FADCS

FIX ASSET DATA COLLECTION SYSTEM

SYSTEM MANUAL

Version 2.8

Developed by:

PO Box 191938
San Juan, PR 00919-1938
(787) 751-2720

TABLE OF CONTENT

TABLE OF FIGURES

INTRODUCTION

This document describes the recommended approach for the design of the Fix Asset Data Collection System.

The system will scan the fix assets that belong to the locations and areas that will be downloaded to the portable unit from an ASCII file which will be delimited by a Vertical Bar {|}. The data downloaded to the portable unit will be provided by the customer. This application will allow the user to verify the fix assets data using the location and area as parameters.

Each time an asset is scanned it will be written to a transaction file (See Appendix A for file outline), which will be uploaded to the PC running the application. During the scanning process the system will permit the user to add or edit asset detail information.

The design included on this document is a representation of the system to be developed and implemented by MULTISYSTEMS, INC. This document will focus on the data collection process that will be performed by the portable user. This document shall provide the customer the design information needed for the evaluation and approval of the Fix Assets Scanning System.

The data collection process will be developed to collect information from the Symbol MC3100 and create a transaction file that will be uploaded to the PC. The user will scan the following label:

The label will have the following information in the barcode:

Label
Tag Asset Number Barcode

The system is divided in two primary applications:

Portable Unit Application
The portable unit application is the program that runs in the handheld. The program collects the data downloaded from the windows pc application; run the validation and verification process and generate a file with the finishing process.

Windows PC Application
The windows application transfers data to the portable unit and collect it once the process is completed.

GLOSSARY OF TERMS

General Terms:

FADCS:	Fix Asset Data Collection System
Control:	On Windows programming, it is everything that gets input from the user. For example, push button, combo box, option buttons, list boxes, text boxes.
Critical Point:	Steps on the system where data loss can affect the transaction entered at that moment. The system is on a Critical point when it is either printing or writing (saving) information.
Dialog:	On Windows programming, it is a box (screen) used to display or get data from the user.
Enter:	Action of either scanning or keying.
Key:	Action of data input using the keyboard/keypad.
Software:	Computer software which designs the label format that defines data fields (variable and fixed), graphics (logo, pictures files, symbols) and bar code types. The format can typically be viewed in a graphical format.
PC:	Personal Computer
ASCII:	American Standard Code for Information Interchange
MC:	Mobile Computer

SYSTEM REQUIREMENTS

Personal Computer

The suggested minimum requirements of the Personal Computer are:

* Pentium 600 MHz Processor or Higher
* 512 MB RAM (minimum) or Higher
* Hard Disk drives with at least 20GB of free space.
* Microsoft Windows XP
* 17” inch monitor (minimum)
* Ethernet communications
* Appropriate ODBC drivers
* Serial Ports Recommended
* USB Ports Required
* Active Sync 4.5

Barcode Data Definition

This includes the fields’ definitions in the barcode of the label. (See Appendix B)

Mobile Computer

The Mobile Computer (MC) typically includes an industry-standard IrDA interface and serial port for enhanced peripheral communication and an optional integrated laser barcode scanner with buttons for both right-handed and left-handed users. The MC supports a desktop/wall-mount cradle that charges the battery and additionally supports and integrated modem and serial communication capabilities.

Entering Data

Data can be entered into the MC in a variety of ways:

Via Keyboard

Data can be entered into the MC via the unit’s keypad (hardware dependent) or its pop-up alpha keypad.

Entering data through the keyboard is similar to operating a calculator. As you press the data keys, the corresponding number or letter appears on the screen.

With the stylus

As a pen-based computer, the MC is ideal for forms-based data gathering. Use the MC’s stylus to select menu options, to write in the fields of a form displayed on the MC’s screen, or to check off items on a list.

Through an Optional Laser Scanner Module

Entering data can also be accomplished with the MC's optional laser scanner module. When you scan a 1D bar code the MC is programmed to read, the MC and scanner interpret the data and store it in the MC's memory.

Communication Components

Cradle

The MC's cradle port allows direct connection to an optional docking station, which provides both communication and battery pack charging.

Below is a conceptual design of the system configuration. As can be appreciated, the MC will communicate with the PC via its cradle port thru Microsoft ActiveSync software. In both process (Upload and Download) the communication is establish by the PC.

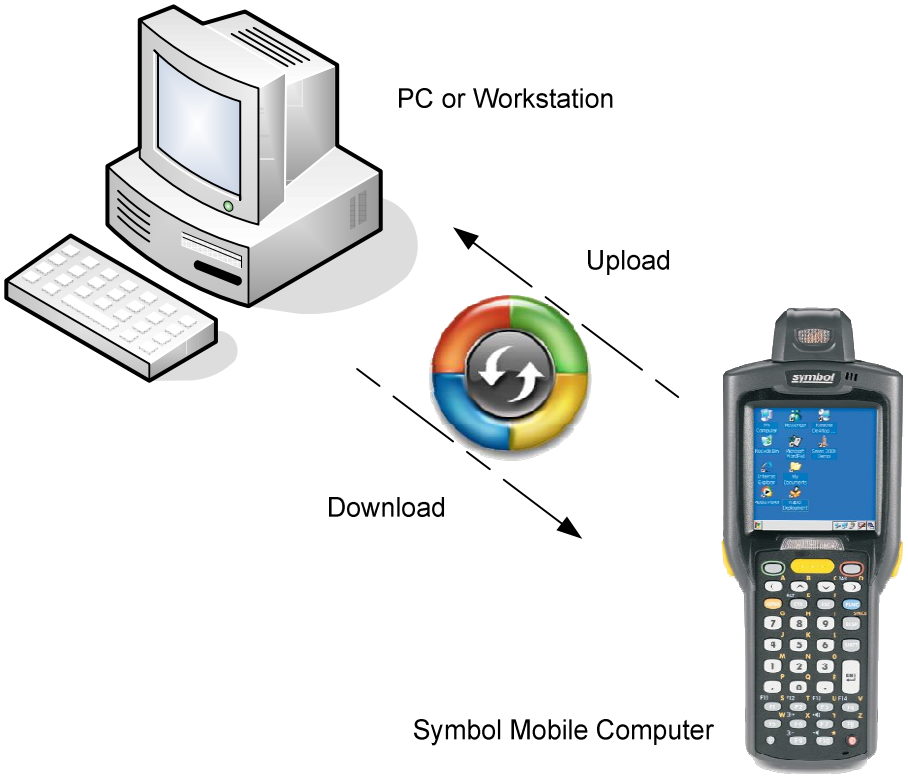

Figure 1 Communication Diagram

SYSTEM DETAILS

The FADCS is divided in the following transactions:

* File generation for the portable unit from Oracle database
* Label to be scanned
* File uploaded to the PC

PC Module

File generation for the portable unit

The system will have an application running on a PC that will download and upload an ASCII file to the portable unit. (See Appendix C for file to be downloaded to the portable unit)

