date/time** window.

Figure 59. **Edit date/time** window

On the left of the window, you can edit three date fields — **mo**, **day**, and **yr**. The two fields on the right let you edit the time — **hr** (in 24-hour time) and **min**.

To change the date or time

1. Under the **Times** heading, click the time field for the action you want to edit.
2. In the **Edit date/time** window, click the number you want to edit to highlight its field.
3. Overwrite the field with your values.
4. Click the **Commit** button to send your corrections to the **Data View and Edit** screen.

Handlers

This field either displays the **ID of the Field Operator** who entered the data or it may be blank. When you click the field, the **Handler Setter** window displays and the pointer blinks in the **PIN** field so that you can edit the **PIN**.

Figure 60. Handler Setter window

To edit the Handler ID

1. Under **Handlers**, click the field for the action you want to edit.

Note You can click **Clear** to remove all data from the **Handler Setter** window or use the **BACKSPACE** key to remove data from a field.

2. Edit the **PIN** field. You can leave the **lastName** and **firstName** fields blank.
3. Click **Set** to send the new data to the **Data View and Edit** screen.

Record Items

The essential elements of the record are displayed in the last data column and may be edited. Each of these fields may be left empty.

Unit Lot

The format of this field is any appropriate string.

Initial Flow, Final flow

These strings may be entered as any positive real decimal number of gallons per minute. During the **Save** operation these numbers are rounded off to the nearest integer.

Duration

Deployment time of the filter as real decimal number of hours. If the **Start** and **Stop** time are present, this field is calculated during the **Save** operation and corrected if it is not within the tolerance. The user informed of calculation by a message.

Route

The last string, Route, is in arbitrary format and it a grouping assigned to the holder unit by the supervisor and is entered in the Collectors database.

Reset button

Important If you are using a client or a server computer, the screen displays the **Update** button in place of the **Reset** button. See **Update** button described next.

For standalone computers only:

If the data in the **Data View and Edit** screen is missing, click **Reset** to refresh what you see on the screen. Then you can make your corrections.

When you click **Reset**, the **Confirm Reset This Record** window displays to let you change your mind. If you click **Yes**, you lose all your changes.

Figure 61. **Confirm Reset This Record** window

Update button

Important If you are using a standalone computer, the screen displays the **Reset** button in place of the **Update** button. See **Reset** button described previously.

For client and server computers only

If the data in the **Data View and Edit** screen appears incorrect or if after clicking **Save** you get a message saying that the computer can't find the server, click **Update** to match the data on the client with the data on the server. Then you can make your corrections.

When you click **Update**, the **Confirm Update the Database** window displays to ask if you really want to update the database. When you click **Yes**, you lose all of your unsaved changes.

Figure 62. **Confirm Update the Database** window

Note When the server or internet goes down, you may see incorrect or no data.

Save button

After completing all your entries for the collector in the **Database Viewer**, click **Save** to record your edits in the database. Then go to the **Check Data** tab to check for any remaining errors.

Checking the Exposure History of Collectors

Use the **Exposure History** tab to see the time frame of filter holder use and receipt. The **Exposure History** screen displays horizontal bars that give you information about the time frame of the different phases of the sample collection.

Settings Tab

The amount of data that automatically displays in the bars is about two days. When you click the **Settings** tab, which is located at the end of the third row of **Exposure History** tabs (see Figure 63), the **Plot Durations** window displays.

Figure 63. **Plot Durations** window

You can see that **About two days** is selected. If want to see more or less data in the bars, click any of the other choices.

About the Bars

The length of the bars on the screen shows the start and stop times of different sample collection tasks. The colors of the bars let you know where the collector is in its process of sample collection.

Color of bar	Means the database includes data for the collector from a LoadH through
White	a stop
light gray	a Receive (first laboratory location)
dark gray	an FL Receive (second laboratory location)

The top bar in the next screen shows information about **103**. The white bar shows the time frame of one bar code removed from the collector. The light gray bar shows the time frame of another bar code removed from **103** and received at the first **Receive** location.

Figure 64. **Exposure History** screen with white and light gray bars

If you're using a client computer, an **Update** button displays below the bar display area.

Figure 65. **Update** button on client **Exposure History** screen

Click the **Update** button any time you come back to the **Exposure History** screen and when you think you've fixed the errors using the **Check Data** tab and the **Data View and Edit** screen.

The next figure is an example of dark gray bars in an **Exposure History** screen, showing that three filter holders were **FL Received** at the laboratory.

Figure 66. Dark gray bars in **Exposure History** screen

To see the bar code number of a white or gray bar

Hold the cursor over the bar to display the bar code of the filter holder.

Figure 67. Bar code of filter holder

Bar Missing?

A missing bar means that a bar code error exists. These are the possible causes of a missing bar:

- Stop time before start time
- The bar code entered is for the wrong collector
- The collector is assigned to the wrong route

For information about checking for and making corrections, see **Checking Collector Records for Errors** and **Correcting Errors in Collector Records**.

Exposure History Display Buttons

On the **Exposure History** screen to the left of the bar area are buttons that can be used to display the **Exposure History** bars in different ways. An example of these buttons is shown the next figure.

Figure 68. Display buttons on the **Exposure History** screen

To select an Exposure History button

Click the button. It turns yellow to show it is active and displays the selected type of data, if any exists, in the bar area to its right. In Figure 68, the **Draw All** button is yellow, which means it is active.

Below the **Draw All** button is the default button. The BioWatch SMS names the other buttons based on the route and collector names.

Next is a description of the Route and **Collector ID** buttons, using the buttons in Figure 68 as examples of what you might see on the **Exposure History** screen.

Draw All

Click this button to display bars for all the collectors in your sample collection.

default

This is the default route. If your supervisor didn't assign some or all collectors to a route, you can display those collectors by clicking default. If your supervisor assigned all collectors to one or more routes, then the default route is empty. When you click default in this case, the bar area is blank.

Route 1 (or your collector group name)

This is the name your supervisor assigned to a route. It can be any name. **Route 1** is a route name in Figure 69. Indented below each route is the list of collectors in the route.

Under **Route 1** are **102** and **101**, the two collectors assigned to the **Route 1**. When you click **Route 1**, the bars of all collectors in that group display to the right. Because **Route 1** has two collectors, two bars display as shown in the next figure.

Figure 69. Display of bars for the two sensors in **Route 1**

102 (or your collector name)

This is the name of a collector in **Route 1**. When you click **102**, its bar displays as shown in the next figure.

Figure 70. Display of the bar for **102**

Quick Way to Go to Data View and Edit Screen

When bars display in the Exposure History screen, you can quickly go to the **Data View and Edit** tab.

To Go to the Data View and Edit screen to see a bar code's data

- Click any part of the white, light gray, or dark gray bar that displays in the **Exposure History** screen.

The next figure is an example of the **Data View and Edit** screen that displays when you click the bar for **102**.

Figure 71. Data View and Edit after clicking the 102 bar

Notice in the **RI Panel** of the figure that the bar code **P100002** for the collector is highlighted in yellow. Also, the **Reset** button displays at the bottom of the screen instead of the **Update** button. This is because the example screen is from a standalone computer, not a client or a server.

Important *For client computers only:*

The software in the **Data View and Edit** tab has a bug. The **Database Viewer** may display incorrect data when you're in the **Exposure History** screen and click a bar. The wrong bar code may display in the **Database Viewer** in the **Current Record** field. If you see the wrong bar code in this field, go to the **RI Panel** and click the button of the bar code you want. This displays the correct bar code in the **Current Record** field and the correct data for the bar code in the **Database Viewer**.

Deleting Bar Code Numbers

Important If you are using a client computer, skip this section. Your **Actions** menu doesn't include the **Delete a Database Item** selection.

For standalone and server computers only:

Before you can delete bar code numbers using the **Actions** menu, your supervisor must give you permission.

To delete a bar code number

1. Get permission to delete bar codes from your supervisor.
2. Click the **Actions** button to display the **Actions** menu and then select **Delete a Database Item** to display the **Record ID** window.

Figure 72. The **Record ID** window

3. If you don't see the pointer shown here in the **Record ID** field, click the field to display a blinking pointer.
4. Type the number of the bar code you want to delete (for example, **P100007**) and then click **Delete**. The **Select an Option** window displays to ask if you're sure you want to delete the record.

Figure 73. Select an **Option** window to confirm deletion

- If you really want to delete the record whose number displays in the window, click **Yes** to display the **INFORMATION_NOTICE** window and then continue to the next step.

Figure 74. The **INFORMATION_NOTICE** window for deleting a record

or

- Click **No** or **Cancel** and then, if you want to delete a different record, return to step 2, click on the **Actions** button.

5. In the **INFORMATION_NOTICE** window, which displays a message that the BioWatch SMS deleted the bar code record from the Sample Database, click **OK** to acknowledge the message.

Checking the Transaction Backlog

Important The **TransactionBacklog** tab isn't available on standalone computers.

For a client or server computer only. If the network goes down before data is sent to the database, the letters on the **TransactionBacklog** tab are red.

Figure 75. Red **TransactionBacklog** letters show data wasn't sent

When you click the red **TransactionBacklog** tab, a screen displays a list of submitted data that didn't reach the Sample Database. See Figure 76.

Figure 76. List of data to resend on the **TransactionBacklog** screen

When the network connection is restored, you can resend the data in either of two ways:

- By using the **TransactionBacklog** screen
- By redoing your work. See the next sections for the two different procedures.

To resend data using the TransactionBacklog screen

1. Click the red **TransactionBacklog** tab to display the **TransactionBacklog** screen.
2. Click the top item on the screen to highlight it.

Important Always start from the top and go to the next item in the list. If you resend the transactions out of order, this may cause errors.

Figure 77. Top item highlighted to resend

3. On the right side of the screen, click the **Resend Transaction** button. At the bottom of the screen, a message displays in the Messages area to let you know whether the item reached the Sample Database.

4. Read the message and do one of the following:
 - If a **Successful Resubmit** message displays, click the new top item on the screen. The previous item no longer displays.
 - or*
 - If a **Resubmit Failed** or a **Failed Again** message displays, try to correct the error.
5. Repeat steps 2 to 4 until you successfully resend all data to the database.

To resend data by redoing your work

1. Click the red **TransactionBacklog** tab to display the **TransactionBacklog** screen.
2. Click the top item in the list to highlight it and then, on the right side of the screen, click the **Delete Selection** button to delete the item.
3. For each item in the list, repeat step 2 until you delete all items from the screen.
4. Use one of the following to reenter the data (see the next table for the pages with the steps to transfer data using the tabs):
 - The paper records to reenter the missing data.
 - or*
 - Your handheld computer to transfer data to the **DataDump** tab, see *Transferring Data from a Handheld Computer to the DataDump Tab*.
5. On the **Data Entry** tab, click **Submit** to resend the data to the Sample Database.

Chapter 6. Daily XML File and Chain-of-Custody Form

The **Daily XML File** shows the details about the day's sample collections. The **BioWatch Chain-of-Custody Form** documents on one form the transfer of custody of a group of samples from a jurisdiction's field organization to its laboratory organization.

Creating a **Daily XML File** each day is required, but creating a **BioWatch Chain-of-Custody Form** is optional. The form is optional because you or your supervisor can sign the chain-of-custody directly on the sample bags.

Note You can click on the bar code to go to the **Data View and Edit** screen to correct the data.

Creating the Daily XML File

Every day, you must create a **Daily XML File** for the day's collection. The file summarizes the records of the filter holders exposed that day. Sometimes this file is called the **Dump Daily Collections Report**. The information in the file (or report) begins with details about each bar code number, continues with details about each task, and ends with comments.

Depending on the requirements of your jurisdiction, you may need to make a copy of the **Daily XML File** after creating the file. Check with your supervisor to find out if you need to make a copy.

For more information about copying files, see *To Copy or Not To Copy the Daily XML File*.

Information in the Daily XML File

At the top of each **Daily XML File**, the BioWatch SMS shows the following information:

- Bar code number
- Sensor (collector) type (PSU), name (Collector ID), group (Route), Location (jurisdiction where collector was deployed), Site Number), and Lot
- Initial and final flow
- Duration

Next, the **Daily XML File** shows the following information about **Create** (LoadH), **Dispatch**, **Start**, **Stop**, **Receive**, and any **FLReceive** tasks:

- Date
- Time
- Handler (Field Operator) ID

At the end of the **Daily XML File** are a variety of comments. This includes comments from data checks on different dates and any other comments.

Example of a Daily XML File

The next figure is an example of a **Daily XML File** for filter holders with a stop time after midnight on June 13, 2008. You can see how the BioWatch SMS displays the data about these collections.

```

<?xml version="1.0" encoding="UTF-8"?>
<Report>
  <title>SUMMARY OF RECORDS EXPOSED AFTER 11/27/12 00:00:00 MST</title>
  <Record>
    <Barcode>P100006</Barcode>
    <Sensor_Type>PSU</Sensor_Type>
    <Sensor_Name>103</Sensor_Name>
    <Sensor_Route>Route 2</Sensor_Route>
    <Sensor_Location>Los Alamos, NM</Sensor_Location>
    <Sensor_Site>999-003</Sensor_Site>
    <Lot>11/19/2012</Lot>
    <Initial_Flow>95</Initial_Flow>
    <Final_Flow>95</Final_Flow>
    <Duration>24.2</Duration>
    <states>
      <Event_Type>
        Create
        <Create_Date>11 26 12</Create_Date>
        <Create_Time>07:38:00 MST</Create_Time>
        <Create_Handler_ID>1234</Create_Handler_ID>
      </Event_Type>
      <Event_Type>
        Dispatch
        <Dispatch_Date>11 26 12</Dispatch_Date>
        <Dispatch_Time>07:38:00 MST</Dispatch_Time>
        <Dispatch_Handler_ID>1234</Dispatch_Handler_ID>
      </Event_Type>
      <Event_Type>
        Start
        <Start_Date>11 26 12</Start_Date>
        <Start_Time>07:40:00 MST</Start_Time>
        <Start_Handler_ID>1234</Start_Handler_ID>
      </Event_Type>
      <Event_Type>
        Stop
        <Stop_Date>11 27 12</Stop_Date>
        <Stop_Time>07:53:00 MST</Stop_Time>
        <Stop_Handler_ID>1234</Stop_Handler_ID>
      </Event_Type>
      <Event_Type>
        Receive
        <Receive_Date>11 27 12</Receive_Date>
        <Receive_Time>09:39:00 MST</Receive_Time>
        <Receive_Handler_ID>1234</Receive_Handler_ID>
      </Event_Type>
    </states>
    <Exposed>Yes</Exposed>
    <Result>none</Result>
    <comments>
      <Entry>b Nov 20 2012 at 07:52:50 MST</Entry>
      <Entry>b Nov 20 2012 at 07:54:24 MST</Entry>
      <Entry>b Nov 20 2012 at 07:54:32 MST</Entry>
      <Entry>b Nov 20 2012 at 07:57:07 MST</Entry>
      <Entry>b Nov 27 2012 at 09:39:37 MST</Entry>
    </comments>
  </Record>
</Report>

```

Figure 78. Example of a Daily XML File

To create the Daily XML File

1. In the **Actions** menu, select **Dump Today's Collection**.

Figure 79. **Dump Today's Collections** on **Actions** menu

2. A window displays with today's date and a time of 00:00. This tells the BioWatch SMS to show in the **Daily XML File** all bar codes with stop times after the previous midnight.

Figure 80. Time after which stop times show in the file

Do one of the following:

- Click **OK** to create the Daily XML File.

or

If you want to use a different date or time, edit the numbers and then click **OK** to create the **Daily XML File**.

An **INFORMATION_NOTICE** window displays letting you know that the BioWatch SMS created the **Daily XML File**. It also shows the name and location of the file.

Figure 81. **Information_Notice** about new **Daily XML File**

Name and Location of Daily XML File

The name of the **Daily XML File** includes its creation date and time. For example, the **Daily XML File** named **iXML_DataBase_0624080753** shown in Figure 81 was created on June 24, 2008 at 7:53 a.m.

After the BioWatch SMS creates a **Daily XML File**, it puts the file in the your campaign folder.

Figure 82. **Daily XML File** located in **Campaigns** folder

The name of your campaign folder is **campaign###**, where **###** is the number of your campaign. Your campaign folder is located in the **Campaigns** folder.

To Copy or Not To Copy the Daily XML File

In some jurisdictions that use a multi-computer console, the people at the laboratory can pull the **Daily XML File** directly from your campaign folder whenever they need the file.

In other jurisdictions, people need a copy of the **Daily XML File**. Check with your supervisor to see if you need to make a copy of the file and if so, whether to copy the file to a thumb drive or to a CD.

Note The thumb drive or CD accompanies the samples to the laboratory.

To make a copy of the Daily XML File

1. Insert the thumb drive or CD into your computer.

2. Open the **BioWatch SMS** folder and then double-click the **software** folder.
3. Double-click the **Campaigns** folder to open it and then double-click the **campaign###** folder, where **###** is the number of your campaign.
4. Find and click the **iXML_DataBase_** file that shows the date and time of the file you want to copy. For example, **iXML_DataBase_0624080753**.
5. On the left side of the window under **File and Folder Tasks**, click **Copy this file**.

Figure 83. **Copy this file** is third on the list

6. When the **Copy Items** window displays, click the location names until you reach the CD or the thumb drive.

Figure 84. **Copy Items** window

7. When the thumb drive or CD is underlined, click **Copy** to copy the file to the thumb drive or CD.

About Chain-of-Custody Forms

A **BioWatch Chain-of-Custody Form** includes the following information about samples removed from the collectors in the field:

- Name and PIN of the Field Operator
- Sample collecting organization and its location
- Collector ID and sample bar code number
- Data and time custody was released and received
- Disposition and witness information

You create, check, and print **BioWatch Chain-of-Custody Forms** through the **Tracking** tab. When you click the **Tracking** tab, the **Chain-of-Custody** and the **Check the Chain-of-Custody** tabs are available.

Customizing Forms

You can customize the **BioWatch Chain-of-Custody Form** in several ways to show the information you need. The form can show:

- Records for only your PIN, for all PINs, or for the PINs you list on the form
- Today's samples or a range of samples based on the start and stop times you enter
- Records sorted by **bar code** by **Collector ID**, or **Site Number**

Chain-of-Custody Screen

Figure 85 shows the upper part of the **Chain-of-Custody** screen. This is where you make selections to customize the form the way you want.

Notice the buttons at the top and bottom of Figure 85. The selections to customize the form are located in the middle of the screen.

As you scroll down the **Chain-of-Custody** screen, you can see more and more of the **BioWatch Chain-of-Custody Form**.

The lower part of the screen, shown in Figure 86, displays the **BioWatch Chain-of-Custody Form**.

The screenshot shows the 'Chain-of-Custody' screen within the 'StandAlone Console - Official Use Only' application. The interface includes a menu bar with 'Data Entry', 'Entry History', and 'Tracking'. Below this is a sub-menu bar with 'Check Data', 'Data View and Edit', 'Exposure History', 'Chain-of-Custody', and 'Check the Chain-of-Custody'. The main content area contains the following sections:

- Help for How to Make the Chain-of-Custody**: A button.
- Select the Header Information to Use**: A dropdown menu currently set to 'default'.
- Sort the Records by the:**: Three radio buttons:
 - ☒ Barcode
 - ☐ Collector ID
 - ☐ Site Number
- Select the Time Frame for the Samples**:
 - ☒ Use today's samples
 - ☐ Use a start and stop time of:
 - Enter a start time (mm/dd/yy hh:mm aa): 11/20/12 02:14 PM
 - Enter a stop time (mm/dd/yy hh:mm aa): 11/20/12 02:14 PM
- Select the Operator's PINs for this Form**:
 - ☒ The operator PIN: 1234
 - ☐ All PINs
 - ☐ Enter the PINs to use below separated by spaces:

At the bottom of the main content area are two buttons: 'Get the Barcodes' and 'Save the Header Information'. The status bar at the very bottom contains 'Actio...', 'Msg...', 'Comm...', and 'E...'.

Figure 85. Upper part of **Chain-of-Custody** screen

BIOWATCH CHAIN-OF-CUSTODY FORM			
EVIDENCE/CUSTODY PROPERTY DOCUMENT		COC Batch # 112012144919	Date Received 11/20/12 14:49 MST
Receiving Agency <i>My State Department of Public Health Laboratory</i>		Location <i>Los Alamos, NM</i>	Reason Obtained <i>BioWatch Sampling</i>
Name/Title of Person From Whom Received <i>Matthew Nelson</i>		Sampling Agency <i>My Department of Field Operations</i>	
Field Operator ID (PIN #) 1234		Street Address <i>100 Field Operations, Suite 500</i>	
Comments: <i>Flash Drive Serial Number: N/A</i>		City <i>My Favorite City</i>	State <i>ST</i>
		ZIP <i>01234</i>	
Telephone 505-667-1154			
Quantity: 3			
Description: BioWatch Air Samples			
No.	Collector ID	Site Number	Sample Barcode #
1	101	999-001	P100004
2	102	999-002	P100005
3	103	999-003	P100006
Date/Time	Released By:	Received By:	Purpose of Custody Change
	Signature	Signature	
	Print Name & Title	Print Name & Title	
Date/Time	Released By:	Received By:	Purpose of Custody Change
	Signature	Signature	
	Print Name & Title	Print Name & Title	
Date/Time	Released By:	Received By:	Purpose of Custody Change
	Signature	Signature	
	Print Name & Title	Print Name & Title	
Date/Time	Released By:	Received By:	Purpose of Custody Change
	Signature	Signature	
	Print Name & Title	Print Name & Title	
Final Disposition			
Check One			
☐	Released to:		
☐	Archived (specify location):		
☐	Destroyed:		
Final Disposition Authority			
Items _____ on this document pertaining to the investigation involving			
Title/Name		Organization	
are no longer required as evidence and may be disposed of as indicated above.			
Witness to Destruction of Evidence			
The article(s) listed at number(s) _____ was (were) destroyed by the evidence custodian, in my presence, on the date indicated above.			
(Type/Printed Title/Name)		(Signature)	Date
Print the Chain of Custody Form			

Figure 86. Scroll down to see BioWatch Chain-of-Custody Form

Help for How to Make the Chain-of-Custody

The **Help for How to Make the Chain-of-Custody** button is located at the top of the **Chain-of-Custody** screen. When you click the help button, information displays about the following:

- Basics about the form
- Headers
- Sorting samples
- Selecting sample times
- PINs
- Filling in data on the form
- Printing the form

Creating a BioWatch Chain-of-Custody Form (optional)

You may never need to create a **BioWatch Chain-of-Custody Form**. This is an optional task.

Before You Start

Before you start creating a **BioWatch Chain-of-Custody Form**, check with your supervisor to find out if this section applies to you. If it does, then find out the following from your supervisor:

- The heading to use for the form
- Whether to sort records by bar code or by sensor name
- Which PINs to show on the form (yours only, all, or a list)

After getting this information from your supervisor, you need to check for bar code errors and correct any errors before creating the form.

To check for and correct any bar code errors

1. Check for bar code errors in today's collection by clicking the **Tracking** tab, the **Check Data** tab, and then the **Check Today's Collection** button.
2. If any errors display, correct the errors.

Note For information about checking and correcting errors, see **Checking Today's Collection**.

To create a BioWatch Chain-of-Custody Form

1. With the **Tracking** tab still active, click the **Chain-of-Custody** tab to display the **Chain-of-Custody** screen.
2. At the top of the screen under **Select the Header Information to Use**, check the name of the header. If it's not the header your supervisor wants you to use, select the correct header from the drop-down list box.

Note If you don't see **Select Header Information to Use**, scroll up to see the top of the **Chain-of-Custody** screen.

3. Under **Sort the Records by the:**, do one of the following:
 - Keep the default **Barcode**.
 - Select **Collector ID**.

or

 - Select **Site Number**
4. Under **Select the Time Frame for the Samples**, do one of the following (see the next table for details):
 - Keep the default **Use today's samples**.

or

 - Select **Use a start and stop time of:** and then enter the dates and times in the format that displays on the screen.

When to select Use today's samples	When to select Use a start and stop time of:
You collect samples one time each day.	You collect samples two or more times each day.
	<i>or</i>
	You collected the sample before midnight and it's now after midnight.

5. Under **Select the Operator PINs for this Form**, keep the default **The operator's PIN:** followed by your PIN or select one of the following:

- All PINs
- *or*
- Enter the PINs to use below separated by spaces:

Note When entering a PIN, always leave one space before entering the next PIN.

6. Check your entries and then click **Get the Barcodes** to display the bar code data on the form. The bar code data displays between the first two blocks of information on the form, as shown in the next figure.

The screenshot shows a software window titled "StandAlone Console - Official Use Only". It contains a form with several tabs: "Data Entry", "Entry History", "Tracking", "Check Data", "Data View and Edit", "Exposure History", "Chain-of-Custody", and "Check the Chain-of-Custody". The "Chain-of-Custody" tab is active. The form displays the following information:

- Flash Drive Serial Number: N/A
- City: My Favorite City, State: ST, Zip: 01234
- Telephone: 505-867-1154
- Quantity: 6
- Description: BioWatch Air Samples

No.	Collector ID	Site Number	Sample Barcode #
1	101	999-001	P100001
2	102	999-002	P100002
3	103	999-003	P100003
4	101	999-001	P100004
5	102	999-002	P100005
6	103	999-003	P100006

At the bottom of the form, there are four fields: "Date/Time", "Released By:" (with a signature line), "Received By:" (with a signature line), and "Purpose of Custody Change".

Figure 87. Bar code data on BioWatch Chain-of-Custody Form

Note A new feature in this panel is addition of the **Output CSV** File checkbox to the right of the **Get the Barcodes** button. If this box is checked, the detailed information on the records selected when the **Get the Barcodes** button pressed will be written to an excel file located in the **DataFiles** folder of the current campaign. Notice that this feature would not work for the client in the multi-computer communication mode.

Filling in Information on the Form

After you display the bar codes and before you print the form, you need to fill in some information on the **BioWatch Chain-of-Custody Form**.