Diagram of the system process

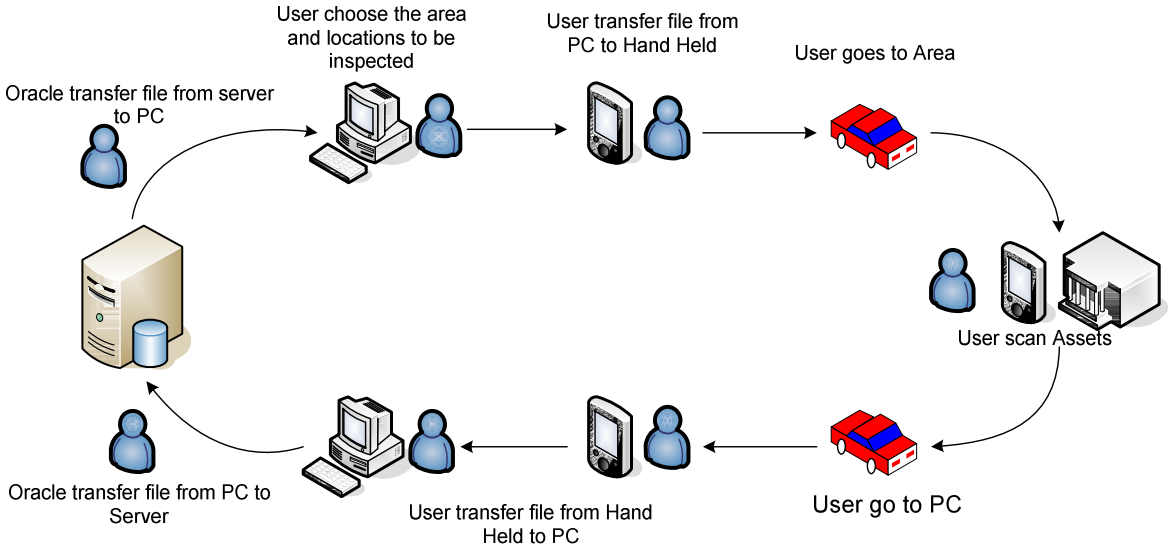

Figure 2 System Process Diagram

MC Module

The system will load presenting a Login Screen like the following, which will validate the user name and password of the current user. In order to validate the user name and password the customer will create a file containing this information (See Appendix D for file outline).

Figure 3 MC Login Screen

After entering the user and password the user will press enter or log in button in order to move to the next screen.

Figure 4 MC Main Menu Screen

After the user have successfully log in, the system will present a Main Menu screen where the user have the option of run the inventory, exit the application or make the printer configuration. If the user presses the exit button the system will going to close. If the user presses the Printer button the following screen is going to display.

Figure 5 MC Printer Configuration Screen

The user will have the option of configure the Port of the printer. In order to save any change the user must press the save button, if not changes will be lost. If the user is using a Bluetooth printer, the user can enter the Bluetooth address of the printer. The Bluetooth address can be found on the printer configuration label or in the printer radio settings.

The "**Process Uncounted Assets**" is an optional setting of the application. This will enable a button on the inventory screen called "**Locations**". If the user presses this button, all uncounted assets of the selected location will get process and will be given a "W" status instead of "U". If "**Process Uncounted Assets**" is not checked, the button will not appear.

In order to go back to the Main Menu screen the user must press the exit button. If the user presses the Inventory button on the Main Menu screen (**See Figure 4**) the following screen is going to display.

Figure 6 MC Inventory Screen

In this screen the user have to select the Area and location to work with. The Area and location to be selected will be generated from an ASCII (see appendix E, F and G for file layout) file downloaded to the portable unit from an application in the PC. When the user selects an Area from the list, the location list will show only the locations that belongs to the area that the user selected.

When the user selects the area and location, on the table, all the assets that belongs that area and location will appear. The table will show the following fields: TAG_NUMBER, SERIAL NUMBER, MODEL, DESCRIPTION and CUSTODIAN AND EMPLOYEE ID.

At this phase the user will scan the fix assets and the system will flag the asset. Each time the user scan an asset, it will show a new screen with information of the asset. After the user confirm the scan asset, the inventory list screen will appear again and the asset that was scanned will not appear in the table.

Each time an asset is scan, it will get a flag status. There will be 3 flag status:

* **I** - Inventory

* **O** – Over

* **U** – Under

* **W** - Processed

The flag will be in the Match_Status field. After the asset is flagged, it will be written into a text file. There will be 3 events that can happen during the scanning process:

I – Inventory

If the asset exists, in the next screen the system will provide information about the asset. The user will be able to edit any of the details fields. The comments will be provided by the customer in an ASCII file (See Appendix L). The description will be provided by the customer in an ASCII file (See Appendix J). The custodian will be provided by the customer in an ASCII file (See Appendix K). For example, if the comment field is changed, in the record, the REVIEW_SW field will be change to indicate that the comment has been updated. The user will then press the "Confirm" button and then the system will write the asset into a text file (See Appendix A for file outline). The system will flag this asset as I – Inventory. If the print label check box is marked when the user presses the confirm button a Tag Number barcode will be printed.

When the asset does not have a barcode but it has the tag number written, the user must press the "Exception" button on the inventory screen and indicate that the tag number is available. When the user is in the Item Information screen it must enter the existing tag number. If the tag number exists on the inventory data provided by the host, the rest of the information will be display on the related fields. In this case when the user confirms the asset it will be flagged as I.

Figure 7 MC Item Information Inventory

O - Over.

f the asset doesn't exist on the inventory file the system will prompt a warning message to the user. The asset number will be displayed in the next screen and the user will be able to enter all field details information. The system will flag the asset as O.

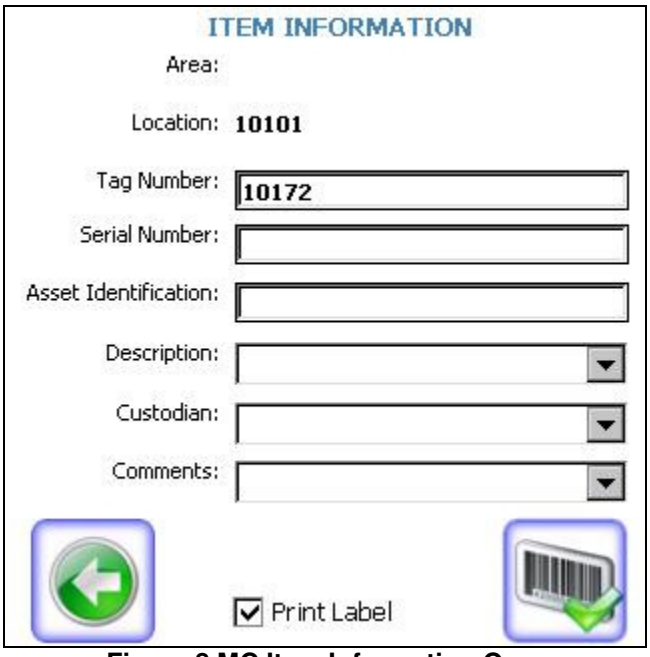

Figure 8 MC Item Information Over

When the asset does not have a barcode but it has the tag number written, the user must press the "Exception" button on the inventory screen and indicate that the tag number is available. Once in the information screen the user must enter the existing tag number, if the tag number doesn't exist on the inventory data provided by the host the rest of the information has to be entered. It will be flagged as O

U- Under.

When the assets are not inspected the system will flag this asset as U.