To fill in information on the form

1. If you are copying the **Daily XML File** to a thumb drive, in the **Comments** area (top left area of Figure 87), type the thumb drive's serial number.

Note If you can't see a serial number on the thumb drive, check with your supervisor to find out the number to enter in the **Comments** area.

2. Above the **Comments** area, check the two areas that show data about you and then make corrections as needed:

- Name/Title of Person From Whom Received
- Field Operator ID (PIN #)

Name/Title of Person From Whom Received Matthew Nelson
Field Operator ID (PIN #) 1234

Figure 88. Data about you above **Comments** area

3. If your supervisor asks you to check other areas in the top block of the **BioWatch Chain-of-Custody Form**, check the data and edit it as required by your supervisor. Table 15 lists the items in the top block of information.

or

Continue with the next procedure to print the form.

Table 10. Top block of the BioWatch Chain-of-Custody Form

Left side of information block		Right side of information block	
		COC Batch # **	Date Received **
Receiving Agency		Location	Reason Obtained **
Name/Title of Person From Whom Received **		Sampling Agency	
Field Operator ID (PIN #) **		Street Address	
Comments		City State Zip	
		Telephone	

The headings followed by ** are the ones where BioWatch SMS automatically fills in information for you.

COC Batch

The **COC Batch #** is a 12-digit number assigned by the BioWatch SMS to each BioWatch Chain-of-Custody Form. The batch number is located under **FOR OFFICIAL USE ONLY** at the top of each printed page of the **BioWatch Chain-of-Custody Form**.

You can also find the **COC Batch #** in the top middle column of the information block. The first six digits of the batch number show the print date of the form in **mmddyy** format. The next six digits show the print time in **hhmmss** format, where **hh** is the hour in 24-hour format, **mm** is the minute, and **ss** is the second.

Printing a Chain-of-Custody Form

You can print a **BioWatch Chain-of-Custody Form** from any computer in your jurisdiction.

To print the BioWatch Chain-of-Custody Form

1. At the bottom of the form, click **Print the Chain-of-Custody Form**. The **Print** window displays.
2. Check the information in the **Print** window, make any changes you want, and then click **OK** to print the form.

Note **FOR OFFICIAL USE ONLY** prints at the top of each page of the form with the **COC Batch #** under it.

Bottom Two Blocks of Information

At the bottom of the **BioWatch Chain-of-Custody Form** are two blocks of information that are filled out by hand after you print the form:

- Custody released and received information block
- Disposition and witness information block

Check with your supervisor to find out your jurisdiction's procedures for completing the form.

Checking the Chain-of-Custody

Note Using the **Check the Chain-of-Custody** tab is optional. Check with your supervisor to find out if and when you need to use it.

You can check the bar codes printed on the **BioWatch Chain-of-Custody Form** by using the **Check the Chain-of-Custody** screen to compare them with the bar codes on the filter holders. After you scan the bar codes on the filter holders and scan the bar codes on the printed **BioWatch Chain-of-Custody Form**, the BioWatch SMS compares the two lists and displays the results.

For details, see *To scan bar codes of filter holders and bar codes on the form* and *To compare the bar codes*.

Check the Chain-of-Custody Screen

The next figure shows the **Check the Chain-of-Custody** screen. The red **Delete** button in each bar code area lets you delete one or more bar codes.

Note For information about deleting bar codes using the red **Delete** button, see *Deleting Data*.

Figure 89. **Check the Chain-of-Custody** screen

Help for How to Check the Chain-of-Custody Form

The **Help for How to Check the Chain-of-Custody Form** button is at the top of the **Check the Chain-of-Custody** screen. When you click the help button, information displays about the following:

- Basics about the form
- Method of comparing bar code lists
- Errors

Comparing Bar Codes

The **Check the Chain-of-Custody** screen has two areas for bar codes. The left area displays the bar codes you scan directly from the filter holders. The right area displays the bar codes you scan from the printed **BioWatch Chain-of Custody Form**.

To scan bar codes of filter holders and bar codes on the form

1. Click the **Tracking** tab and then click the **Check the Chain-of-Custody** tab to display the **Check the Chain-of-Custody** screen.
2. If either of the two bar codes areas displays data, at the bottom of the screen, click **Clear the Barcode Lists** to erase the data.
3. Click the **Barcodes from the Samples** area to turn it yellow.
4. Using the bar code scanner attached to your computer, scan each bar code on each filter holder.
5. Go to the **Barcodes from the CoC Form** area and turn it yellow by doing one of the following:
 - Press the **Tab** key twice.
 - or*
 - Click the area.
6. Scan each bar code printed on the **BioWatch Chain-of-Custody Form**.

To compare the bar codes

1. After scanning all the bar codes into the two areas of the **Check the Chain-of-Custody** screen, at the bottom of the screen, click **Compare the Barcode Lists**.
2. Under the bar codes areas, read the message between the buttons to find out if the two lists of bar codes match.

The next two figures show examples of the messages that display when the bar codes match and when they don't match.

Figure 90. Message that bar codes exactly match

In Figure 90, the BioWatch SMS didn't find any errors and displays:
The sample barcodes exactly match the Chain-of-Custody barcodes.

In Figure 91, the BioWatch SMS found four errors and displays:
There were 4 errors detected by the comparison.

Figure 91. **Errors Detected by the Barcode Comparison** window showing that four errors were found

When the BioWatch SMS compares bar codes and finds errors, it also displays the following:

- In the **Errors Detected by the Barcode Comparison** window, it describes each bar code error.
- In the bar code areas, it highlights the bar codes with errors.

Figure 92. Highlighted bar codes don't match

Table 11. Typical error descriptions after comparing bar code lists

Error description	What happened
The two bar code lists are different sizes.	This is the first check to see if the two bar code lists match. If one list has more bar codes than the other list, this indicates an obvious error.
The sample bar codes do not have the bar code "P100005" from the chain-of-custody list.	One bar code in the right list isn't in the left list.
The chain-of-custody barcodes do not have the barcode "P100001" from the sample barcode list.	One bar code in the left list isn't in the right list.
The chain-of-custody barcodes do not have the barcode "P1P100001" from the sample barcode list.	<p>Another bar code in the left list isn't in the right list.</p> <p>Notice that the BioWatch SMS doesn't check for the accuracy of a bar code. For example, it doesn't tell you that P1P100001 is an invalid bar code. It only knows that P1P100001 isn't in both lists.</p>

Errors Detected by the Barcode Comparison

The errors described in the **Errors Detected by the Barcode Comparison** window shown in Figure 91 are the types of errors that might display when you compare bar codes. The next table gives a brief explanation of these descriptions.

Other Error Messages

For other error messages that may display when you use the **Check the Chain-of-Custody** screen, see **Check the Chain-of-Custody Error Messages**.

Correcting Errors

If the BioWatch SMS finds errors, you need to correct them. You may also need to create another **BioWatch Chain-of-Custody Form** that shows the correct bar code data.

For details about making corrections, see ***Correcting Errors in Collector Records.***

Appendix A. Troubleshooting

This appendix gives the information to help you solve problems and correct errors when using the BioWatch SMS. The information is grouped in three main categories:

- Equipment Trouble?
- Error Messages on Standalones, Clients, and Servers
- Error Messages on the Handheld Computer

The error messages for handheld computers apply to Symbol SPT 1800 and Janam Technologies models. If you're using another type of handheld computer, refer to its user manual for troubleshooting information.

When you can't solve a problem or correct an error using the information in this appendix, contact **Technical Support**.

Equipment Trouble?

You can find information in this section to help solve problems with the following equipment:

- Bar code scanner
- Desktop computer (standalone, client, or server computer)
- Handheld computer

Bar Code Scanner Problems and Solutions

This section covers some problems and solutions for the bar code scanner attached to your desktop computer.

For equipment problems with the scanner in your handheld computer, see

Handheld Computer Problems and Solutions.

Table 12. Bar code scanner problems and solutions

Bar Code Scanner Problem	What To Do
The trigger doesn't work on the scanner.	Press the top part of the trigger and then press the bottom part to release the trigger.
The scanner won't scan the bar codes.	Check the following: <ul style="list-style-type: none"> • Is the scanner turned on? • Are you pointing at the bar code?

If you have another problem or if you're still having trouble with your bar code scanner after trying the solutions, contact your supervisor.

Desktop Computer Problems and Solutions

Unfortunately, equipment problems can happen with desktop computers. Desktop computers include standalone, client, and server computers. The equipment problems covered in this section don't display error messages.

For information about the error messages that display on the computers, see **Error Messages on Standalones, Clients, and Servers**.

Table 13. Desktop computer problems and solutions

Desktop Computer Problem	What To Do
The monitor stays black and nothing displays on the screen.	<ol style="list-style-type: none"> 1. Check the cable from the monitor to be sure it's plugged into the computer. 2. If you still have a problem, contact your supervisor.
No text displays on the screen when you type.	<ol style="list-style-type: none"> 1. Check the cable from the keyboard to be sure it's plugged into the computer. 2. If you still have a problem, contact your supervisor.

Handheld Computer Problems and Solutions

This section lists the problems that can happen with Symbol SPT 1800 or Janam Technologies handheld computers. If you're using a different type of handheld computer, refer to its user manual for solutions to equipment problems.

Table 14. Handheld computer problems and solutions

Handheld Computer Problem	What To Do
It doesn't work.	<ol style="list-style-type: none"> 1. Unplug it and then plug it back in. 2. If it still doesn't work, contact your supervisor and report the problem.
The HotSync doesn't work.	<ol style="list-style-type: none"> 1. Gently push down on the handheld computer to be sure it's firmly connected to its cradle. 2. If it still doesn't work, contact your supervisor and report the problem

Error Messages on Standalones, Clients, and Servers

When you're working on a desktop computer, many different error messages can display on your screen. They can show up in various locations, as described in the next table.

Table 15. Where error messages display on your screen

Error messages about	Display here
Operation of the software	<ul style="list-style-type: none"> • Messages Posted window (displays when you click the Msgs button) • Windows with an OK button
Data entry	<ul style="list-style-type: none"> • Messages area of Data Entry screens • Entry History tab (shows the last 100 messages)

Types of Error Messages

Error messages, the conditions that cause them to display, and solutions to correct the errors are organized into the following sections:

- ***Startup Error Messages***
- ***Network Error Message***
- ***Sample Database Error Messages***
- ***Data Entry Error Message***
- ***PSU Data Entry Error Messages***
- ***Tracking Error Messages***
- ***TransactionBacklog Error Message***
- ***Actions Menu Error Messages***
- ***Msgs Button Error Messages***
- ***Shutdown Error Message***

Columns of the Error Message Tables

In the left column of each error message table is the first line of the error message followed by a general description of the error. Some error messages begin with a short phrase, such as Error Reading the PSU Database Files, which is followed by a general description of the error. Other error messages begin with the description.

The middle column describes the condition that caused the error message to display. The right column gives you the steps to try to solve the problem.

Alphabetical Listing of Errors

The error messages are listed alphabetically in the left column of the tables. Sometimes, the first line of one error message is the same as the first line of another error message. When this is the case, the first words of their description lines are listed alphabetically.

If You Still Can't Solve a Problem

If you can't solve a problem or correct an error, contact ***Technical Support***.

Startup Error Messages

The following error messages can display when you start up the BioWatch SMS. Follow the directions in the **Solution** column to solve the problem.

Table 16. Startup error messages and solutions

Startup Error Message	Condition	Solution
ERROR: Press EXIT. Check BioWatchCommData.txt.	<p>You clicked START on the BioWatch Black Eagle screen, but something is wrong with the BioWatch CommData.txt file.</p> <p>Possible problems include:</p> <ul style="list-style-type: none"> • Information was entered incorrectly in the file. • The file is missing. • Another application locked the file. <p>Note: The BioWatch CommData.txt file is located in the nose folder.</p>	<p>Contact your supervisor and report the problem.</p> <p>Your supervisor must fix or trash the BioWatchCommData.txt file and replace it with the original version of the file.</p>
ERROR!!- occurred connecting to server. Phone server and check if functioning!	<p>This error message occurs only on client computers. The client computer can't find the server computer.</p>	<ol style="list-style-type: none"> 1. Call the server computer operator to make sure the server is running and that it's connected to the internet. 2. Check all network hardware connections for the client and server computers and make sure the computers were started in Multi-Computer mode. 3. If you still have trouble, report the problem to your supervisor.