W- Processed

When the user presses the "**Locations**" button on the inventory screen, the following will appear:

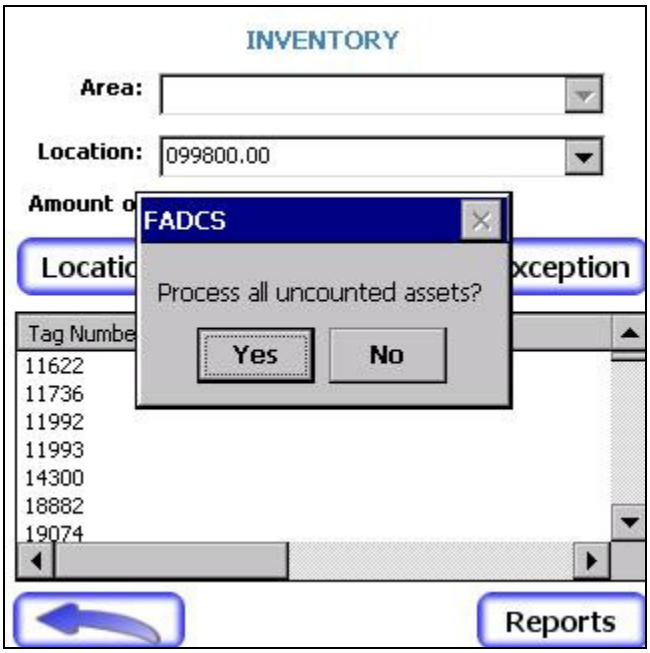

Figure 9 after pressing the location button

If the user clicks "**Yes**" on the question, all uncounted assets will get a "**W**". This status basically means that the assets were not found on the location. This is an optional status. If the user does not use this status, the "**U**" will achieve the same functionality.

Reports

To access reports, on the inventory screen, the user must press the “Reports” button.

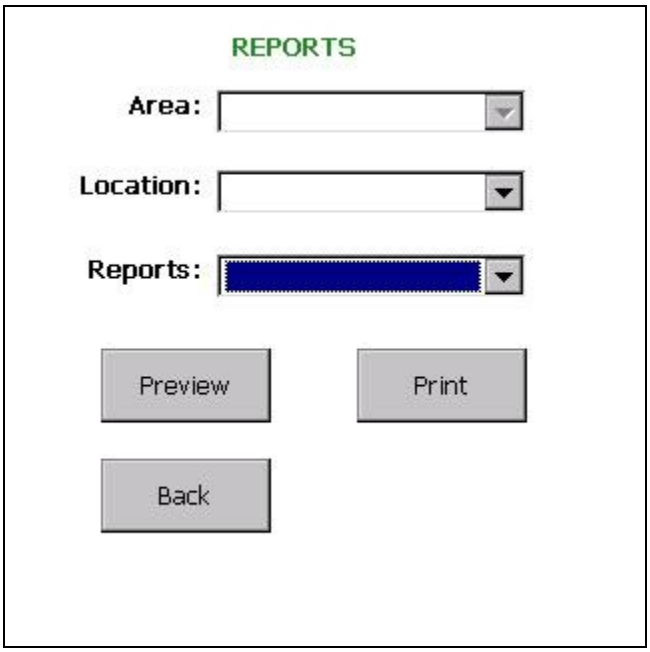

Figure 10 MC Reports

There are two types of reports, “All” reports and “By Area Location” reports. The “All” report includes all the assets, all the assets inspected only and all uninspected asset only. The “By Area Location” report includes only the assets that have been inspected by area and location and all assets by area and location. In both types of reports the user can choose to print. The user has to select the report type from the report list. To print an area and location report the user must specify an Area (optional) and a location. The report formats are on Appendix G.

PC Application

Welcome Screen

The application that runs on the PC will have a log in screen. The user and password will be based on a database table assign by the customer database. (This issue to be discuss in a meeting).

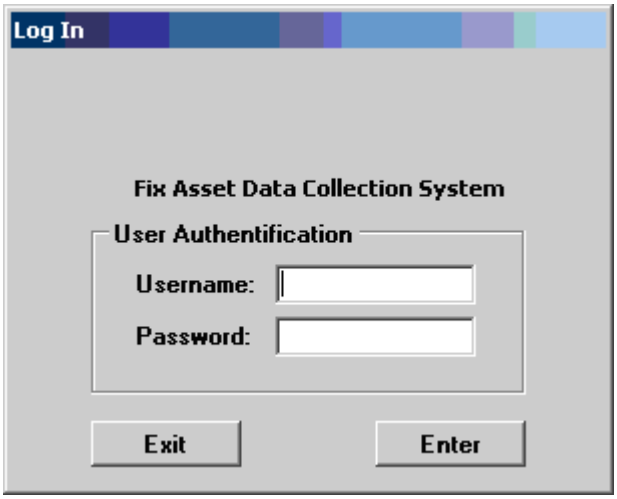

Figure 11 PC Welcome Screen

After the user has log on to the system the main menu will be display. The menu contains three buttons. The first button is to display the screen that will allow the user to browse the pc for the file that will be downloaded to the portable unit. The second button will upload automatically the file from the portable unit to the pc. The third button is to display the screen that will allow the user to edit some configuration files. The Main Menu of the application will look like the following:

Main Menu

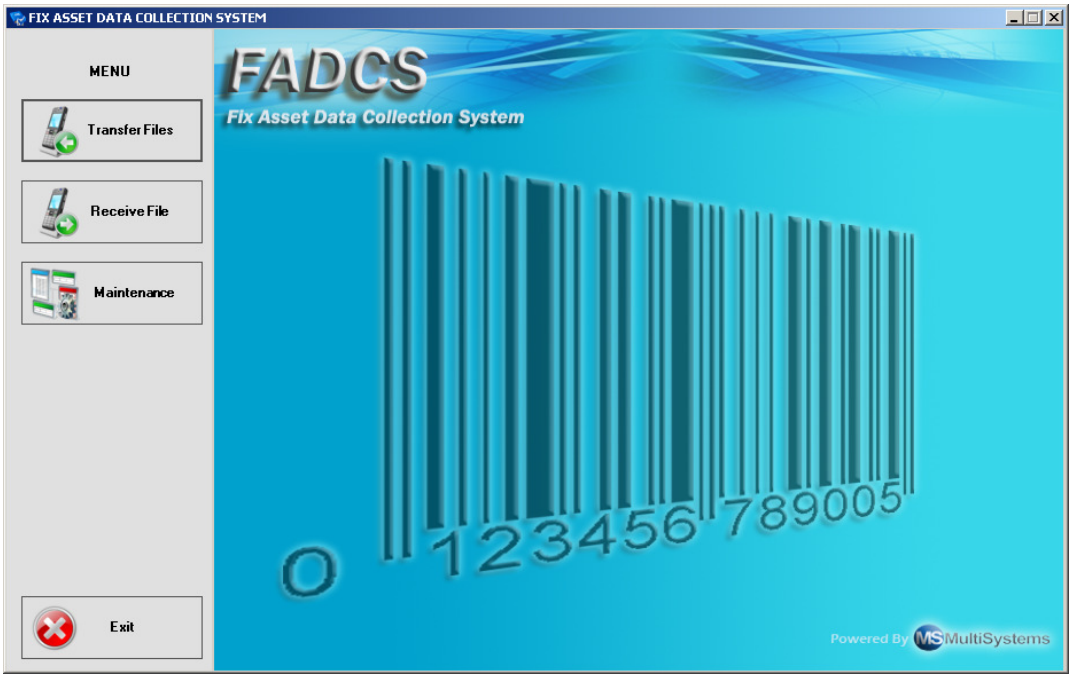

Figure 12 PC Main Menu

Transfer to the portable Device

To transfer the file to the portable device, the user must press the “Transfer Files” button on the main menu. The following screen will appear.

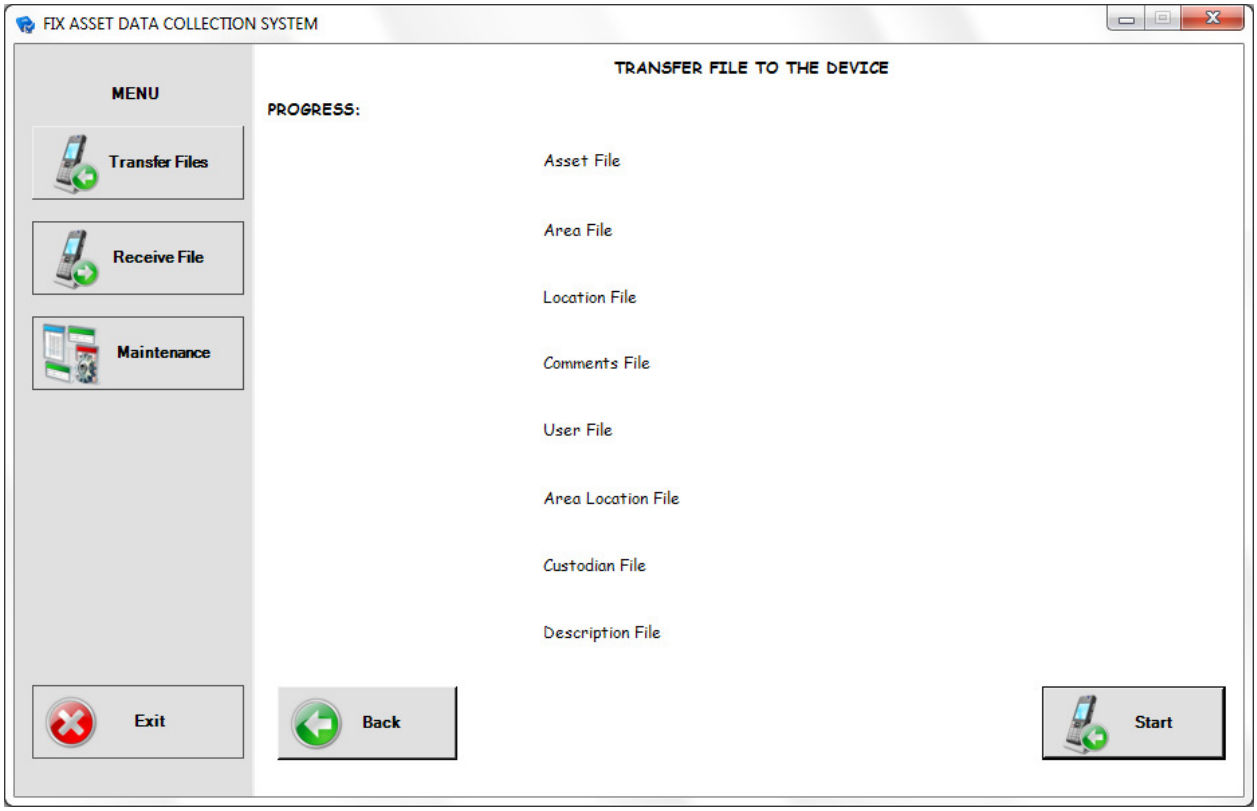

Figure 13 PC Transfer to Device

The user then must press the “Start” button to initiate the transfer process of the file. After the process has finished, check marks will appear on the side of each file name.

File upload to the PC

To receive the file from the portable device to the PC, the user must press the “Receive File” button on the main menu. The following screen will appear:

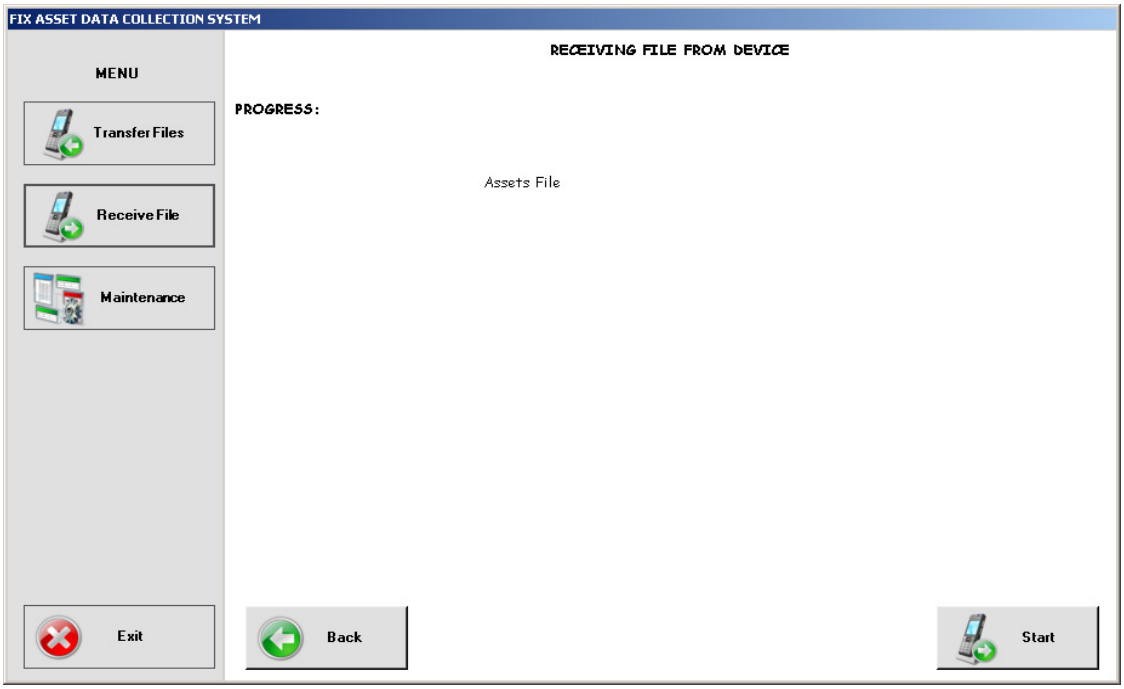

Figure 14 PC File upload

The user then must press the “Start” button to start the upload process. When the “Start” button has been pressed, it executed a process in the portable device. Once the process has finished it will notify on the pc where the file was saved and a check mark will appear on the side of the file name.

Maintenance Menu

In the PC application, the user will be able to edit files. To edit the files the user must press the “Maintenance” button on the main menu. The following screen will appear.