Startup Error Message	Condition	Solution
<p>Error Starting the SMS Console</p> <p>Bind Exception You are probably trying to start more than one SMS console. Or another application is already using port 47257. I am shutting down.</p> <p>Note: The actual port number displays instead of 47257.</p>	<p>Either another BioWatch SMS console is running or another application is running and using port 47257.</p> <p>Only one instance of the BioWatch SMS software can run at a time.</p>	<ol style="list-style-type: none"> 1. Click OK to shut down. 2. Check the taskbar at the bottom of your screen to see if two instances of the BioWatch SMS are open and do one of the following: <ul style="list-style-type: none"> • If two instances are running, close the one that isn't running and use the one that is running. <i>or</i> • If two instances aren't running, go to the next step. 3. Contact your supervisor, who must change the port number.
<p>Error Starting the SMS Console</p> <p>Bind Exception You are probably trying to start more than one SMS console. Or another application is already using the BioWatch Comm Data Port. Port number 4425 in the BioWatchCommData.txt file. I am shutting down.</p> <p>Note: The actual port number displays instead of 4425.</p>	<p>You are trying to start more than one server or client on the same computer and both instances of the application are trying to use the same port, which is 4425 in this example.</p> <p>Only one instance of the BioWatch SMS software can run at a time.</p>	<p>Click OK to shut down the second application that launches and then use the server or client application that's running.</p> <p><i>or</i></p> <p>If no BioWatch SMS application is running, shut down any unneeded applications until the message doesn't display.</p> <p><i>or</i></p> <p>Contact your supervisor, who must change the communications port number in the BioWatchCommData.txt file.</p>

Startup Error Message	Condition	Solution
Logon disallowed: invalid PIN	On the BioWatch Black Eagle screen, you entered a PIN in the Enter Operator Identification field that isn't in the Personnel Database.	<ol style="list-style-type: none">1. Enter a valid PIN in the Enter Operator Identification field.2. Click START to start up the BioWatch SMS.
You MUST enter the operator identification.	On the BioWatch Black Eagle screen, you clicked START before entering your PIN.	<ol style="list-style-type: none">1. Enter a valid PIN in the Enter Operator Identification field.2. Click START to start up the BioWatch SMS.

Network Error Message

You can get the following error message about a problem with client and server connections after clicking any **Submit**, **Commit**, or **Save** button.

Table 17. Network error message and solution

Network Error Message	Condition	Solution
<p>09:14 PSU_LoadHTab: failed because no connection to server (in transfer base)</p> <p>Note: The actual time and the tab name, which depend on the data at the time of the error, display instead of <i>09:14 PSU_LoadHTab</i>. The transfer base refers to the software component that's transferring the data from the client to the server.</p>	<p>This error message occurs only on client computers.</p> <p>You clicked Submit, Commit, or Save, but the client computer couldn't find the server computer.</p>	<ol style="list-style-type: none"> 1. Call the server computer operator to make sure the server is running and that it's connected to the internet. 2. Check all network hardware connections for the client and server computers and make sure the computers were started in Multi-Computer mode. 3. If you still have trouble, report the problem to your supervisor.

Sample Database Error Messages

You may see the following general error messages about problems with the Sample Database. More specific database errors are covered later in this chapter.

Table 18. Sample Database error messages and solutions

Sample Database Error Message	Condition	Solution
ERROR occurred in copying the Startup Database file during a save operation. There may be a disk problem or a problem with file permissions. You may have to restore the database from a backup copy! Check the integrity of the database NOW and the next time you start the SMS software.	<p>Something unexpected happened in the complex dance of the files during the process of saving the Sample Database. You may have lost all or some of the data in the Sample Database.</p> <p>The BioWatch SMS saves the database at these points:</p> <ul style="list-style-type: none"> • After trimming the database • When creating automatic copies of the database • At shutdown <p>Note: Saving the database at various times helps ensure that a useable database is available somewhere on the disk in case of problems, such as power loss and disk failure.</p>	<ol style="list-style-type: none"> 1. Check the database to see if data is missing. 2. Shut down and then restart the BioWatch SMS. 3. Check the database again. 4. If data is missing, contact your supervisor to restore the data from a backup copy of the database. 5. If the data can't be restored, manually reenter the data using your paper records.

Sample Database Error Message	Condition	Solution
<p>ERROR occurred in copying the Temporary database file to the Startup file during a save operation. There may be a disk problem or a problem with file permissions. You may have to restore the database from a backup copy! Check the integrity of the database NOW and the next time you start the SMS software.</p>	<p>Something unexpected happened in the complex dance of the files during the process of saving the Sample Database. You may have lost all or some of the Sample Database.</p> <p>The BioWatch SMS saves the database at these points:</p> <ul style="list-style-type: none"> • After trimming the database • When creating automatic copies of the database • At shutdown <p>Note: Saving the database at various times helps ensure that a useable database is available somewhere on the disk in case of problems, such as power loss and disk failure.</p>	<ol style="list-style-type: none"> 1. Check the database to see if data is missing. 2. Shut down and then restart the BioWatch SMS. 3. Check the database again. 4. If data is missing, contact your supervisor to restore the data from a backup copy of the database. 5. If the data can't be restored, manually reenter the data using your paper records.

Data Entry Error Message

You can get the next error message when you use any **Data Entry** screen. Use the steps in the **Solution** column to handle the problem. Error messages and solutions specific to **PSU Data Entry** are located on the next pages of this appendix.

Table 19. Error message and solution for any Data Entry screen

Data Entry Error Message	Condition	Solution
<p>Data transfer to this computer via UpdateServer message has failed. Call Los Alamos National Laboratory or the BioWatch Program Office and pass on the message that follows. This is a bug in the SMS software.</p> <p>Note: The error message is followed by a detailed description of the failure.</p>	<p>This error message occurs only on client computers.</p> <p>After you clicked Submit, a bug in the software caused this message to display.</p>	<ol style="list-style-type: none"> 1. Call Technical Support or the BioWatch Program Office to report the bug. 2. Look for and correct any mistake in the data you're trying to submit and then click Submit again.

PSU Data Entry Error Messages

When the **Filter Holder Entry** tab is active, it displays five other tabs for five specific PSU tasks. Error messages display for the tab and screen of each of the following tasks:

- **LoadH**
- **Dispatch**
- **DataDump**
- **Receive**
- **FL Receive**

The title of the left column in each table shows the name of the task to help you locate the error message.

LoadH Error Messages

The next table lists and describes the error messages you may see when you use the PSU **LoadH** screen. Follow the directions in the **Solution** column to solve the problem.

Table 20. PSU LoadH error messages and solutions

PSU LoadH Error Message	Condition	Solution
Barcode 'F1234' is invalid. Please enter one in the requested format. Note: <i>F1234</i> is an example of a bar code that's in the wrong format. The actual bar code that you typed displays instead of <i>F1234</i> .	The format of one of the bar codes in the Barcodes area is incorrect. The valid bar code format is P followed by six digits.	<ol style="list-style-type: none"> 1. Type the bar code, starting with P followed by six digits. 2. Click Submit.
Barcode N1 is a repeat of Barcode N2. Please delete one of them, where N1 and N2 are the numbers of the repeated barcode.	In the Barcodes area are two bar codes that are the same.	<ol style="list-style-type: none"> 1. Delete one of the repeated bar codes by highlighting it and clicking the red Delete button. 2. Click Submit.

PSU LoadH Error Message	Condition	Solution
Empty ‘Barcodes’ list. Please enter at least one barcode in the ‘Barcodes’ field, followed by <enter>.	The Barcodes area doesn’t have any entries.	<ol style="list-style-type: none"> 1. In the Barcodes area, enter or scan one bar code. 2. If you have more than one bar code, enter or scan them. 3. Click Submit.
Invalid entry in ‘PIN’ field (need form 1234 or 12345678), 4 or 8 digit number only allowed.	The PIN in the Loader PIN field is invalid. This field requires a 4-digit or an 8-digit PIN.	<ol style="list-style-type: none"> 1. Enter your 4-digit or 8-digit PIN. 2. Check your PIN to see that it’s correct. 3. Click Submit.
‘Loader PIN’ field is empty. Please enter your PIN.	The Loader PIN field doesn’t have an entry.	<ol style="list-style-type: none"> 1. In the Loader PIN field, type your PIN. 2. Click Submit.
‘Lot barcode’ field is empty. Please enter a Lot barcode.	The Lot barcode field doesn’t have an entry.	<ol style="list-style-type: none"> 1. In the Lot barcode field, scan or type the actual lot ID of the filter media or today’s date, using the format specified by your supervisor. 2. Click Submit.
The number N barcode is blank. Please delete the empty entry.	In the Barcodes area, one of the lines is empty.	<ol style="list-style-type: none"> 1. In the Barcodes area, delete the blank line. 2. Click Submit.

Dispatch Error Messages

The next table lists and describes the error messages you may see when you use the PSU **Dispatch** screen. Follow the directions in the **Solution** column to solve the problem.

Table 21. PSU Dispatch error messages and solutions

PSU Dispatch Error Message	Condition	Solution
Barcode N1 is a repeat of Barcode N2. Please delete one of them, where N1 and N2 are the numbers of the repeated barcode.	One of the bar codes in the Barcodes area is entered twice.	<ol style="list-style-type: none"> 1. Delete one of the repeated bar codes by highlighting it and clicking the red Delete button. 2. Click Submit.
Barcode ‘F1234’ is invalid. Please enter one in the requested format. Note: <i>F1234</i> is an example of a bar code that’s in the wrong format. The actual bar code that you typed displays instead of <i>F1234</i> .	The format of one of the bar codes in the Barcodes area is incorrect. The valid bar code format is P followed by six digits.	<ol style="list-style-type: none"> 1. Type the bar code, starting with P followed by six digits. 2. Click Submit.
‘Dispatcher PIN’ field is empty. Please enter a PIN.	The Dispatcher PIN field doesn’t have an entry.	<ol style="list-style-type: none"> 1. In the Dispatcher PIN field, type your PIN. 2. Click Submit.
Empty ‘Barcodes’ list. Please enter at least one barcode in the ‘Barcodes’ field, followed by <enter>.	The Barcodes area doesn’t have any entries.	<ol style="list-style-type: none"> 1. In the Barcodes area, enter or scan one bar code. 2. If you have more than one bar code, enter or scan them. 3. Click Submit.

PSU Dispatch Error Message	Condition	Solution
<p>Invalid entry in ‘Dispatcher PIN’ field (need form 1234 or 12345678)</p> <p>Note: The form requires a 4-digit PIN or an 8-digit PIN.</p>	The PIN in the Dispatcher PIN field is invalid. A 4-digit or an 8-digit PIN is required.	<ol style="list-style-type: none"> 1. In the Dispatcher PIN field, type your 4-digit or 8-digit PIN. 2. Click Submit.
The number N barcode is blank. Please delete the empty entry.	In the Barcodes area, one of the lines is blank.	<ol style="list-style-type: none"> 1. In the Barcodes area, delete the blank line. 2. Click Submit.

PSU DataDump Error Messages

The next table lists and describes the error messages you may see when you use the PSU **DataDump** screen. Follow the directions in the **Solution** column to solve the problems.

Table 22. PSU DataDump error messages and solutions

PSU DataDump Error Message	Condition	Solution
Barcode <i>P123456</i> does not exist in DB. Note: The actual bar code that you typed displays instead of <i>P123456</i> . The letters DB stand for database.	The bar code in one of these fields isn't in the database: New Barcode <ul style="list-style-type: none"> Old Barcode 	<ol style="list-style-type: none"> Check the bar code to see if it's correct and then do one of the following: <ul style="list-style-type: none"> If it's not correct, enter the bar code, click the Checked Data? box, and then click Submit. <i>or</i> If it is correct, go to the next step. For that bar code, do a LoadH and then a Dispatch. Using the Check Data tab, correct the create and dispatch times.

PSU DataDump Error Message	Condition	Solution
Error Reading the PSU Database Files Could not read the PSU database file from the handheld computer. There may be a problem with the database format. Please try HotSyncing the handheld again.	The BioWatch SMS software can't read the PSU database file that you HotSynced from the handheld computer.	<ol style="list-style-type: none"> 1. Try the HotSync and DataDump operations again. 2. If the data transfer still fails, check each record on the handheld computer for data entry errors, such as a blank entry or multiple lines for an entry, and correct any errors. 3. If you still have problems, manually enter the data and contact your supervisor to fix the handheld computer.
Error Reading the PSU Database Files Could not read the PSU database file from the handheld computer. There may be a problem with the handheld or the Palm® Desktop user list. Please try HotSyncing the handheld again.	The BioWatch SMS software can't find the PSU database file that the HotSync should have generated.	<ol style="list-style-type: none"> 1. Try the HotSync and DataDump operations again. 2. If the import still fails, make sure the handheld computer shows the correct owner name and that the database file has entries. 3. If you still have problems, manually enter the data and contact your supervisor to fix the handheld computer.

PSU DataDump Error Message	Condition	Solution
<p>Handler 5678 doesn't exist in PDB.</p> <p>Note: The actual error message displays the PIN you entered instead of 5678. PDB stands for Personnel Database.</p>	In the Field Operator ID field, you entered a PIN that's not in the Personnel Database.	<p>Check the Field Operator ID field to see if the PIN is correct and then do one of the following:</p> <ul style="list-style-type: none">• If the PIN isn't correct, enter the correct PIN, click the Checked Data? box, and then click Submit.<i>or</i>• If the PIN is correct, contact your supervisor to enter the PIN in the Personnel Database.