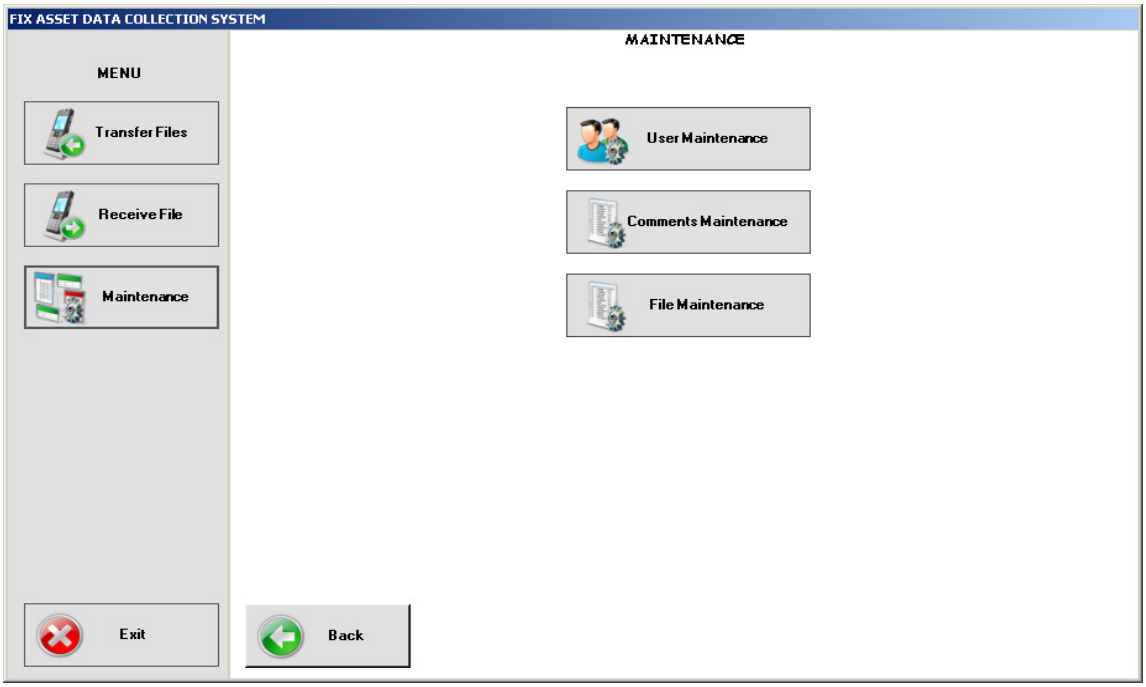

Figure 15 PC Maintenance Menu

On the maintenance menu, the user will have 3 buttons, “User Maintenance”, “Comments Maintenance” and “File Maintenance”.

User Maintenance

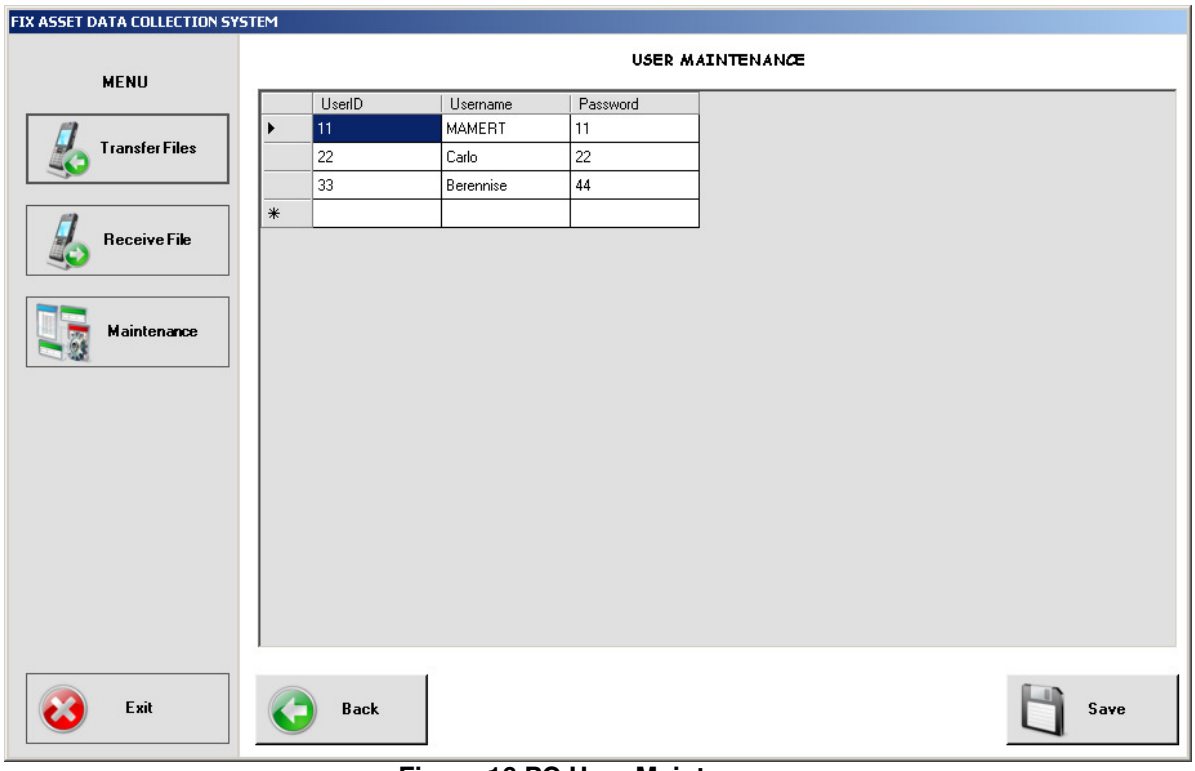

Figure 16 PC User Maintenance

On user maintenance, the user will be able to create, edit and delete a user. Before exiting the screen, the user must press the save button for all the changes to be saved, if not all changes will be lost.

Comments Maintenance

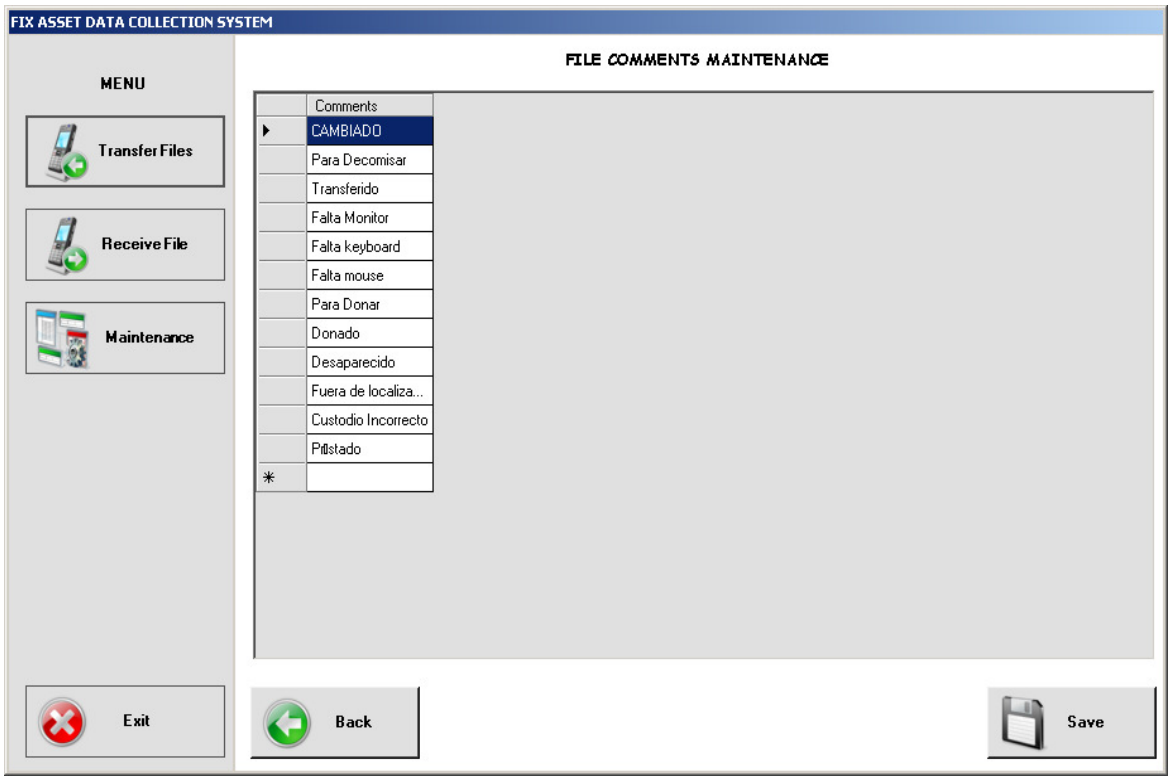

Figure 17 PC Comments Maintenance

On comments maintenance, the user will be able to create, edit and delete a comment. Before exiting the screen, the user must press the save button for all the changes to be saved, if not all changes will be lost.

File Maintenance

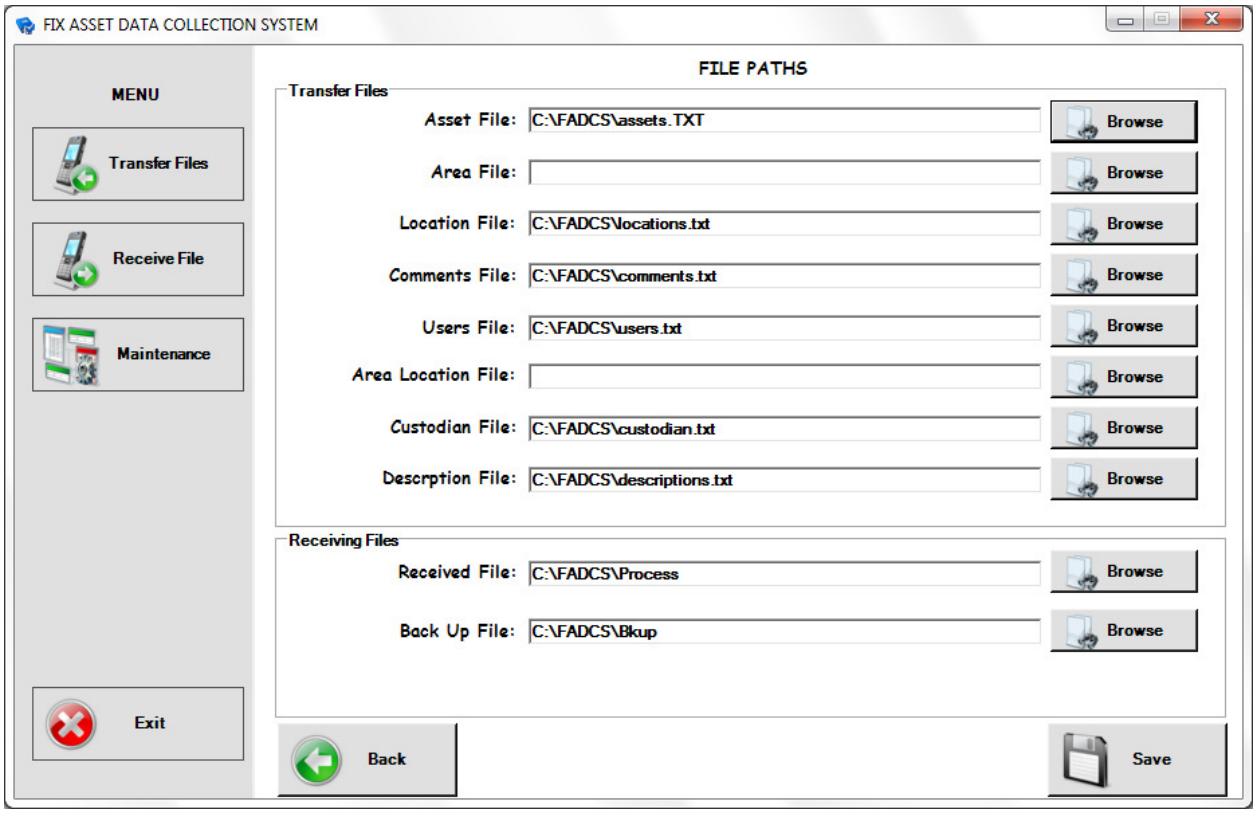

Figure 18 PC File Maintenance

On file maintenance, the user will specify the path of the files that will be sent to the unit. Also, it can specify the path for the file that the unit will send to the pc and the backup file. Before exiting the screen, the user must press the save button for all the changes to be saved, if not all changes will be lost.

APPENDIX A

File Outline Definition

Each time an asset is scanned it will be written to a transaction file which will be uploaded to the PC.

The FIX ASSET label that will scan the system will have the following stream.
“AAAAAAAAAAAA”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAA”|“AAAAAAAAAAAA”|”AAAAAAAAAA”|”AAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAA”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAA”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAA”|“AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA”|
“AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAA”|“AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAA”|“A”|“AAAAA”|“AAAAAAAAAAAAAA”|“AAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAA”|“AAAAAAAAAAAAAA”|“AAAAAAAAAA”|“AAAAA”|“AAAAAAAAAAAA
AAAAAAAAAAAAAAAAA”|“A”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAA”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAA”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
”|”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA”|
”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA”|
”AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA”|

APPENDIX B

Barcode Data Definition

The FIX ASSET label that will scan the system will have the following stream.
AAAAAAAAAAAA 6 or 12 characters

APPENDIX C

File Provided By Host

This file will be provided by the host or customer. The file will contain the Fix Asset inventory to be inspected. Fields should be separated by the special character pipe (|) and enclosed by double quotes. The file will have the following layout:

Record Type	Field Name	Description	Type	MAX Field Length	Format	Default Value
	TAG_NUMBER	The unique identification number of the asset that will be used by the system for asset identification for inventory process purposed	CHAR	12	UPPER	
	SERIAL_ID	The unique identification number of the asset used to differentiate one asset from another	CHAR	50	UPPER	
	ASSET_ID	The identification of the asset used to know the type of asset that is being inventoried	CHAR	12	UPPER	
	AREAID	The area identification of the location in which the asset is located	CHAR	10	UPPER	
	MODEL	The model number of the asset	CHAR	50	MIXED	
	LOCATIONID	The identification of the location in which the asset is located	CHAR	50	UPPER	
	DESCR	The identification ID of the Asset description	CHAR	50	UPPER	
	DESCRIPTION	A brief description of the asset	CHAR	50	UPPER	
	EMPLID	The employee identification number	CHAR	50	UPPER	
	CUSTODIAN	The person that has the custody of the asset	CHAR	70	UPPER	
	MANUFACTURER	The name of the asset's manufacturer	CHAR	50	MIXED	

APPENDIX D

User Name and Password File layout

This file will be provided by the customer or could be created on the PC interface module with the following ASCII format:

- userid -> 10 alpha-numeric
- user name -> 15 alpha-numeric
- password -> 10 alpha-numeric

Fields should be separated by the special character pipe (|) and enclosed by double quotes. The line that will be appended to the file will look like the following: Fields are separated by the "|" character. Follow the order above.

"AAAAAAAAAA"|"AAAAAAAAAAAAAAA"|"AAAAAAAAAA"
| | |
UserID User Name Password

The string line generated will have a maximum total of 43 characters.

Record Type	Field Name	Description	Type	MAX Field Length	Format	Default Value
	USERID	The user identification that the system users will use along with the password to log in to the system	CHAR	10		
	USERNAME	The name of the system user that corresponds to the User ID	CHAR	15		
	PASSWORD	The security code that the user will use along the user id lo log in to the system	CHAR	10		

APPENDIX E

Area File layout (Optional)

This file is optional and will be provided by the customer. In case that Area will be used the file will be provided by the customer. This file will contain the area code number and the area name. Fields should be separated by the special character pipe (|) and enclosed by double quotes.