PSU DataDump Error Message	Condition	Solution
<p>Holder <i>P123456</i> was not in sensor <i>PSU123</i>.</p> <p>Note: Instead of <i>P123456</i> and <i>PSU123</i>, the error message displays the actual bar code and Collector ID.</p>	<p>One of the following is true:</p> <ul style="list-style-type: none"> • In the previous data dump, probably yesterday, an operator put the <i>P123456</i> holder in a different collector. <p><i>or</i></p> <ul style="list-style-type: none"> • A different holder was started in <i>123</i>. 	<ol style="list-style-type: none"> 1. Find out if an operator took holder <i>P123456</i> from collector <i>123</i> today. 2. If no one took it from the collector today, enter the correct bar code or sensor name, click the Check Data? box, and then click Submit. This completes the procedure. <p><i>or</i></p> <p>If an operator took the holder from the sensor, an error exists in the database. Continue to the next step.</p> <ol style="list-style-type: none"> 3. Click the Tracking tab and then the Data View and Edit tab. 4. In the RI Panel, click the holder number to display it in the Current Record field of the Database Viewer. 5. Click the sensor field to display the Identity Setter window, correct the sensor name in the number and type fields, and then click Set. 6. Click the Data Entry tab, the Filter Holder Entry tab, and then the DataDump tab. 7. Click the Check Data? box and then click Submit.

PSU DataDump Error Message	Condition	Solution
No data blocks currently defined	You selected the Checked Data? box and then clicked Submit with no data blocks showing on the screen.	Transfer data from the handheld computer. <i>or</i> Click Add Blank Data Block and then manually enter the data.
PSU_DataDump: Block n: blank field for fieldLabel field. Note: A block is a field and <i>n</i> is the internal number assigned to it, indicating where the error occurred. Instead of <i>fieldLabel</i> , the message shows the actual name of one of the 10 fields in the data block.	One of the following fields in the data block was blank: <ul style="list-style-type: none"> • Old holder • PSU ID • Replenisher ID • Date/time • New holder • Initial flow • Final flow • Duration • Operation • Comments 	<ol style="list-style-type: none"> 1. Enter the data in the blank field. 2. Click the Checked Data? box and then click Submit.
PSU_DataDump: Block n: If operation is Initial, then duration must be 0.0. Note: A block is a field and <i>n</i> is the internal number assigned to it, indicating where the error occurred.	When the entry in the Operation field is Initial , the entry in the Duration field must be 0.0 .	<ol style="list-style-type: none"> 1. Change one of the following: <ul style="list-style-type: none"> • Duration to 0.0 • Operation to Cont 2. Click the Checked Data? box and then click Submit.

PSU DataDump Error Message	Condition	Solution
<p>PSU_DataDump: Block <i>n</i>: If the “Old barcode” = “New barcode” and operation is not “Initial” or “Final” then the data is not correct. Correct the data and re-Submit.</p> <p>Note: A block is a field and <i>n</i> is the internal number assigned to it, indicating where the error occurred.</p>	<p>The bar codes in the Old Barcode and the New Barcode fields are the same, but the replenishing operation isn’t Initial or Final. When the bar codes are the same, you must enter Initial or Final in the Operation field.</p>	<ol style="list-style-type: none"> 1. Determine if this is an initial, continuation, or final operation. 2. If the operation is Initial or Final, edit the text in the Operation field. <p><i>or</i></p> <p>If the operation is a continuation, correct the bar codes in the Old Barcode and New Barcode fields.</p> <ol style="list-style-type: none"> 3. Click the Checked Data? box and then click Submit.
<p>PSU_DataDump: Block <i>n</i>: If the “Old barcode” does NOT equal “New barcode” and operation is not “Cont” then the data is not correct. Correct the data and re-Submit.</p> <p>Note: A block is a field and <i>n</i> is the internal number assigned to it, indicating where the error occurred.</p>	<p>The bar codes in the Old Barcode and the New Barcode fields are different, but the replenishing operation isn’t Cont. When the bar codes are different, you must enter Cont in the Operation field.</p>	<ol style="list-style-type: none"> 1. Determine if this is an initial, continuation, or final operation. 2. If the operation is a continuation, change the text in the Operation field to Cont. <p><i>or</i></p> <p>If the operation is Initial or Final, correct the bar codes in the Old Barcode and New Barcode fields.</p> <ol style="list-style-type: none"> 3. Click the Checked Data? box and then click Submit.

PSU DataDump Error Message	Condition	Solution
<p>PSU_DataDump: Block <i>n</i>: Invalid date/time form (need <i>mm/dd/yy hh:mm</i>) or content.</p> <p>Note: A block is a field and <i>n</i> is the internal number assigned to it, indicating where the error occurred.</p>	<p>The entry in the Date/time field isn't in the correct format.</p>	<ol style="list-style-type: none"> 1. In the Date/time field, edit the data using the <i>mm/dd/yy hh:mm</i> format, leaving one space between the year and the hour. 2. Click the Checked Data? box and then click Submit.
<p>PSU_DataDump: Block <i>n</i>: Invalid entry in 'PIN' field (need form 1234 or 12345678), 4 or 8 digit number only allowed.</p> <p>Note: Block <i>n</i> indicates the field where the error occurred.</p>	<p>The operator's PIN in the Replenisher ID field is invalid. The PIN doesn't have 4 or 8 digits.</p>	<ol style="list-style-type: none"> 1. In the Replenisher ID field, type a 4-digit or 8-digit PIN that's in the Personnel Database. 2. Click the Checked Data? box and then click Submit.
<p>PSU_DataDump: Block <i>n</i>: Invalid entry in PSU ID field (need form <i>PSU012</i>).</p> <p>Note: Block <i>n</i> indicates the field where the error occurred. The numbers in <i>PSU012</i> represent any three digits.</p>	<p>The entry in the PSU ID field isn't in the correct format.</p> <p>The required format, which has no spaces, is upper case PSU followed by three digits from 0 to 9.</p>	<ol style="list-style-type: none"> 1. In the PSU ID field, enter the name of the sensor using the <i>PSU012</i> format. 2. Click the Checked Data? box and then click Submit.
<p>PSU_DataDump: Block <i>n</i>: New barcode is invalid - need form P000123.</p> <p>Note: Block <i>n</i> indicates the field where the error occurred. <i>P000123</i> represents the required bar code format, which is P followed by six digits.</p>	<p>The entry in the New Barcode field is not in the correct format.</p> <p>The required format is P followed, without a space, by six digits.</p>	<ol style="list-style-type: none"> 1. In the New Barcode field, enter the bar code using the <i>P000123</i> format. 2. Click the Checked Data? box and then click Submit.

PSU DataDump Error Message	Condition	Solution
<p>PSU_DataDump: Block n: Old barcode is invalid - need form P000123.</p> <p>Note: Block <i>n</i> indicates the field where the error occurred. <i>P000123</i> represents the required bar code format, which is P followed by six digits.</p>	<p>The entry in the Old Barcode field is not in the correct format.</p> <p>The required format is P followed, without a space, by six digits.</p>	<ol style="list-style-type: none"> 1. In the Old Barcode field, enter the bar code using the <i>P000123</i> format. 2. Click the Checked Data? box and then click Submit.
<p>Sensor PSUxxx does not exist in sensor mapping.</p> <p>Note: Instead of <i>PSUxxx</i>, the error message displays PSU and the actual PSU number.</p>	<p>The sensor name <i>PSUxxx</i> entered in the PSU ID field isn't in the Sensor Database.</p>	<p>Confirm that the PSU name is correct and then do one of the following:</p> <ul style="list-style-type: none"> • If it isn't correct, enter the correct name using the <i>PSUxxx</i> format, click the Data Checked? box, and then click Submit. <p><i>or</i></p> <ul style="list-style-type: none"> • If the PSU name is correct, contact your supervisor to enter the name in the Sensor Database.

Receive Error Messages

The next table lists and describes the error messages you may see when you use the PSU **Receive** screen. Follow the directions in the **Solution** column to solve the problems.

Table 23. PSU Receive error messages and solutions

PSU Receive Error Message	Condition	Solution
Barcode ‘F1234’ is invalid. Please enter one in the requested format. Note: <i>F1234</i> is an example of a bar code that’s in the wrong format. The actual bar code that you typed displays instead of <i>F1234</i> .	The format of one of the bar codes in the Barcodes area is incorrect. The valid bar code format is P followed by six digits.	<ol style="list-style-type: none"> 1. Type the bar code, starting with P followed by six digits. 2. Click Submit.
Barcode N1 is a repeat of Barcode N2. Please delete one of them, where N1 and N2 are the numbers of the repeated barcode.	One of the bar codes in the Barcodes area is entered twice.	<ol style="list-style-type: none"> 1. Delete one of the repeated bar codes by highlighting it and clicking the red Delete button. 2. Click Submit.
Empty ‘Barcodes’ list. Please enter at least one barcode in the ‘Barcodes’ field, followed by <enter>.	The Barcodes area doesn’t have any entries.	<ol style="list-style-type: none"> 1. In the Barcodes area, enter or scan one bar code. 2. If you have more than one bar code, enter or scan them. 3. Click Submit.
Invalid entry in ‘Receiver PIN’ field (need form 1234 or 12345678), 4 or 8 digit number only allowed.	The PIN in the Receiver PIN field doesn’t have 4 or 8 digits.	<ol style="list-style-type: none"> 1. In the Receiver PIN field, type your 4-digit or 8-digit PIN. 2. Click Submit.
‘Receiver PIN’ field is empty. Please enter a PIN.	The Receiver PIN field is empty.	<ol style="list-style-type: none"> 1. In the Receiver PIN field, type your PIN. 2. Click Submit.

PSU Receive Error Message	Condition	Solution
The number N barcode is blank. Please delete the empty entry.	In the Barcodes area, one of the lines is empty.	1. In the Barcodes area, delete the blank line. 2. Click Submit .

FL Receive Error Messages

The next table lists and describes the error messages you may see when you use the PSU **FL Receive** screen. Follow the directions in the **Solution** column to solve the problem.

Table 24. PSU FL Receive error messages and solutions

PSU FL Receive Error Message	Condition	Solution
Barcode ‘F1234’ is invalid. Please enter one in the requested format. Note: <i>F1234</i> is an example of a bar code that’s in the wrong format. The actual bar code that you typed displays instead of <i>F1234</i> .	<p>The format of one of the bar codes in the Barcodes area is incorrect.</p> <p>The valid bar code format is P followed by six digits.</p>	<ol style="list-style-type: none"> 1. Type the bar code, starting with P followed by six digits. 2. Click Submit.
Barcode N1 is a repeat of Barcode N2. Please delete one of them, where N1 and N2 are the numbers of the repeated barcode.	<p>One of the bar codes in the Barcodes area is entered twice.</p>	<ol style="list-style-type: none"> 1. Delete one of the repeated bar codes by highlighting it and clicking the red Delete button. 2. Click Submit.
Empty ‘Barcodes’ list. Please enter at least one barcode in the ‘Barcodes’ field, followed by <enter>.	<p>The Barcodes area doesn’t have any entries.</p>	<ol style="list-style-type: none"> 1. In the Barcodes area, enter or scan one bar code. 2. If you have more than one bar code, enter or scan them. 3. Click Submit.
Invalid entry in ‘Receiver PIN’ field (need form 1234 or 12345678), 4 or 8 digit number only allowed.	<p>The PIN in the Receiver PIN field doesn’t have 4 or 8 digits.</p>	<ol style="list-style-type: none"> 1. In the Receiver PIN field, type your 4-digit or 8-digit PIN. 2. Click Submit.
‘Receiver PIN’ field is empty. Please enter a PIN.	<p>The Receiver PIN field is empty.</p>	<ol style="list-style-type: none"> 1. In the Receiver PIN field, type your PIN. 2. Click Submit.

PSU FL Receive Error Message	Condition	Solution
The number N barcode is blank. Please delete the empty entry.	In the Barcodes area, one of the lines is empty.	1. In the Barcodes area, delete the blank line. 2. Click Submit .

Tracking Error Messages

When the **Tracking** tab is active, it displays five other tabs for five different tasks. Error messages display for the tab and screen of each of the following tasks:

- **Check Data**
- **Data View and Edit**
- **Exposure History**
- **Chain-of-Custody**
- **Check the Chain-of-Custody**

The title of the left column in each table shows the name of the task to help you locate the error message.

Check Data Error Messages

The next table lists some of the error messages that can display when you use the **Check Data** screen. Follow the directions in the **Solution** column to solve the problems.

Table 25. Check Data error messages and solutions

Check Data Error Message	Condition	Solution
Check Data Programming Error Unable to complete data check because the number of errors does not match the number of bad records. Call Los Alamos National Laboratory.	The software has a bug.	Contact Technical Support and report the error.
No Data Check Help Various words tell you that the help information is not available.	This is a bug in the BioWatch SMS software.	Contact Technical Support and report the error.

Data View and Edit Error Messages

The next table lists some of the error messages that can display when you use the **Data View and Edit** screen. Follow the directions in the **Solution** column to solve the problems.

Table 26. Data View and Edit error messages and solutions

Data View and Edit Error Message	Condition	Solution
New Barcode is Invalid This barcode is invalid.	When you tried to create a new record, you entered an invalid bar code for the type of filter holder.	Enter the correct bar code for the filter holder: for PSUs, P + six digits
This barcode is invalid. Invalid format for barcode ‘P123455432123’, must be of the form ‘Pxxxxxx.’ This may cause an error in the laboratory software and should be fixed. Note: The actual bar code that you entered displays instead of <i>P123455432123</i> . The correct format is <i>Pxxxxxx</i> , where the x’s are digits.	You tried to change data for a PSU, but the letter P wasn’t followed by six digits. The required bar code format for a PSU begins with P followed by six digits from 0 to 9 .	Edit the bar code using the correct format.
No update: dialog dismissed or no comment provided	<p>The BioWatch SMS didn’t save the information for this record to the database, because it didn’t receive a reason for the change.</p> <p>When the Enter The Reason This Holder’s Values Are Being Modified window displayed, you clicked one of the following:</p> <ul style="list-style-type: none"> • Close to close the window <i>or</i> • Process Entry without entering a reason 	Click Save and then enter a reason for changing the data.
Record ID must start with P	When you tried to change data for a PSU, the first letter of the bar code wasn’t an upper case P .	Type the bar code for the PSU, beginning with P .

Data View and Edit Error Message	Condition	Solution
<p>The sensor type: ‘<i>bad type</i>’ MUST be changed to <i>PSU</i></p> <p>Note: The actual sensor type you entered displays instead of <i>bad type</i> and, depending on the screen, one of the following displays — <i>PSU</i></p>	<p>You clicked the sensor button and, in the Identity Setter window’s type field, you entered an invalid type. The required entry is PSU with all letters in upper case.</p>	<p>Type PSU for the type of collector record you are creating or modifying.</p>
<p>The sensor type: ‘<i>bad type</i>’ is not an allowed sensor type</p> <p>Note: The actual sensor type you entered displays instead of <i>bad type</i>.</p>	<p>You clicked the sensor button and, in the Identity Setter window’s type field, you entered an invalid type. Required entry is PSU with all letters in upper case.</p>	<p>Type PSU for the type of sensor record you are creating or modifying.</p>
<p>Update denied because PIN (1234) not in database</p> <p>Note: The <i>1234</i> in parentheses indicates that the missing PIN is a 4-digit PIN.</p>	<p>Your 4-digit PIN isn’t in the server’s Personnel Database.</p>	<p>Change the operator to someone with a PIN in the database.</p> <p>or</p> <p>Contact a supervisor and request entry of your PIN in the database.</p>

Exposure History Error Message

The next table lists an error message that can display when you use the **Exposure History** screen. Follow the directions in the **Solution** column to solve the problem.

Table 27. Exposure History error message and solution

Exposure History Error Message	Condition	Solution
Updating SMS data structures: record item failure on X. Please call Los Alamos National Laboratory or the Program Office. This is a bug in the SMS software.	You clicked a button to draw a bar in the Exposure History screen, but a bug in the software tried to match up a bar code with a database entry that doesn't exist.	Contact your supervisor to report the bug.

Chain-of-Custody Error Messages

The next table lists some of the error messages that can display when you use the **Chain-of-Custody** screen. Follow the directions in the **Solution** column to solve the problems.

Table 28. Chain-of-Custody error messages and solutions

Chain-of-Custody Error Message	Condition	Solution
Bad CoC Start Time Format The Chain-of-Custody START time was entered incorrectly. Please enter the START time in the <i>mm/dd/yy hh:mm AM or PM</i> format--spaces count!	You entered an incorrect format for the start time in the BioWatch Chain-of-Custody Form . Note: The date must be valid. For example, entering 02/29/09 results in an error because 2009 is not a leap year and the 28th is the last day of February in 2009.	<ol style="list-style-type: none"> 1. Enter the start time in <i>mm/dd/yy</i> format without any spaces. 2. Leave one space and then type the time in <i>hh:mm</i> format. 3. Leave one space and then type AM or PM.
Bad CoC Stop Time Format The Chain-of-Custody STOP time was entered incorrectly. Please enter the STOP time in the <i>mm/dd/yy hh:mm AM or PM</i> format--spaces count!	You entered an incorrect format for the stop time in the BioWatch Chain-of-Custody Form . Note: The date must be valid. For example, entering 02/29/09 results in an error because 2009 is not a leap year and the 28th is the last day of February in 2009.	<ol style="list-style-type: none"> 1. Enter the stop time in <i>mm/dd/yy</i> format without any spaces. 2. Leave one space and then type the time in <i>hh:mm</i> format. 3. Leave one space and then type AM or PM.
Chain-of-Custody File Error Could not load the Chain-of-Custody header info. The file was probably deleted! You will have to enter the header info. manually!	The software could not find the file with the header information. The file may have been deleted by mistake.	Contact your supervisor to create and save a new header file.

Chain-of-Custody Error Message	Condition	Solution
<p>Chain-of-Custody Header File Save Error</p> <p>Could not save the Chain-of-Custody header info. Could not save the header information to the selected file!</p>	<p>The software could not save the file with the header information. Maybe the CustodyForm directory in the Campaigns folder is locked.</p>	<p>Check with your supervisor to make sure that you have write permission to the CustodyForm directory.</p> <p>Note: This involves properties set in the Campaigns folder directories.</p>
<p>ERROR the Records Cannot be Sorted by Sensor Name</p> <p>Could not sort the records by the sensor name. The number of records was not the same as the number of sensors. This is a programming error and you cannot sort the records by sensor name.</p>	<p>The BioWatch SMS has a bug in its program.</p>	<p>Contact the Program Office or Technical Support and report the error and bug.</p>
<p>Start/Stop Times Out of Order</p> <p>The Chain-of-Custody Start time is AFTER the Stop time. Or the times are the same. Please enter a new start or stop time.</p>	<p>The start time you entered is after or the same as the stop time you entered.</p>	<ol style="list-style-type: none"> 1. Enter a start time that is before the stop time. 2. If the stop time isn't correct, enter the correct stop time.

Check the Chain-of-Custody Error Messages

The next table shows error messages that may display when you use the **Check the Chain-of-Custody** screen. Follow the directions in the **Solution** column to solve the problems.

For error messages that display in the **Errors Detected by Barcode Comparison** window, see ***Errors Detected by the Barcode Comparison***.

Table 29. Check the Chain-of-Custody error messages and solutions

Check the Chain-of-Custody Error Message	Condition	Solution
<p>Errors Detected by the Barcode Comparison</p> <p>Various words describe how the two bar code lists don't match.</p> <p>Note: Examples of why the lists don't match are because the bar codes are different sizes or a bar code is only on one list.</p>	The two bar code lists don't match.	<ol style="list-style-type: none"> 1. Check the bar codes on the two lists, on the BioWatch Chain-of-Custody Form, and on the filter holders to find the bar codes causing the errors. 2. Correct the errors. 3. Compare the bar code lists again to check for any remaining errors.
<p>No CoC Help</p> <p>Various words tell you the help information is not available.</p>	This is a bug in the BioWatch SMS software.	Contact the BioWatch Program Office or Technical Support and report the error.

TransactionBacklog Error Message

You can get the next error message about a problem after you click the **Resend Transaction** button when using the **TransactionBacklog** tab.

Table 30. TransactionBacklog error message and solution

TransactionBacklog Error Message	Condition	Solution
<p>Resubmit Failed because reason for failure</p> <p>Note: A description of what happened to cause the failure displays instead of <i>reason for failure</i>.</p>	<p>When you tried to resend a backlogged transaction, the resubmit failed due to an error in that transaction. The text for what happened can describe any of the errors you might see on a Data Entry tab, such as:</p> <ul style="list-style-type: none"> • Invalid PIN • Bar code not in the database • Sensor name not in the database 	<ol style="list-style-type: none"> 1. Delete the transaction. 2. Determine the cause of the error. 3. Correct the error in one of the Data Entry screens or by using the Tracking tab's Data View and Edit screen. 4. Resubmit the data from the appropriate tab.

Actions Menu Error Messages

The next table lists some of the error messages that can display when you click the **Actions** button to make a selection on the **Actions** menu. The selections with error messages described here are the following:

- **Change Operator**
- **Delete a Database Item**
- **Dump Today's Collections**

Change Operator Error Messages

The next table shows messages that may display when you select **Change Operator** from the **Actions** menu. Follow the directions in the **Solution** column to solve the problems.

Table 31. Change Operator error messages and solutions

Change Operator Error Message	Condition	Solution
PIN Not Valid Invalid entry in 'PIN' field (need form 1234 or 12345678), 4 or 8 digit number only allowed.	You entered an invalid PIN.	<ol style="list-style-type: none"> 1. Enter your PIN again. 2. Make sure that only 4 or 8 digits display in the field. 3. Click Save.
The PIN entered is not in the database. Either enter a valid PIN or add this user to the Personnel Database.	This error message occurs only on standalone or server computers. You tried to change the console operator to a PIN that isn't in the Personnel Database.	Do one of the following: <ul style="list-style-type: none"> • Enter a valid PIN. <i>or</i> • Report the problem to your supervisor, who must create a new entry for the PIN in the Personnel Database.

Delete a Database Item Error Messages

The next table shows the messages that may display when you select **Delete a Database Item** from the **Actions** menu. Follow the directions in the **Solution** column to solve the problems.

Table 32. Delete a Database Item error messages and solutions

Delete a Database Item Error Message	Condition	Solution
Delete failed. <i>Cause: The cause for the failure is described here.</i>	The BioWatch SMS didn't delete the database record after you selected Delete a Database Item , entered a bar code, and then clicked Delete in the Record ID window.	Correct the cause of the failure described in the error message and then delete the record.
PIN Not Valid Invalid entry in 'PIN' field (need form 1234 or 12345678), 4 or 8 digit number only allowed.	You entered an invalid PIN.	<ol style="list-style-type: none"> 1. Enter your PIN again. 2. Make sure that only 4 or 8 digits display in the field. 3. Click Delete.

Dump Today's Collections Error Messages

The next table shows the messages you may see when you select **Dump Today's Collection** from the **Actions** menu. Follow the directions in the **Solution** column to solve the problems.

Table 33. Dump Today's Collections error messages and solutions

Dump Today's Collections Error Message	Condition	Solution
<p>Bad Date Entered</p> <p>The date entered for the XML file was not in a valid format. The date entered was + (<i>date entered by user</i>). There may be the wrong number of months, days in a month, hours in a day, or minutes in an hour.</p> <p>Note: Instead of <i>date entered by user</i>, the error message displays the actual date.</p>	<p>You entered an invalid start time for the Daily XML File.</p>	<p>Enter a valid date and time.</p>

Dump Today's Collections Error Message	Condition	Solution
<p>Could not create the XML file for today's collections -- File could not be written to.</p>	<p>Because the software had a problem writing the file to the disk, it wasn't able to create the Daily XML File for today's collection.</p>	<ol style="list-style-type: none"> 1. Make sure of the following: <ul style="list-style-type: none"> • The campaign### folder and folders inside it aren't locked. • You have permission to write to these folders. 2. Try to create the file again. 3. If you still have trouble, contact your supervisor for help. It could be a disk failure or other hardware problem. <p>Note: The ### are the actual numbers of the campaign. The campaign### folder is inside the Campaigns folder.</p>
<p>Update denied because PIN (1234) not in database.</p> <p>Note: The <i>1234</i> in parentheses indicates that the missing PIN is a 4-digit PIN.</p>	<p>This error message occurs only on client computers. This 4-digit PIN is not in the server's Personnel Database.</p>	<p>Enter a valid PIN by doing one of the following:</p> <ul style="list-style-type: none"> • From the Actions menu, select Change Operator and enter your correct PIN. <p><i>or</i></p> <ul style="list-style-type: none"> • Ask another operator with a valid PIN to log on.

Msgs Button Error Messages

The BioWatch SMS sends many information and error messages directly to the **Messages Posted** window, which display when you click the **Msgs** button. These messages are a good resource for troubleshooting, because they give extra details about how the software is working and what happened at specific times.

This section lists the messages you might see that indicate some type of error. As with the other error messages in this appendix, the condition that caused the message is described along with possible solutions.

Table 34. Msgs Button error messages and solutions

Msgs Button Error Message	Condition	Solution
RecordItemStartup.bdb File read error (probably no data)	<p>This is a normal condition when starting up a client computer.</p> <p>On startup, the BioWatch SMS couldn't read the Sample Database. The database file may be missing, locked, or corrupted.</p> <p>The following are other normal conditions that can cause the error message to display:</p> <ul style="list-style-type: none"> • This is a new computer and the database is empty. • You are starting up the BioWatch SMS using a new campaign number. 	<p>If you're using a client computer, this is normal and you can continue with your work.</p> <p>For a server or standalone computer, contact your supervisor. This error probably means that the database is missing or corrupted.</p>

Msgs Button Error Message	Condition	Solution
Update denied because 'New' was used for a record already in the database. Use 'Existing' to modify this record.	In the Database Viewer , you tried to save a sample record as New . However, the record you entered in the Current Record field is already in the database.	<ol style="list-style-type: none">1. Check your entry in the Current Record field.<ul style="list-style-type: none">• If it was incorrect, retype it. <i>or</i>• If it was correct, click the arrow next to New and then click Existing.2. If you still have a problem, contact your supervisor. This is probably a duplicate record.

Shutdown Error Message

The next error message may display when you shut down the BioWatch SMS. Follow the directions in the Solution column to solve the problem.

Table 35. Shutdown error message and solution

Shutdown Error Message	Condition	Solution
Transaction File write error	<p>This error shouldn't occur.</p> <p>When the BioWatch SMS tried to save the transactions that were backlogged to a file, the software was unable to write the file. Possible causes include:</p> <ul style="list-style-type: none">• A disk problem]• Another application locked the file	<ol style="list-style-type: none">1. Shut down the BioWatch SMS and then restart the system.2. Reenter the data. <p>Note: Unfortunately, the transaction backlogs are lost, so you can't resend them from the TransactionBacklog tab.</p>

Error Messages on Handheld Computers

You may see the following error messages when you use your Symbol SPT 1800 or Janam Technologies handheld computers. Follow the steps in the **Solutions** column to solve the problems.

Table 36. Handheld computer error messages and solutions

Handheld Computer Error Message	Condition	Solution
Beaming Error Couldn't initiate receiving!	<p>The sending handheld computer beamed data to the receiving handheld computer, but the receiving handheld computer was unable to receive the data.</p> <p>Anything that breaks the connection between the two handheld computers can cause this error. Perhaps one of the handhelds moved out of position or something happened that broke the alignment between the two handhelds.</p>	<ol style="list-style-type: none"> 1. Realign the two handhelds and make sure they are from 5 inches to 10 inches apart. 2. Start the beaming process again. 3. If you get the error again, report the problem to your supervisor.
Beaming Error Couldn't initiate sending!	<p>The sending handheld computer was unable to initiate transmission of records to the receiving handheld computer.</p> <p>Various conditions could cause this problem.</p> <p>Perhaps you tapped the Cancel button while beaming the data to the other handheld computer. Or, perhaps the two handhelds lost their connection.</p>	<ol style="list-style-type: none"> 1. Realign the two handhelds and make sure they are from 5 inches to 10 inches apart. 2. Start the beaming process again. 3. If you still get the error, report the problem to your supervisor.

Handheld Computer Error Message	Condition	Solution
Beaming Error Error receiving data!	Something went wrong, but we don't know what. The beaming process started, but it stopped while it was in progress.	<ol style="list-style-type: none"> 1. Realign the two handhelds and make sure they are from 5 inches to 10 inches apart. 2. Start the beaming process again. 3. If you still get the error, report the problem to your supervisor.
Beaming Error Error sending data!	We don't know exactly what went wrong. The sending process was going along fine, but it stopped. Perhaps the alignment of the IR ports was off or the receiving handheld lost power.	<ol style="list-style-type: none"> 1. Check to see if the receiving handheld lost its power. <ul style="list-style-type: none"> • If it did, replace the battery. <p><i>or</i></p> <ul style="list-style-type: none"> • If it still has power, go to the next step. 2. Realign the two handhelds, making sure they are from 5 inches to 10 inches apart. 3. Start the beaming process again. 4. If you still get the error, report the problem to your supervisor.
Scan Error Battery low error! Voltage: "x" Note: The actual voltage displays instead of <i>x</i> , which is the voltage in millivolts (mv).	The laser battery for the bar code scanner is running low. Note: This message typically displays when the voltage is less than 300 mv.	Replace the battery by following the steps in "To replace batteries" on page 46 or in the manual for your handheld computer.

Handheld Computer Error Message	Condition	Solution
System Incompatible System Version 3.2 of the Palm® operating system or greater is required to run this application.	The operating system on the handheld computer is out of date.	Contact your supervisor to report the problem.

Technical Support

If you have a problem you can't solve by using the help on your screen or the troubleshooting information in this appendix, do the following:

1. Sit in front of your computer with the BioWatch SMS software running.
3. Call

Matthew Nelson at 505.665.3842 (office) or 505.412.8856 (mobile);

Dmitry Keselman at 505.665.3255 (office); or

Joseph Longo at 505.667.2452 (office) or 505.500.2056 (mobile) and describe the problem.

When you call, you can also give suggestions about what would be helpful to include in future software or documentation to make the system easier for you to use.

Appendix B. Words with the Same Meanings

Sometimes words in the BioWatch SMS are used interchangeably and one word actually means the same as another word. You might see these words on the computer screen or in some of your training or other reference materials.

Quick Reference Table

The next table lists the words you might see or hear when you work with the BioWatch SMS. The words are listed alphabetically in the left column to help you find them quickly.

These words	mean the same as these words
action	event or status
bar code label	sample ID label
bar code scanner	scanner or wand
client	multi-computer
collector	sensor or sampler
Commit button	Submit button (also enter or save on the computer)
computer	console
console	computer type (standalone, client, or server)
event	action or status
Field Operator	handler or replenisher
handheld computer	Palm® pilot
handler	Field Operator or replenisher
multi-computer	client, server
Palm® pilot	handheld computer
replenisher	Field Operator or handler
sample ID label	bar code label
sampler	collector or sensor
scanner	bar code scanner or wand

These words	mean the same as these words
sensor	collector or sampler
server	multi-computer
status	action or event
Submit button	Commit button (also enter or save on the computer)
wand	bar code scanner or scanner

Appendix C. Safety Warnings

This appendix gives you information for your safety. The warnings for safe equipment use apply to laser devices and electromagnetic field devices.

Bar code scanners and handheld computers are laser devices. Handheld computers are devices that use the second generation Global System for Mobile Communications (GSM), which also puts them in the category of electromagnetic field devices.

At the end of this appendix is a caution for safe use of the batteries in handheld computers.

Warnings for Safe Equipment Use

Various warnings apply to the safe use of bar code scanners and handheld computers due to their laser light beams and the electromagnetic fields in handheld computers.

WARNING

Avoid harmful exposure to laser light and electromagnetic fields.

The warnings in this chapter for the handheld computers are specifically for the Symbol SPT 1800 and Janam Technologies handheld computers. If you are using another model, some of these warnings and other warnings not listed here may apply.

Important See the user manual for the handheld computer you are using for its safety warnings.

Warnings about Laser Devices

The laser scanner in the Symbol SPT 1800 and Janam Technologies handheld computers is classified as Class 2. This class uses a low power, visible light diode.

WARNING

Avoid staring directly into the laser light.

Staring into the laser light beam of a bar code scanner or handheld computer can damage your eyes.

Warnings about Electromagnetic Field Devices

This section gives you details about the regulatory warnings for GSM devices and their electromagnetic fields. Within electromagnetic fields are radio waves or radio frequency (RF) energy, a form of electromagnetic energy. The Federal Communications Commission (FCC) has guidelines for RF exposure.

FCC RF Exposure Guidelines

The FCC RF exposure guidelines define the minimum distance to keep the handheld computer from your body. Their guidelines also warn against using any third-party accessories that contain metallic components.

WARNING

Avoid accessories that do not comply with exposure guidelines.

The text for FCC RF Exposure Guidelines is copied from page 19 of the *Symbol SPT 1800 Series Quick Reference Guide*, © 2001-2002, by Symbol Technologies, Inc.

This device was tested for typical body-worn operations with the holster providing a minimal spacing of 2.0 cm from the body to the back of the terminal/antenna. To maintain compliance with FCC RF exposure compliance requirements, use only belt-clips, holsters, or similar accessories that maintain a 2.0 cm separation distance between the user's body and the back of the terminal, including the antenna.

The use of third-party belt-clips, holsters, and similar accessories should not contain metallic components in the assembly. The use of these accessories that do not satisfy these requirements may not comply with FCC RF exposure compliance requirements, and should be avoided.

GSM Regulatory Warnings

The GSM regulatory warnings about mobile phones apply to handheld computers, which are also GSM devices.

WARNING

Avoid dangers of RF exposure related to GSMs.

The text for GSM Regulatory Warnings is copied from pages 20 and 21 of the *Symbol SPT 1800 Series Quick Reference Guide*, © 2001-2002, by Symbol Technologies, Inc.

Safety Information. This device complies with internationally recognized standards covering Specific Absorption Rate (SAR) related to human exposure to electromagnetic fields from mobile phones. It is advisable only to use the device only in the normal operating position.

Safety on the Road. Drivers are advised not to use the handset while their vehicle is in motion, except in emergencies.

Safety on Aircraft. You are required to switch off mobile phones when on board an aircraft or at any other time when instructed to do so by a member of the crew.

Pacemakers. It is recommended by pacemaker manufacturers that a minimum of 15 cm (6 inches) be maintained between a handheld wireless phone and a pacemaker to avoid any possible interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research.

Persons with pacemakers:

- Should always keep the device more than 15 cm (6 inches) from their pacemaker when turned on.
- Should not carry the device in a breast pocket.
- Should use the ear furthest from the pacemaker to minimize the potential for interference.

If you have any reason to suspect that interference is taking place, turn off your device immediately.

Hearing Aids. The device may interfere with some hearing aids. In the event of interference, you may want to consult your hearing aid supplier to discuss solutions.

Other Medical Devices. The device transmits radio frequency energy and has the potential to interfere with inadequately protected medical devices. Consult your physician or the manufacturer of the device to see if any particular device has sufficient protection.

Hospitals and Other Medical Facilities. It is good practice to turn off the device within a hospital or other medical facility where sensitive medical equipment is in use. In some countries, this is a legal requirement applying to all mobile phones and related equipment.

Effect on Vehicles. RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles (including safety systems). Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

Warning Notices. Please observe all warning notices with regard to the usage of mobile phones.

Potentially Hazardous Atmospheres. You are advised not to use this device at a refueling point. You are reminded of the need to observe restrictions on the use of radio devices in fuel depots, chemical plants, etc.

RF Interference Requirements

The RF interference requirements focus on the installation and proper use of handheld computers. This section also offers corrective measures.

WARNING

Avoid harmful interference to radio communications.

The text for Radio Frequency Interference Requirements is copied from page 21 of the *Symbol SPT 1800 Series Quick Reference Guide*, © 2001-2002, by Symbol Technologies, Inc.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution about Batteries

When working with devices that use batteries, it is important to use the correct type of battery when replacing a battery and to properly dispose of old batteries.

CAUTION

Avoid explosions by replacing each battery with the correct type.

The text for the caution about batteries is copied from page 22 of the *Symbol SPT 1800 Series Quick Reference Guide*, © 2001-2002, by Symbol Technologies, Inc.

Battery Caution

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Glossary

action. This is a task in the life cycle of a BioWatch sample. Typical tasks are load holder, dispatch holder, start holder, stop holder, receive holder, and field lab receive holder. Task names may vary depending on the type of collector. Also referred to as *event* or *status*.

area. A large section of a computer screen where you can enter data. For example, the Barcodes area.

bar code. This is the sample ID label on the filter holder. For PSUs, the bar code is *P* by six digits. Bar codes must be unique in the Sample Database. After the BioWatch SMS trims a bar code out of the database, you can reuse it, so the bar code is not unique within a campaign. See *trim*, *match character*, and *sample record*.

bar code scanner. An electronic device that converts bar codes into digital data to store and process in the computer. The bar code scanner has a laser light source, a lens, and a photo conductor that translates optical impulses into electrical impulses. Also called *scanner* or *wand*.

Bardsley bar chart. The name of a horizontal bar chart representing a Sample Database record. The bars are organized by collector type, collector group, and name of the collector. The BioWatch SMS draws the bar, which shows start and stop times for the record, above a date and time axis. The color of the bar (white, light gray, or dark gray) indicates the tasks completed for the record. Bardsley is the name of the person who first suggested this type of display in the JBREWS program.

bit. binary digit. This is the smallest element of computer data storage, a single 0 or 1 digit. Eight bits make a byte.

campaign. A number assigned by the Field Operations Supervisor to identify a particular site. A campaign was originally meant to hold the data for a specific deployed operation. Now supervisors can assign campaign numbers in the way that works best for them. The Campaigns directory organizes the BioWatch SMS data by campaign number. For example, the BioWatch/Campaigns/campaign050 directory holds the data for campaign 50.

CDC. Centers for Disease Control and Prevention. One of the major components of the Department of Health and Human Services. The CDC's mission is to promote health and quality of life by preventing and controlling disease, injury, and disability.

certify. To formally confirm that the information is true and accurate.

chain-of-custody. A legal term that describes how to handle evidence. In the BioWatch Program, the chain-of-custody process starts when the sample is removed from a collector and keeps track of the collection, processing, and storage of data about the sample. The chain-of-custody is a paper record signed by each person who handles the sample after it is removed from the collector. You can print the BioWatch Chain-of-Custody Form from the Chain-of-Custody tab to transfer custody of a group of samples from one person to another. The electronic records, or data, created and maintained by the BioWatch SMS software are not the chain-of-custody.

checksum. A calculation performed by the BioWatch SMS to compare stored data with new data. This is one way the software checks for errors.

city name. A field on the BioWatch Black Eagle screen, usually the city where the laboratory is located. The CDC uses the city name to identify the BioWatch laboratory. If the city name is not correct, the CDC software rejects the record. The city name must be spelled correctly, including capitalization, commas, and spaces. Because no standard exists for city names, the only way to know if you are using the correct city name is to check with your supervisor or contact the CDC.

client. A BioWatch SMS computer that communicates with one BioWatch SMS server. The client can create, view, and edit items in the Sample Database, but cannot access the Personnel Database or the Sensor Database. If the network goes down and communications with the server fail for any reason, the client's messages to the server are kept in the TransactionBacklog so that they can be sent after communications are restored.

CoC. See *chain-of-custody*.

COC Batch #. This is the number assigned by the BioWatch SMS to one BioWatch Chain-of-Custody Form. The first six digits show the form's print date in mmddyy format. The next six digits show the print time in hhmmss format, where hh is the hour in 24-hour format and the mm and ss are the minutes and seconds. The batch number prints at the top of each page of the form, below FOR OFFICIAL USE ONLY.

collector. The correct term for a system (such as PSU) that collects an airborne sample which is transported to a laboratory for analysis to detect pathogens. In the BioWatch SMS software, *sensor* means the same as collector. However, their definitions are different. A sensor collects a sample, analyzes the sample, and then reports if the analysis discovers anything of interest. Sometimes *sampler* is also used instead of collector. See *sensor*.

collision error. This type of error occurs in the software when two or more data transmission demands take place at one time and the software can only handle one demand.

Commit button. The button you click on some screens to enter data to the Sample Database. After you click the button, the BioWatch SMS checks the data. If the data passes all checks, the data goes to the database. On other screens, you click the Submit button to enter data. See *Submit button*.

cradle. A base for a portable and removable device, such as a handheld computer. Cradles are plugged into a wall outlet and connected to a desktop computer to transfer data.

Daily XML File. This file contains all of the data elements associated with each sample returned to the laboratory for analysis that day. After you create a Daily XML File at the end of your workday, the BioWatch SMS puts the file in your campaign folder.

database record. A record in the Sample Database. This includes the bar code and the completed tasks for a filter holder along with the date and time of the task and the PIN of the Field Operator. The collector for the filter holder is identified by name, type, and group name. Records for different collector types have unique items, such as duration and flow rate, associated with the collector type.

Database Viewer. In the Data View and Edit tab, the Database Viewer area displays the data elements of a sample record. In this area you can edit all data, except Comments, for the sample record.

DataDump. The task that records, on the DataDump screen, the downloaded data you collected in the field from PSU collectors. The BioWatch SMS checks the data transferred from your handheld computer and then uses it to update sample records. Typical data items include the start and stop times for a sample, the Field Operator PINs for each task, and the flow rates and durations for the samples.

dd/mm/yyyy. A date format with two digits for the day, two digits for the month, and four digits for the year. Because two digits are required for the day and for the month, you must add a leading zero when the day is from 1 to 9 or the month is from January to September. For example, enter 01/09/2008 for September 1, 2008.

default. An automatic entry in a field. The BioWatch SMS automatically shows its default entry in certain fields. You can usually change the default.

DHS. Department of Homeland Security. The cabinet department of the U.S. government that runs the BioWatch Program. The department is responsible for protecting the territory of the U.S. from terrorist attacks and for responding to natural disasters.

Dispatch. The task that records, on the Dispatch screen, a sample taken off of the shelf and given to a Field Operator to place in a collector. Although it might be several days, weeks, or months before the sample is actually started in a collector, the sample is no longer on the shelf.

DOE. Department of Energy. The cabinet department of the U.S. government responsible for energy policy and nuclear safety.

DOS. disk operating system. DOS was the first and standard operating system for personal computers.

duration. PSU sample types require a **Duration** entry. For PSU collectors, a meter tracks the total time the sample has been in the collector with the power applied to the fan. A duration is recorded in hours to one decimal place.

electromagnetic field. A physical field produced by electrically charged objects. The field is affected by differences in voltage and the electric current.

event. Also referred to as *action* or *status*. See *action*.

FCC. Federal Communications Commission. A U.S. government agency with the authority to regulate all interstate and international communications that originate in the U.S.

field. A small part of the screen, such as the Old holder field on the DataDump screen, where you can enter data.

Field Operator. The person who replenishes collectors in the field with new sample holders, takes old samples from the field to the lab for analysis, and keeps records of the history of each sample and the operation of the collector. In the BioWatch SMS software, a Field Operator is also called a handler and a replenisher.

filter. A small round disk that holds paper or cloth material. Air is blown through the material to collect particles from the air.

filter holder. The device that holds filter media for a sample. A filter holder plugs into the collector so that air flows through the filter media. .

FL Receive. FL stands for field laboratory. The task that records, on the FL Receive screen, the sample's arrival at a second laboratory location for processing. This is optional. In some jurisdictions, samples only go to the first laboratory location so they only require the Receive task.

FOUO. For official use only. The BioWatch SMS data is for official use only. This means that you cannot give the data to the public on paper, verbally, or electronically.

framing error. An error caused in serial communications software by an incorrect start bit or stop bit.

GSM. Global System for Mobile Communications. The second generation and standard for mobile communications with digital signaling and speech channels as well as digital communications capabilities.

group. See *sensor group*.

handheld computer. A small computer you can hold in your hand. Because it uses Palm® software, sometimes it is erroneously called a Palm® Pilot. A handheld computer is also sometimes called a personal digital assistant or PDA.

handler. In the BioWatch SMS software, this can refer to the Field Operator or to the Field Operator's PIN. See *Field Operator*.

hexadecimal. A numbering system with base 16. It uses characters from 0 to 9 and A to F. Our traditional numbering system is base 10.

hh/mm/ss. A time format with two digits for the hour (01 to 24), two digits for the minutes (00 to 59), and two digits for the seconds (00 to 59).

holder. See *filter holder*.

HotSync. HotSynchronization. Exactly matching the data between the handheld computer and the data on the BioWatch SMS computer.

IDs. Bar code identification numbers. See *bar code*.

IEEE. Institute of Electrical and Electronics Engineers, Inc. The world's leading professional association for the advancement of electronic technology.

instance of software. An instance refers to a specific configuration of the BioWatch SMS software. A configuration is specific for one type of computer — standalone, client, or server.

IR port. infrared port. The port on the handheld computer used to transfer or beam data between two handheld computers.

JBREWS. Joint Biological Remote Early Warning System. A Department of Defense program designed to more quickly provide information about a biological attack to a commander, allowing faster response to protect personnel from exposure to biological agents.

LANL. Los Alamos National Laboratories. Developer of the BioWatch SMS version 2.0.9 software and user guides.

LoadH. The task that records, on the LoadH screen, a sample properly assembled, placed inside an evidence bag, and on the shelf ready for dispatch to the field. The BioWatch SMS creates a record in the Sample Database for a collector's new filter holder bar codes. In some parts of the software, this is called a Create task.

location. For a Receive task, the location is the first location. For an FL Receive task, which is optional, it is the second location. In the Daily XML File, the location element holds the city name shown on the console's BioWatch Black Eagle screen, such as Albuquerque, NM. See city name.

Lot barcode. An area on the LoadH screen. The entry is either the actual lot ID of the filter media or the date (in any format) that the Field Operator loads the filter into the filter holder.

lot number. Also called Lot barcode or lot ID, the lot number can be any valid string, including a string without numbers. The lot number or date, as determined by your supervisor, identifies the lot of the filter media placed into a holder. See Lot barcode.

match character. The first letter of a bar code. PSU records begin with PSee also *bar code*.

memory stick. See *thumb drive*.

module. A self-contained block of software code.

Msgs. The button located at the bottom of the screen (in the middle) that you click to display a list of information and error messages sent from the BioWatch SMS software.

multi-computer. A selection on the BioWatch Black Eagle screen under Select ComCon Type (communications console type). Its selection results in the BioWatch SMS checking to see if the computer is a server or client and identifying the IP address of the server or client.

operator. The name and PIN of the person who starts or logs on the computer. The BioWatch SMS automatically puts the operator's PIN into some of the forms and tabs. The software automatically changes the operator when a new operator restarts the computer. You can also change the operator by using the Actions button and selecting Change Operator from the menu.

OUO. Official use only. See *FOUO*.

owner name. The name assigned to a specific handheld computer.

Palm® Pilot. A name from the past referring to the handheld computer used to enter data in the field. See *handheld computer*.

PC. personal computer. The shortcut name that is now generally used to refer to any computer, including Apple computers.

personnel record. Supervisors create and modify personnel records, each of which is identified by a four-digit or eight-digit PIN. Each record includes the PIN, first name, and last name of a person who handles samples or uses the BioWatch SMS. One person may have multiple PINs, but a PIN is unique and associated with only one person.

PIN. Personal identification number. The unique four-digit or eight-digit PIN assigned to each Field Operator, allowing the operator to access the BioWatch SMS. The BioWatch SMS uses the PIN to track the handling history of bar codes.

PSU. Portable Sampling Unit. Collectors used to collect airborne samples.

Receive. The task that records, on the Receive screen, the time that samples are returned to the first laboratory location from the field after the collectors are serviced. If samples are later delivered to a second location, an FL Receive task is required to record the time and other data. See also *FL Receive*.

record. See *database record*.

replenisher. In the BioWatch SMS software, a Field Operator is sometimes called a replenisher or a handler. See *Field Operator*.

Return. The task that records, on the Return screen, the return of a sample record to its loaded or created status. The BioWatch SMS deletes all data elements associated with the record, except for the Create date and time, the lot number, and the PIN of the LoadH Field Operator. After a Return, the record shows that the filter holder is on the shelf ready for dispatch.

RF energy. radio frequency energy. A form of electromagnetic energy also called radio waves. The waves, which are created from the movement of electrical charges in antennas, are located in an electromagnetic field.

RFID. radio frequency identifier. A data collection technology that uses tags to store and remotely retrieve data. See *tag*.

RI Panel. This is the record item panel on the right side of the screen that displays when you click the Data View and Edit tab. When you select a type of record in the Database Viewer, such as PSU holder, the RI Panel displays all the PSU bar codes as buttons. When you click a button in the RI Panel, the Database Viewer displays the data associated with that sample record.

sample ID. The bar code number of a sample.

sample ID label. Same as bar code. See *bar code*.

sample record. A record identified by the sample's bar code. See *bar code*.

sampler. A word sometimes used instead of collector or sensor. See *collector* and *sensor*.

SAR. See *Specific Absorption Rate*.

scanner. See *bar code scanner*. Also called *wand*.

Site Number. A unique number designating a sensor or collector site. Site Numbers use two 3-digit numbers separated by a dash ('-'), e.g. 007-538.

sensor. A system that collects an airborne sample, analyzes it to detect pathogens, and automatically reports positive findings. Although sometimes called a collector, a sensor is not the same as a collector. See *collector*.

sensor group. The name of a sensor group is a way to classify sensors. The Bardsley bar chart in Exposure History uses the sensor group name to display only the sensors from a particular group. All collectors in one group usually belong to one physical route serviced by the same Field Operator. This makes it easy to check the status of the collectors serviced by one Field Operator.

server. The computer running in a multi-computer mode that stores all the BioWatch SMS databases. A server console is identified as Server Console - Official Use Only in the title bar at the top of the screen.

SMS. Sample Management System. The computer program used to organize and manage BioWatch sample data.

SOP. Standard Operating Procedures. Established procedures to be followed in carrying out a given operation or in a given situation.

Specific Absorption Rate (SAR). The maximum rate of the body's absorption of RF energy when exposed to electromagnetic fields. The rate depends upon density of tissues, magnitude of the electric field, and electric conductivity.

standalone computer. A selection on the BioWatch Black Eagle screen under Select ComCon Type. A standalone computer maintains the data for the BioWatch SMS databases. It does not send messages to or receive messages from client or server computers.

start. A Start occurs when a sample is placed in a collector and the fan is turned on. This task is documented in the DataDump or Data Import tab. A start event has a start time.

status. Also referred to as *action* or *event*. See *action*.

stop. A Stop occurs when a collector is turned off and the sample is removed from the collector. This task is usually documented in the DataDump or Data Import tab. A stop event has a stop time.

Submit button. On all Data Entry screens. After you enter data and click the Submit button, the BioWatch SMS checks the data. If the data passes all checks, the data goes to the Sample Database. Some screens have a Commit button that works the same way. See *Commit* button.

tag. An electronic label often composed of an RFID chip attached to an antenna.

thumb drive. A flash memory card (or rewritable chip) for storing and transferring data from one machine to another. The small memory card plugs into the USB port.

touch screen. The display screen on a handheld computer that responds to a tap of the stylus.

transfer base. The software component that's transferring the data from the client to the server.

trim. Automatically occurs every two weeks. A computer process that removes all Sample Database records with a stop time older than one week and moves them to a separate file in the database. This prevents data loss and a possible system crash when a database gets too large. The new file is located inside in the Storage folder, which is inside the Campaigns folder. Trimmed records are still available for generating reports, but you cannot see them on your system.

user interface. The display on the screen of a computer monitor. Also referred to as UI.

valid string. Any text that can be included as a data element in an XML file. Characters such as &, <, and > are not allowed.

wand. See *bar code scanner*.

Windows XP, Windows 7. The Microsoft Inc. computer operating systems that run the BioWatch SMS software.

XML. Extensible Markup Language. A standard used to define data elements on reports and web pages. Similar to HTML.