Record Type	Field Name	Description	Type	MAX Field Length	Format	Default Value
	AREAID	The space in which the locations where the assets are stored	CHAR	10	UPPER	
	AREA_NAME	A brief description of the area	CHAR	30	UPPER	

APPENDIX F

Location File layout (Required)

This file will be provided by the customer. This file will contain the location identification and the location name. Fields should be delimited by the special character pipe (|) and enclosed by double quotes.

Record Type	Field Name	Description	Type	MAX Field Length	Format	Default Value
	LOCATIONID	The determined place related to an area in which the assets are stored	CHAR	50	UPPER	
	LOCATION_NAME	A brief description of the location	CHAR	50	UPPER	

APPENDIX G

Area-Location File layout (Optional)

This file is optional and will be provided by the customer. This file will contain the area identification and the location. Fields should be separated by the special character pipe (|) and enclosed by double quotes.

Record Type	Field Name	Description	Type	Field Length	Format	Default Value
	AREA	The space in which the locations where the assets are stored are in	CHAR	30	UPPER	
	LOCATIONID	The determined place related to an area in which the assets are stored	CHAR	10	UPPER	
	LOCATIONDESC	A brief description of the location	CHAR	40	UPPER	

APPENDIX H

Reports

All Inspected Assets:

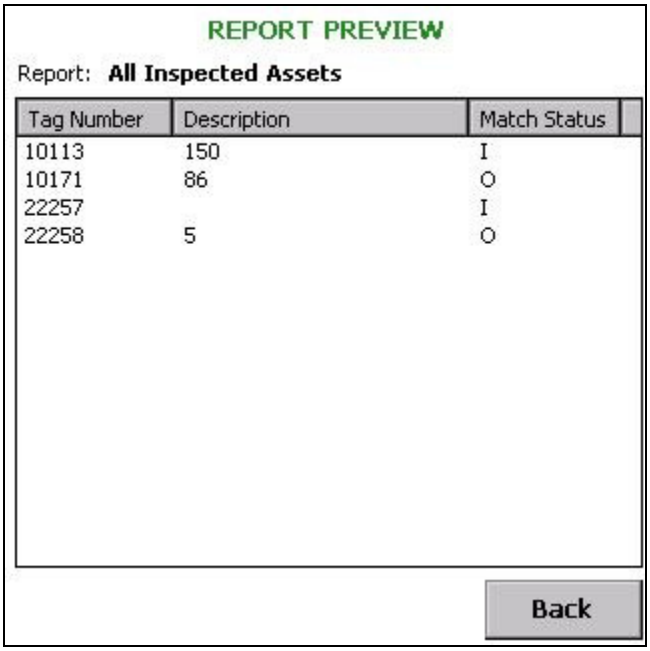

Figure 19 Inspected Assets Report

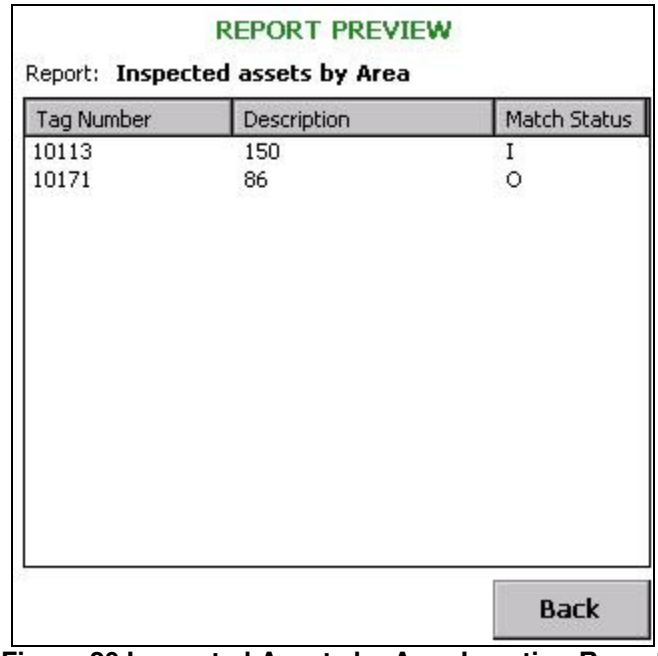

Figure 20 Inspected Assets by Area-Location Report

All Assets:

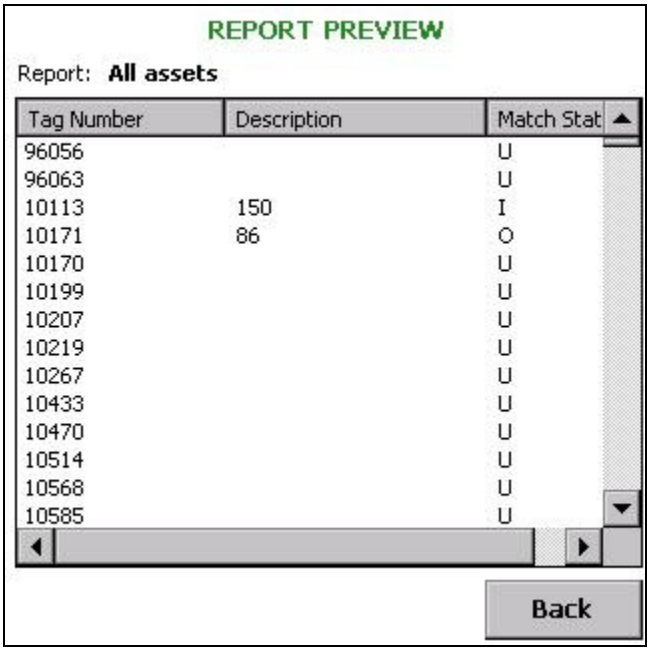

Figure 21 All Assets Report

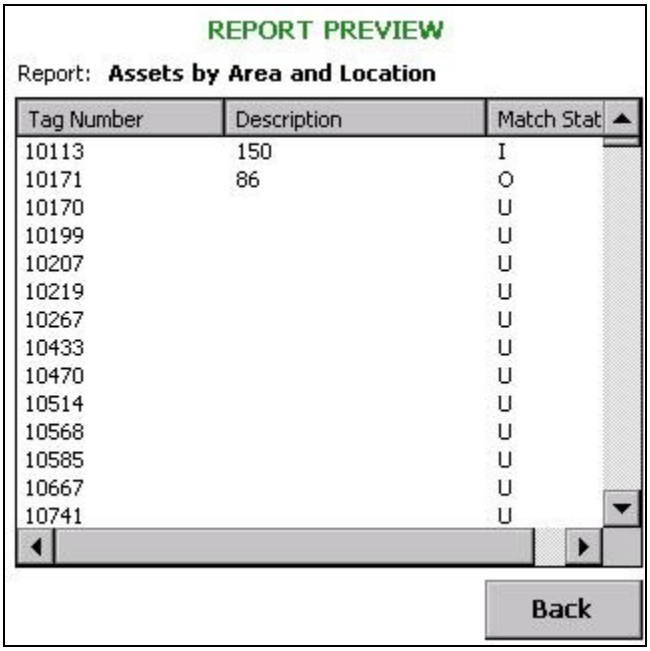

Figure 22 All Assets by Area-Location Report

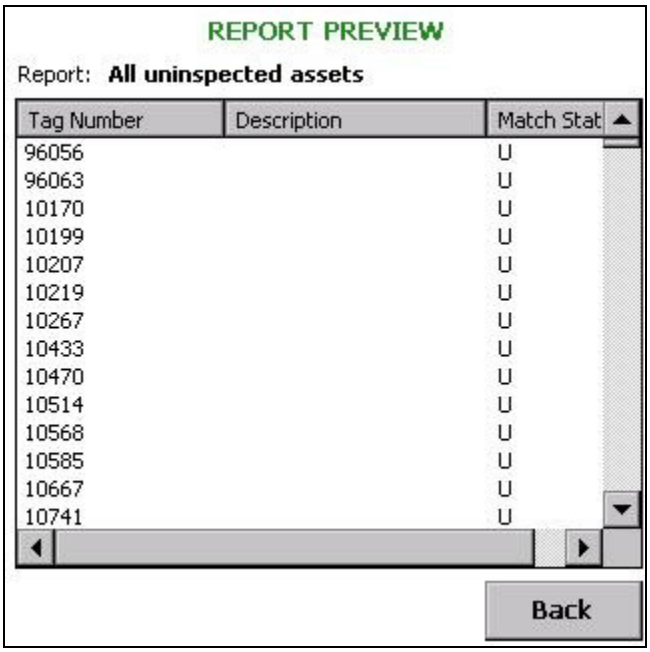

Figure 23 All Uninspected Assets Report

APPENDIX I

File Provided to Host

This file will be provided by the Portable Unit. The file will contain the Fix Asset inventory to inspect. Each field is separated by a pipe (|) character. The file will have the following layout:

Record Type	Field Name	Description	Type	Max Field Length	Format	Default Value
	TAG_NUMBER	The unique identification number of the asset that will be used by the system for asset identification for inventory process purposed	CHAR	12	UPPER	
	SERIAL_ID	The unique identification number of the asset used to differentiate one asset from another	CHAR	50	UPPER	
	ASSET_ID	The identification of the asset used to know the type of asset that is being inventoried	CHAR	12	UPPER	
	AREAID	The area identification of the location in which the asset is located	CHAR	10	UPPER	
	MODEL	The model number of the asset	CHAR	50	MIXED	
	LOCATIONID	The identification of the location in which the asset is located	CHAR	50	UPPER	
	DESCR	The identification ID of the Asset description	CHAR	50	UPPER	
	DESCRIPTION	A brief description of the asset	CHAR	50	UPPER	
	EMPLID	The employee identification number	CHAR	50	UPPER	
	CUSTODIAN	The person that has the custody of the asset	CHAR	70	UPPER	
	MANUFACTURER	The name of the asset's manufacturer	CHAR	50	MIXED	
	MATCH_STATUS	The match status of the inventory process	CHAR	1	UPPER	See below
	REVIEW_SW	NOT USED	CHAR	5		
	IP_ADDRESS	NOT USED	CHAR	15		
	IP_ALIAS	NOT USED	CHAR	35		
	SOFTWARE_VERSION	NOT USED	CHAR	15		
	IT_ASSET_ID	NOT USED	CHAR	10		
	SCAN_BUSINESS_UNIT	NOT USED	CHAR	5		
	HAND_HELD_OPERATOR	Inspector username	CHAR	30		
	COMMENTS_ID	Comment ID	CHAR	50		
	COMMENTS	A brief note related to the asset when it was inventoried	CHAR	50	UPPER	
	REFERENCE		CHAR	50		
	METHOD		CHAR	1		
	USERNAME		CHAR	50		

	TRANDATE		CHAR	50		

Field Name: MATCH_STATUS

Value	Description
I	Inventory
O	Over
U	Under

Field Name: METHOD

Value	Description
S	Scanned
M	Manual

The Following fields will be empty:

IP_ADDRESS
IP_ALIAS
SOFTWARE_VERSION
IT_ASSET_ID
SCAN_BUSINESS_UNIT

APPENDIX J

Description File layout (Optional)

This file is optional and will be provided by the customer.. This file will contain the description ID and the physical description of the asset. Fields should be separated by the special character pipe (|).

Record Type	Field Name	Description	Type	Field Length	Format	Default Value
	DESCRID	Description ID	CHAR	15	UPPER	
	DESCRIPTION	Physical description of the asset.	CHAR	100	UPPER	

APPENDIX K

Custodian File layout (Optional)

This file is optional and will be provided by the customer. This file will contain the custodian ID and the custodian name. Fields should be separated by the special character pipe (|).

Record Type	Field Name	Description	Type	Field Length	Format	Default Value
	CUSTID	Custodian ID	CHAR	15	UPPER	
	CUSTNAME	Custodian name	CHAR	50	UPPER	

APPENDIX L

Comments File Layout

This file will be provided by the customer or created on the PC interface module. This file will contain the comment identification and the comment. The commented field will be optional. Fields should be separated by the special character pipe (|).

Record Type	Field Name	Description	Type	Field Length	Format	Default Value
	COMMENTID	Comment ID	CHAR	3	UPPER	
	COMMENT	A brief comment that will be used to store a short note when an asset is inventoried.	CHAR	30	UPPER	

APPENDIX M

Events Table

Description	Use Case	Status	Method	Tag	Review	Comments
Asset is in correct location and has barcode.	1. Barcode available 2. Asset tag scanned OK 3. Asset found in correct location.	I	S	Tag	0	
An asset is in correct location and does not have barcode for scanning.	1. Barcode NOT available 2. Asset tag entered manually OK 3. Asset found in correct location.	I	M	Empty	0	Label required.
An asset is not in the correct location and has a barcode and is on the portable unit inventory.	1. Barcode available 2. Asset tag scanned OK 3. Asset not in correct location. Asset info may or may not be enter by the user. 3a. When the asset is found on the mobile unit database the information for that asset is shown and not required to be entered by the user. 3b. When the Asset is not found on the mobile unit database the information for that asset is required.	I	S	Tag	1	This case is an operational possibility. The asset exists on the portable unit inventory but is not in the correct location.
An asset is not in the correct location and has a barcode and is not on the portable unit inventory.	1. Barcode available 2. Asset tag scanned OK 3. Asset not in correct location. Asset info may or may not be enter by the user. 3a. When the asset is found on the mobile unit database the information for that asset is shown and not required to be entered by the user. 3b. When the Asset is not found on the mobile unit database the information for that asset is required.	O	S	Tag	0	The asset has a barcode but not exists on the portable unit inventory.
Asset does not have barcode but it does have the tag number manually written.	1. Barcode not available 2. Tag number entered manually 3. Information for the asset may or may not be enter by the user. 3a. When the asset is found on the mobile unit database the information for that asset is shown and	O	M	Empty	0	Label required. The asset has the tag number manually written but not exists on the portable unit

	not required to be entered by the user. 3b. When the asset is not found on the mobile unit database the information for that asset is required.					inventory.
An asset does not exist and it does not have a barcode or a tag number.	1. Barcode not available 2. No written tag number available 3. A reference number is assigned to the asset. 4. Information for the asset must be entered.	O	M	Empty	0	Label required. Asset has to be added to Oracle.
Asset not found during the inspection.	1. Asset not found and not scanned nor entered manually.	U	Empty	Empty	0	

Customer Acceptance

The submitted System Design Manual for the Fix Asset Data Collection System complies with the specifications of _____, specified through MultiSystems Proposal and those provided by _____ project team.

This document exceeds above any other document referring and/or detailing the system programming and functionality for the Fix Asset Data Collection System

_____ understands that any changes to the System Manual of the Fix Asset Data Collection System transaction from now on shall be communicated through MultiSystems Inc. Project Change Control Procedure and could have an economic impact over the project.

By signing this document _____ authorizes MultiSystems, Inc. to start the development of the Fix Asset Data Collection System.

_____ _____

_____

Customer Representative MultiSystems Inc. Representative

Date: Date: