

TAPWATCH[®]



VERSION 2.2

USER MANUAL 03253D





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TABLE OF CONTENTS

Section 1.0 Overview: TapWatch	3
Section 2.0 Installing TapWatch Software	4
2.1 Hardware Requirements for Computer Stations and Laptops	4
2.2 Software Installation	4
2.3 Standard Software Features	5
2.4 Non-Standard Software Features	5
Section 3.0 Using TapWatch Software	7
3.1 Options to Launch the Program	7
3.1.1 About Screen	8
3.2 Main Screen – List of Sites	8
3.2.1 Sort Site List	9
3.2.2 Add a Site.	9
3.2.3 Open a Site.	11
3.2.4 Backup a Site.	12
3.2.5 Delete a Site	12
3 2 6 Options	12
3 2 7 Exit TanWatch	13
3.3 Connection Screen	14
3 3 1 Connection Indicators	14
3.3.2 Connection Type	15
3 3 3 DCC System Information	15
3.3.4 Command Buttons	15
3.4 Edit	17
2.4.1 Site Tab	17
3.4.1 Site Tab.	10
3.4.2 Comments Tab	20
3.4.5 Dundings Tab	21
5.4.4 Meters 1a0	21
2.5 Winn	23
2.5.1 Site Information Tab	
5.5.1 Site Information Tab	
5.5.2 Comments 1ab	
3.5.3 Meters 1ab	25
3.5.4 Repeaters Tab	
3.5.5 Exception Log Tab	28
3.6 Passwords	
3.6.1 User setup: Setting up the default passwords in TapWatch software	33
3.6.2 Using TapWatch software to Connect to the DCC	34
3.7 Automatic Download	36
Section 4.0 File Locations.	39
4.0.1 Desktop Icon	39
4.0.2 Start Navigator	39
4.0.3 Directory and Subdirectory Structures	39
4.0.4 TapWatch2 \ Mod Files Folder	41
4.0.5 TapWatch2\ Files Folder	41

Section 5.0 TapWatch Hardware	
5.1 DCC and FA403 Description and Installation	
5.1.1 DCC and FA403 (Head-End) installation.	43
5.1.2 FA-5570 Repeater	44
5.1.3 Pulse Meter Transmitters (PMTs)	44
5.1.4 Specifications for DCC and FA403	46
Section 6.0 Using TapWatch as a Troubleshooting Tool	
6.1 Ways to Set up a Site	47
6.2 Managing Passwords	47
6.2.1 Understanding how passwords work	47
6.2.2 Limitations for the various password level	47
6.3 Uses for the COM Port Sniffer	47
6.4 DCC-Phone connections	
6.5 Configuration changes	
6.6 Loss of Real Time Clock	49
6.7 Data Entry Recommendations	50
6.8 Check-in Monitor	51
Section 7.0 Addendum to the TapWatch® 2 User Manual	
7.1 SW5800-CONT: Contractor Mode	

Section 1.0 Overview: TapWatch



Figure 1.1: TapWatch System

This manual is arranged into sections relating to aspects of the TapWatch system.

- Section 2.0 describes how to install TapWatch software.
- Section 3.0 describes how to use TapWatch software.
- Section 4.0 discusses file location architecture.
- Section 5.0 describes the hardware needed for TapWatch.
- Section 6.0 discusses ways in which TapWatch can be used to maintain, analyze and troubleshoot submetered sites.

2.1 Hardware Requirements for Computer Stations and Laptops

This section outlines the minimum and recommended computer hardware setup. Following the recommended performance levels for the hardware ensure optimum performance of the TapWatch software. Performance levels may decrease if the minimum requirements are not maintained.

- 1. Pentium Class Minimum.
- 2. RAM 32 MB RAM, minimum. (64 MB RAM recommended.)
- 3. Hard drive space 40 MB, minimum. Additional space needed depending on number of sites, amount of meter readings retrieved, etc.
- 4. 166 MHz Minimum (333MHz, or higher, recommended.)
- 5. Serial Port and up to a 25' cable for computers that connect directly to DCC and FA403.
- 6. COM Port and Modem 33.6 K minimum (56K recommended) for computers that connect via modem to the DCC.
- Microsoft[®] Windows[®] 98 (preferred), Windows[®] 2000, Windows NT[®], or Windows[®] Me operating systems¹.
- 8. Keyboard, Mouse, Monitor
- 9. CD drive to load software onto computer.

2.2 Software Installation

- 1. Go to START-SETTINGS-CONTROL PANEL and choose "Add/Remove Programs".
- 2. Choose "Install". Put the CD ROM or the installation diskette in the appropriate drive.
- 3. Select and run the setup executable file (*.*exe*) in the install folder.
- 4. Follow setup instructions on TapWatch installation screen.
 - a. The program will have you call Inovonics to get a password that allows the installation of the program.

For future upgrades, be prepared to provide the following information:

- Name
- Company Mailing address
- E-mail address
- Software license number, if applicable
- 5. The program will ask for your first and last name as well as the name of your company. This information will be used to identify your computer to the DCC.
- 6. The installer typically will send a password key to the corporate office, and will receive a valid password file to activate the TapWatch system. (See Section 3.6 for more information regarding passwords.)
 - a. A password key (C:/Program Files/TapWatch2/Files/Password Key/Password Key First-name Lastname.txt) is created when the TapWatch software is run for the first time.
 - b. The user will send the password key to the corporate office via e-mail or on a diskette via post mail.

Analogy: Installation creates a blank "key" for the DCC. The installer sends this blank key to the corporate office, which cuts the key to fit the DCC "lock". The installer gets the key back from corporate, and places it into the Password File location for future use. Note: the password key is NOT required to use the DCC. Its purpose is to to allow the corporate office to embed an encrypted password in the DCC. If the password key is not created, technicians will be prompted for a local password each time they access the DCC.

^{1.} *Microsoft, Windows, Windows NT* are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. *Zip* is a registered trademark of Iomega Corporation. *Norton Program Scheduler* is a trademark of Symantec Corporation. *TapWatch* is a registered trademark of Inovonics Wireless Corporation. All other trademarks are property of their respective owners.

- c. The corporate office will send back to the user a new password file (Password File First-name Lastname.txt) which contains the encrypted corporate password, the view only password and the view & edit password used by the service technician. The user will place this file in the C:/Program Files/TapWatch2/Files/Password File directory of computer with TapWatch software. The file is unique for that computer and user and will not work on any other computer.
- d. When the user sets up a new DCC for the first time, the passwords from the password file in the C:/ Program Files/TapWatch2/Files/Password File directory will automatically be loaded into the DCC. (Passwords are in an encrypted form.)
- e. The default passwords in the user's computer can be reset by installing a new password file created by the corporate office.

2.3 Standard Software Features

- 1. TapWatch has standard Windows features.
 - a. Pressing Alt + Underlined letter on button will activate the button.
 - b. Buttons are also activated by a mouse click.
 - c. Tab is used to move from field to field.
 - d. Shift + Tab moves between fields in reverse order.
 - e. Cursor can be positioned with a mouse click.
 - f. Resting the cursor over a field or button produces tooltips.
 - g. Data entry fields may have limitations regarding type and number of characters.
 - h. Double clicking on a column header will sort the data in that column, toggling between ascending and descending order.
 - i. Holding down the shift button and using the arrows will highlight text.
 - j. Once the main section of the program is entered, folder tab symbols laid out horizontally across the top of the screen are used to pull up individual pages.
 - k. All export buttons produce the standard Windows Explorer Browser dialog box.
 - 1. Default Save locations for exported files are preset in TapWatch during setup. Some files may be redirected, however, the files indicated in the File Location section below with an * should not be moved or you may experience difficulty with the TapWatch program.
 - m. Some files—like the summary and exception reports—can be saved in "*.csv" format. This means that the file is comma delimited and will open in Microsoft[®] Excel or other equivalent spreadsheet applications. This is useful when trying to manipulate and sort the data.

Figure 2-1: View of Windows Browser dialog box

Save jn: 🔂	Backup	•	E	<u></u>	Ċ	0-0- 5-5- 0-0-
🔊 006 Indigo	@Backup 3-27-2000.bak					
	N					
File <u>n</u> ame:	006 Indigo@Backup 3-27-2000					<u>S</u> ave
Save as type:	×.bak			•		Cancel
	Open as read-only					

2.4 Non-Standard Software Features

b.

1. Functional differences between standard Windows and TapWatch.

- a. Pressing the Delete key on the keyboard will not delete records.
 - The Arrow keys do not work in every field.

- c. It is not possible to drag and drop information in fields.
- d. Ctrl + C and Ctrl + V shortcuts do not cut and paste highlighted items.
- e. Within data columns, double right clicks will open site, building, meter, or repeater the cursor is focused on.
- f. Data entry within a field is not automatically highlighted on entering a field.

Section 3.0 Using TapWatch Software

3.1 Options to Launch the Program

1. Double-click the Windows Desktop Icon.

Figure 3-1: Desktop Icon



- 2. Use the Start Navigation Menu.
 - a. Click on the Start Button. "TapWatch" selection is above "Programs".

Figure 3-2: Start Navigation Menu



- 3. Launch at Startup.
 - a. If you want TapWatch to automatically start when your PC boots up, add the shortcut to the Windows Startup Folder.

3.1.1 About Screen

The About screen appears when TapWatch is loaded.

Figure 3-3: About Screen.



- A. The About screen has the following information available for the user.
 - 1. Software version. This is the version of TapWatch loaded onto the computer.
 - 2. Software mode.
 - a. Corporate. This is the software mode for corporate office.
 - b. Technician. This is the software mode for all Tech laptops.
 - c. View Only. This software mode allows users to retrieve meter readings, but not to make changes.
 - d. Contractor. This mode restricts the ability to retrieve readings. See section 7.0 for more information.
 - 3. Copyright information.
 - 4. Telephone and e-mail information for Inovonics.

3.2 Main Screen – List of Sites

The main screen – List of Sites—shows all of the Properties or Sites contained on your PC. *It is only possible to conduct business on one site at a time.* This section gives detailed instructions on how to Backup, Restore, Add, Open, and Delete sites. It also explains the Options, Exit and About buttons accessible from the List of Sites screen.

Figure 3-4: List of Sites Screen

Tap₩atch 2.2 - [List	of Sites]				_ 8 ×
TAP\	NATCH ®	- 72	<u>S</u> earch	h Cl <u>e</u> ar	About
Wireless Su	Ibmetering Software	_ u			
Property ID	Site Name	City	State	Modem Phone #	•
006 Indigo	Indigo Garden Apartments	Marine	CA	9, 303-939-9812	
Arboretum	Arboretum		CO		
AshfordWay	Ashford Way	Griffin	GA		
BelAir	Bel Air	San Ramon	CA		
BRDGWATRAPT	Bridgewater Apartments		CO		
BRIDGBAYCHNC	Bridgetown Bay	Charlotte	NC	9,13035551212	
BRKNRDGE	BRECKENRIDGE		TN		
BROOKRIDGE	BROOKRIDGE		TN		
CAcuptinoSJ	Avalon Cupertino	Cupertino	CA	9,13035551212	
Carlylestatn	Carlyle Station		VA		
CROSSCREEK	CROSSCREEK		CO		
FOUNTIANHEAD	Fountainhead Apartments		TX	9,13035551212	
GolfBrook	Golf Brook		CO		
GrandviewSum	1165_GRANDVIEW SUMMIT		KY		
LAJollaPLMS	2129_La Jolla Palms		CO		
LAKEHEATHRS	Lake Heather Reserve		CO		
MONTEGO	Montego Bay		CO		
MONTICHELLO	MONTICELLO OAKS		TN		_
<u>B</u> ackup					
<u>R</u> estore	Add	<u>O</u> pen	D	elete	
0 <u>p</u> tions					E <u>x</u> it

3.2.1 Sort Site List.

- A. It is possible to sort each column in either ascending or descending order. Single click on the column header above the column to be sorted.
- B. Using the Search button on the top of the page, only those sites containing the text entered will be displayed. To indicate that a search is active, the text background color will be different. To deactivate a search, click on the Clear button. The search is performed looking for the exact text entered. Example: Searching for "*river*" will result in sites that have any text matching *river*.

3.2.2 Add a Site.





There are three available options to add a site.

Add a new site, Import an existing site, or Restore site information.

A. Add a New Site

4.

Use this option to add a new site by manually entering all the site information.

- 1. Click on "Add".
- 2. Type a Property ID for the site.
 - a. Use up to 12 alphanumeric characters.
 - b. Do not use any other symbols or characters. This must be a unique identifier. Refer to your company's policy regarding format.
- 3. Type in a Site Name with up to 25 alphanumeric characters.
 - Click on "OK" to save the new site. The program will go to the Connection Screen.
 - a. If you want to cancel the procedure, click on "Cancel" to delete all information added and return to List of Sites screen.
- 5. You may now manually enter all data for the site.
- B. Import Existing Site.

Use this option if a DCC already has the site information loaded in it and you want to retrieve the site information onto a computer.

- 1. Click on "Add". Do not enter any information in the Property ID or Site Name fields.
- 2. Click on the checkbox next to "Import Existing Site". The Import Site screen opens.
- 3. Under Connection Type, click on "Modem" or "Direct Serial Connection".
- 4. Click on the Edit checkbox.
- 5. Enter the correct COM Port for your computer, based on selection in #3 above.
 - a. You can determine your COM Port numbers by right-clicking on the My Computer icon and selecting properties. Under properties select Device Manager and then look at the properties of the specific modem or COM Port you are trying to access to determine their numbering scheme.
- 6. If connecting over a phone line, enter the modem number of the DCC that has the site information to be imported.
- 7. After the computer connects to the DCC, a screen will request password information, unless your computer has been pre-authorized via a password key in setup for access to this site.

If you do not know the password, cancel from the site and follow the password process with your corporate office to authorize your PC.

- 8. The Data Retrieval Screen will prompt you to retrieve data from the DCC.
- 9. Once the data has been transferred to your computer, you will be placed in the Site Information screen.
- 10. After "Close", the imported site will be visible on the List Of Sites screen.

C. Restore a Site

Use this option if you have backup files (*.bak) to restore from your hard drive, diskette or other medium.

Look jn: 🔂 Files		- 🗈 🜌	*
001 ROUGE 002 ORANGE 003 BANANA 004 GREEN 005 BLUE 006 INDIGO	007 VIOLET 008 ASH 009 WHITE 010 ROSE 011SIENNA 012 YELLOW	 013 GRASS 014 AZURE 015 PURPLE 016 PETAL 017 NIGHT 018 SNOW 	O19 ROJO Password Password Password Password
File <u>n</u> ame: Stat	(<u>O</u> pen
Files of type:		•	Cancel
Γ 0	pen as <u>r</u> ead-only		

Figure 3-6: Restore Browse Screen

- 1. Click on Restore button.
- 2. The default restore location will be the backup directory of the site you selected on the List of Sites screen.
- 3. Find *.bak file under C:\PROGRAM FILES\TAPWATCH2\Files\"Site Property ID"\Backup to select different *.bak file.
- 4. Highlight file to restore, then click Open.
- 5. If site doesn't exist on List of Sites, "The selected backup file has been restored" message is displayed.
- 6. If site does exist on List of Sites, the message "Would you like to replace the existing site "Site Name and Last Modified data" With this one? "Site Name and Last Modified data" is displayed.
- 7. Select "Yes" to restore *.bak and overwrite file. The message: "The selected backup file has been restored" is displayed.
- 8. Select "No" to cancel restore function.

3.2.3 Open a Site.

This option opens a site so you can perform all functions of TapWatch on an individual site.

NOTE: If connecting to a DCC for the first time, then there is not an existing "site key". The software will display a window indicating that connection has been made to a blank DCC, and asking if information is to be loaded into it.

Figure 3-7: Connected to Blank DCC



Once information has been "published" into a blank DCC, another screen will advise that the operation was successful, that you will be logged off, and will need to reconnect. [This is necessary because passwords are being set when the initial connection is made to the DCC. While passwords are being set, the technician is temporarily in "corporate" password mode. The log-off prevents continued use of corporate-level functions.]





- A. Highlight the Site you want to open. To highlight, move cursor to site, click the left mouse button.
- B. Click on the "Open" Button. The Site Information screen opens.

Figure	3-9:	Opening	a Site
--------	------	---------	--------

Property ID Si 006 Indigo In Arboretum Ar AshfordWay As BelAir BelAir Bi BRDGWATRAPT Bi BRIDGBAYCHNC BI DRIWIDDEAT	te Name digo Garden Apartments boretum shford Way el Air	City Marine Griffin	State CA CO	Modem Phone # 9, 303-939-9812	
D06 Indigo In Arboretum Ar AshfordWay As BelAir Br BRDGWATRAPT Br BRIDGBAYCHNC Br	digo Garden Apartments boretum shford Way el Air	Marine Griffin	CA CO	9, 303-939-9812	
Arboretum Ar AshfordWay As BelAir Br BRDGWATRAPT Br BRIDGBAYCHNC Br BRIDGBAYCHNC Br	boretum shford Way el Air	Griffin	CO		
AshfordWay As BelAir Be BRDGWATRAPT Bi BRIDGBAYCHNC Br	shford Way el Air	Griffin			
BelAir Be BRDGWATRAPT BI BRIDGBAYCHNC BI	el Air		GA		
BRDGWATRAPT BI BRIDGBAYCHNC BI	al el en en a combre an ll'an en el en el en la el	San Ramon	CA		
BRIDGBAYCHNC BI	ridgewater Apartments		CO		
	ridgetown Bay	Charlotte	NC	9,13035551212	
BRENEDUE BI	RECKENRIDGE		TN		
BROOKRIDGE BI	ROOKRIDGE		TN		
CAcuptinoSJ Av	/alon Cupertino	Cupertino	CA	9,13035551212	
Carlylestatn C:	arlyle Station		VA		
CROSSCREEK CI	ROSSCREEK		CO		
FOUNTIANHEAD FO	ountainhead Apartments		TX	9,13035551212	
GolfBrook G	olf Brook		CO		
GrandviewSum 11	165_GRANDVIEW SUMMIT		KY		
LAJollaPLMS 21	129_La Jolla Palms		CO		
LAKEHEATHRS La	ake Heather Reserve		CO		
MONTEGO M	ontego Bay		CO		
MONTICHELLO M	ONTICELLO OAKS		TN		
Backup					

3.2.4 Backup a Site.

This option backs up site information to a disk file.

It is strongly recommended that all sites are backed up regularly on a device other than the primary hard drive, such as diskette, tape backup, Zip[®] drive, etc.

Sites that have data lost completely for whatever reason—fire/theft/hardware failure/lightning/malicious acts/etc. will have to be completely reprogrammed. This will require reaccessing every apartment to press the reset button on the transmitters!

Figure 3-10: Backup Screen

	J			
Save jn: 🔂	Backup	- 🗈	<u></u>	*
006 Indigo	@Backup 3-27-2000.bak			
	~			
1	-			
File <u>n</u> ame:	006 Indigo@Backup 3-27-2000		-1	<u>S</u> ave
Save as type:	*.bak		•	Cancel
	C Open as read-only			

- A. Highlight site to backup. Click on Backup button. To use the default backup location, press enter.
 - 1. The default location of each backup performed is C:\PROGRAM FILES\TAPWATCH2\FILES\SITE NAME\BACKUP.
- B. To select a different file location (such as A:\) for backups, use the Windows Browser dialog box to select a new location.
- C. When "The selected site has been backed up" message is displayed, then press "OK".

NOTE: An alternative method to backing up data for all sites is to backup all files in the TapWatch2 directory to a location other than your PC hard drive. The default location at the time of installation is *C:\program files\TapWatch2*.

The AutoBackup feature was created to help prevent data loss. The AutoBackup feature is an automatic function of TapWatch software. Every time a site is edited, a backup of this configuration is created in C:\PROGRAM FILES\TAPWATCH2\FILES\SITE NAME\AUTOBACKUP. Up to 25 backups are stored in this file. The oldest backups are deleted when the directory tries to save the twenty-sixth backup. If a file is edited 26 times in a day, all of the backup files in this directory will be for the current day.

3.2.5 Delete a Site

This option deletes a site. **Make sure to perform a backup prior to deleting** because all Buildings, Meters, Repeaters, and Comments related to the site will be deleted. Make sure to create an outfile with the last known meter readings before deleting.

- A. Highlight the site you want to delete. To highlight, move the cursor to the site, click the left mouse button, then click on the "Delete" button.
- B. To delete the site, click "Yes" when the message, "Are you sure you want to DELETE the 'Site Name' site and all of it's meter readings?" is displayed. After deleting site, it no longer can be seen on the List of Sites screen.
- C. To avoid deleting a site, click "No" when this message is displayed.

3.2.6 Options.

This options screen is used to make decisions regarding file formats and the default passwords.

otions	
Selected File: File Type #1.mod File Type #1.mod File Type #2.mod File Type #3.mod File Type #4.mod	Our rise Location Auto downloaded Out Files go to: C Default location C Default and optional location C Optional location C Optional location
View Description File	CA Browse
Use Default Passwords	
	Save & <u>C</u> lose

Figure 3-11: Options Screen

- A. Selecting Outfile Format
 - 1. The selection made here will dictate the way files are saved when exporting data from TapWatch . **Check with your billing center to find out which format to use.** One of these file types must be selected before TapWatch can create an Out file.
- B. Using Default Passwords
 - 1. This option is to prompt the computer to look at the password key delivered from corporate office software rather than the DCC default password to sign on.
- C. Auto download Out File location.
 - 1. The default location and file name for Out files which contain the meter readings is C:\Program Files\TapWatch2\Files\Site Name\Export\propertyID_Date.out. See section 3.5.3.D for more information.
 - 2. An additional copy of the Out file can be created in another directory of the user's choice by selecting "Default and optional location". The other directory and file path must be typed in, or the Browse button used.
 - 3. The Out file can be created solely in a separate directory of the user's choice by selecting "Optional location". The directory and file path must be entered or the Browse button used.

3.2.7 Exit TapWatch.

A. Click on the "Exit" button. The program will closed.

3.3 Connection Screen

This section covers all of the options regarding connecting to the DCC or FA403 receiver. This section describes how to retrieve and send data to the DCC and how to monitor activity using the COM Port Sniffer and Check-in Monitor. It also details how to change the time and passwords in the DCC.

🛢 TapWatch 2.2 - [Indigo Garden Apart	ments]			
Site Name: Indigo Garder	n Apartments	Property ID: 006 Indigo		
Connect	Connected mode:	Corporate]	
Disconnect Retrieve Data from DCC Publish Data to DCC Comm Port Sniffer Check-in Monitor Change DCC Date/Time Change Password	Connection Type Modem Direct Serial Connection To Doc To Doc To SA M2	Edit Comm Port: 2 Pre-dial #: Modem dial #: 9, 303-939-9812 Post-dial #: Comm Port: 1		
DCC System Information BIOS Rev Level: Unknown Firmware Rev Level: Unknown Serial Number: Unknown Manufactured: Unknown	Data Retrieval Settings Get Site Configuration Get Exceptions Get Meter Readings to View	n 00% y of max. for 1 periods. Edit Cigs	• IR	mit and Receive Indicators

Figure 3-12: Connection Screen

3.3.1 Connection Indicators

There are two ways to discern whether TapWatch is connected to a site.

- A. The first connection indicator is in the "Connection Mode" field. "Not Connected" will be displayed if computer is not connected. This status is checked at the beginning of the TapWatch session.
- B. The second connection indicator is the "T" and "R" box in the lower right corner of the screen.
 - 1. T represents 'Transmit'
 - 2. R represents 'Receive'
 - 3. Both blink red if open for connection and green if data is being transferred. Gray indicates that a connection is not established.

3.3.2 Connection Type

It is important to decide the method to be used to connect to a DCC, either serial port or modem. It is also necessary to select the correct COM Port for each type of connection.

A. Modem Connection.

This option connects to the DCC using the modem (telephone line).

- 1. To learn which COM Port to select:
 - a. You can determine your COM Port number by right-clicking on the My Computer icon and selecting properties. Under properties select Device Manager and then look at the properties of the specific modem or COM Port you are trying to access to determine their numbering scheme.
- 2. To select a modem connection:
 - a. Select the radio button next to "Modem".
 - b. Click on theEdit checkbox.
 - c. Select the COM Port for your computer.
- 3. To enter Modem Dial in #'s.
 - a. Remember to disable any special features on the telephone line prior to dialing, using the codes the telephone company provides.
 - b. Click on the Pre-dial # checkbox and enter numbers that are to dialed before the primary phone number of the site's DCC (modem dial #). The check box must be checked if the modem is to dial these numbers. De-select the check box if the modem is to not dial to these numbers.
 - c. Enter the modem number to dial the site's DCC.

Page 14 of 53

d. Click on the Post-dial # checkbox and enter numbers that are to dialed after the primary phone number of the site's DCC (modem dial #). The check box must be checked if the modem is to dial to

3.3 Connection Screen

hc:2/28/06

these numbers. De-select the check box if the modem is to not dial to these numbers.

- e. Click again on the Edit checkbox to de-activate the area and prevent accidental changes.
- f. Click on the Connect button to dial the site's DCC.
- B. Direct Serial.

This option connects to the DCC or FA403 receiver via a direct serial cable connection. (Maximum cable length is 25 feet.)

- 1. Remember to disable any other programs that monitor the serial port, such as Palm PDA Hot-Synch software.
- 2. To select, click on the radio button next to "Direct Serial Connection".
- 3. Select "To DCC" or "To FA403".
 - a. Selecting the FA403 is used when simply registering a site or when watching the COM Port Sniffer without using a DCC.
- 4. Click on "Edit" checkbox.
- 5. Select the COM Port corresponding to the serial cable connected to the DCC or FA403.
- 6. Verify that the serial cable is connected between the PC and the DCC or FA403 receiver.
- 7. Click on Connect button.
- C. Data Retrieval Settings.

These settings dictate what information will be retrieved from the DCC. These items need to be checked prior to clicking the "Retrieve data from DCC" button. Site Configuration, Exceptions and Meter Readings are discussed in more detail in "Edit Site Information" (Section 3.4) and "View Site Information" (Section 3.5) sections.

- 1. Get Site Configuration.
 - a. The core elements of the site's files containing information on site information, buildings, repeaters, and meters.
- 2. Get Exceptions.
 - a. These are used to create the exception log based on the exceptions from the DCC. See "Exception Log Tab", section 3.5.5. The number of exceptions is variable and the maximum is about 3000 events. The most recent exceptions are retrieved first. To save time during the data retrieval from the DCC and to obtain only the more recent exceptions, the selecting of a small percentage is best.
- 3. Get Meter Readings for "___" Period.
 - a. This is the raw "count" data from the transmitters at the site.
 - b. A "period" is an interval of time in the past, currently defined as one day.

3.3.3 DCC System Information

- A. The DCC System Information can not be edited. It displays the information provided by the DCC. This information is dynamically displayed ONLY while connected to the DCC.
 - 1. ROM Rev Level: Firmware programmed into the processor chip at the heart of the DCC.
 - 2. Flash Rev Level: Updatable Firmware.
 - 3. Serial Number: The DCC's unique identifier.
 - 4. Firmware Date/Time: When the DCC was manufactured.

3.3.4 Command Buttons

- A. Connect
 - 1. Active on screen until connected to DCC or FA403.
- B. Disconnect
 - 1. Active on screen when connected to DCC or FA403.
- C. Retrieve Data from DCC
 - 1. Active on screen when connected to DCC.
 - 2. Set Data Retrieval Settings prior to clicking on this button. See Section 3.3.2, paragraph C.
 - 3. To insure that most recent data is changed, it is important to retrieve Data prior to editing site.
 - a. Inovonics recommends that users note in the Comments tab whenever files are or will be updated to DCC. Also, it should be noted if there are *specific times* when changes will or might be erased by other users modifying data.

Note: If you have just sent data (published) to a blank DCC, the user must disconnect and then reconnect to that DCC before readings and exceptions can be retrieved. A pop-up screen will inform the user of this situation. This is disconnect-reconnect procedure is necessary only after publishing to a blank DCC.

- D. Send Data to DCC
 - 1. Active when connected to DCC.

- 2. Sends site configuration to the DCC.
 - Anytime this function is used the data in the DCC will be overwritten with the data on your computer.
 - a. Be careful not to unintentionally overwrite new data with old data.
 - b. Include comments in data sent to the DCC so changes are visible to other users.
- E. Check-in Monitor

3.

- 1. Active when connected to DCC or FA403
- 2. Utility allows you to view all registered transmitters and repeaters of the site to see if the DCC has received any RF message from them since the last publishing or start of the supervision window. The grid displays all registered transmitters and repeaters of the site. If a message has been received, it is shaded white. If it a message has not been received, it is shaded red.
- 3. See Section 6.8 for more information on using this trouble shooting tool.
- F. COM Port Sniffer.
 - 1. Active when connected to DCC or FA403.
 - 2. Utility that allows you to view up to 500 transmitter messages as they are received by the receiver, and to record them in a file.
 - 3. See Section 6.3 for more information on using this trouble shooting tool.
- G. Change DCC Date/Time.
 - 1. Active when connected to DCC.
 - 2. Allows a user with View and Edit authorization to alter the time and date of the DCC.
 - 3. Can be used to synchronize DCC clocks to a unified time zone.
- H. Change Password.
 - 1. Active when connected to DCC.
 - 2. Allows users with the proper authorization to change passwords in the DCC.
 - 3. See "Managing Passwords" on page 47 for more information.

Tap₩atch 2.00 - [Ec	lit site info for - Indigo (Garden Apartments]			
<u>S</u> ite	Comments	<u>B</u> uildings	<u>M</u> eters	<u>R</u> epeaters]
Site Information –			Global Defaults		
Property ID: 006	Indigo (Req	uired)	Meter Mod	el: Other - (Manual Entry	of Count Factor) 💌
Site Name: Indig	go Garden Apartments	(Required)	Tx Mod	el: FA5201 💌	
Street: 5 BI	uegreen Circle		Count Fact	or: 1 pulse = 100 u	nits of measure.
City: Mari	ine Sta	te: CA 💌	UtilityTyp	e: Electric 💌	
Zip: 2354	43 Country:	USA	Meter Typ	e: Pulse 🔽	
Tech Contact: Ms.	Cece Ocean		Meter Connectio	on: All 💌	
Phone: 209-	555-0006 (before 5pm)	N			
FAX: 209-	555-6000 (24 hours)	- K	Installatio	on Summary	Preferences
- Property Manager	ment		n Site		
Mgmt Company:	Rainbow Property Mar	ageme	Buildings	17 Mater	meters: 6
Mumt Contact	French Recentered	<u> </u>	Units:	316 Gas	meters: 4
Mynit Contact.	Frank Spectrum		Meters:	325 Electric	meters: 312
Mgmt Phone:	303-555-1111 - 8-5 ES	IT I	Repeaters:	17 Other	meters: 3
Mgmt FAX:	303-555-2222 - 24 hou	rs			
Database Last M Database Last Mod	lodified: 03-28-2000 1: ified by: W.E. Coyote	3:32:25 , Acme Energy			
Last Published Last Published to	to DCC: 03-21-2000 0 DCC by: a a, a	7:44:46		Save & Cl <u>o</u> se	Ca <u>n</u> cel T R

Figure 3-13: Edit Site Information Screen

3.4.1 Site Tab.

- A. *Property ID*. This was entered when you added the site. You can edit this information here. This field allows up to 12 characters.
- Caution: Property ID is used to name folder files. Changing an existing Property ID can affect assorted files.
 - B. *Site Name.* This was entered when you added the site. You can edit this information here. This field allows up to 25 characters.
 - C. Enter Street Address. This field allows up to 35 characters.
 - D. Enter the *City*, *State*, *Zip*, *and Country*
 - E. Enter the Tech Contact, Phone, and Fax.
 - F. Enter the *Property Management Company, contact person and contact information.* This is the necessary information to contact the property management company for this site.

G. Global Defaults.

The same make and model of meters and transmitters is generally used at a site. Setting the global default inserts this data into the necessary "Add Meters" fields to reduce data entry when adding a meter. The "Add Meters" can be edited without changing the global defaults.

- 1. Enter the Meter Model. If the meter model used is not on the list, use "Other". The count factor or pulse rate will have to be manually entered based on the meter model used.
- 2. Enter 5200-series transmitter (PMT) Model.
 - a. The FA5201 is a one-count-per-pulse unit.
 - b. The FA5202 is a two-count-per-pulse unit.
- 3. Enter Count Factor. This identifies the amount of flow needed to cause the meter to generate a single pulse.
- 4. Enter Utility Type. Use the drop down list to select an option. (Electric/Gas/Water/Other)
- 5. Enter Meter Type. Use the drop down list to select an option.(Pulse)
- 6. Enter Meter Connection. Use the drop down list to select an option.(All/Other)
- H. *Totals On Site*. This area contains the information on the hardware contained within a site. The total number of buildings, units within that building, repeaters, meters and the type of meter is displayed.

I. Installation Summary

Provides the user with a comprehensive single-source for viewing all site information

Save Installa	tion Summary				?)	×
Save in: 🔂	Summary	-	1 🛃	d		
				_		1
						l
						l
File <u>n</u> ame:	006 Indigo@SiteSummary 4-17-20	000			<u>S</u> ave	
Save as <u>t</u> ype:	Text(*.txt)		•		Cancel	
	Open as <u>r</u> ead-only					

Figure 3-14: Installation Screen

1. Click on Save Installation Summary. Windows Browser dialog box opens. Save as type choices are Text (*.txt) or spreadsheet (*.csv). Text files can be viewed and edited by most word processing software, like MS Word. 'CSV' files can be viewed and edited by most spreadsheet software, such as MS Excel.

J. Preferences

Figure 3-15: Preference Screen

Preferences		
Site Type Edit C Enhanced C Conventional		
Supervision Window Hours: 4		
Modem Rings Ring Count: 1		
	<u>C</u> ancel	Cl <u>o</u> se

- 1. Click on Preferences button. Preferences screen opens.
 - a. Site Type

Enhanced mode is the most commonly used mode. Unless instructed to change software to Conventional mode, DO NOT ALTER THIS PREFERENCE.

<u>CAUTION</u>: CHANGING THE MODE WILL REQUIRE RE-KEYING THE SITE DATA! Once a meter is added as "Conventional" it must be deleted and reprogrammed as "Enhanced".

Conventional mode is used with FA5200-M and 5200-H transmitters produced prior to June 1, 1998.

b. Supervision Window

The Supervision Window is the period of time during which all wireless devices are expected to check in to the receiver. This provides a functional test of the system RF performance. When devices fail to check in, the DCC generates a fault or trouble signal. The default setting is 4 hours. This can be extended to 24 hours maximum. Consult Technical Services before extending the Supervision Window.

c. Modem Rings

> The Ring Count is used to program DCCs with the number of rings before it answers the call. A value of 1 Ring Count is recommended.

3.4.2 Comments Tab

Make Comments each time maintenance is performed to keep an accurate historical record is obtained and to pass information among technicians.



ap₩atch 2.00 - [E	dit site info for - Indigo	Garden Apartments]				_
<u>S</u> ite	<u>C</u> omments	<u>B</u> uildings	<u>M</u> eters	ľ	<u>R</u> epeaters	
Site Comments:						
Maintenance repo replaced and will o Building 600 Unit 6 <w.e. 2<="" 3="" coyote="" td=""><td>ted cover on meter had heck regularly. Also sa 5010. 8/00 12:59:58></td><td>l been removed. Have iid battery replaced on</td><td>*</td><td></td><td></td><td></td></w.e.>	ted cover on meter had heck regularly. Also sa 5010. 8/00 12:59:58>	l been removed. Have iid battery replaced on	*			
Building 600 Unit 6 maintenance to re <w.e. 2<="" 3="" coyote="" td=""><td>6010; battery on transm place. 8/00 12:59:54></td><td>itter low. Contacted</td><td></td><td></td><td></td><td></td></w.e.>	6010; battery on transm place. 8/00 12:59:54>	itter low. Contacted				
Building 200 Unit 2 Contacted mainter <w.e. 2<="" 3="" coyote="" td=""><td>2050; meter may have b nance to check meter a B/00 12:59:51></td><td>oeen tampered with. Ind report back.</td><td>Ę4</td><td></td><td></td><td></td></w.e.>	2050; meter may have b nance to check meter a B/00 12:59:51>	oeen tampered with. Ind report back.	Ę4			
			V			
E <u>x</u> port Com	nents Ad	d Date/ <u>T</u> ime Stamp				
Database Last I atabase Last Mo	Modified: 03-28-2000 1 lified by: W.E. Coyote	13:32:25 e, Acme Energy				
Last Publishe	I to DCC: 03-21-2000	07:44:46		Sa <u>v</u> e	Save & Cl <u>o</u> se	Ca <u>n</u> cel

- A. Click Add Date/Time Stamp to enter the date and time into the comment field.
- B. Click on *Export Comments* button to export comments. Windows Browser dialog box opens. Save as type choices are Text (*.txt) Text files can be viewed and edited by most word processing software, like MS Word.

3.4.3 Buildings Tab

	Site	<u>C</u> omments	<u>B</u> uildings	Met	ters	<u>R</u> epeaters]		
					Num	per of buildings on this	site: 17		
Watch	Building Descrip	tion	Reg	istered Points	Comme	nts			
No	Building 100	N.	18		First bui	lding on left when ente	ring community poc		
No	Building 150	42	20		Attache	d to building 100, entra	ince on opposite sic		
No	Building 200		19		Second	building on left when e	ntering community		
No	Building 250		17		Attache	d to building 200, entra	ince on opposite sic		
No	Building 300		20		Third bu	ilding on left when ente	ering the community		
No	Building 350		23		Attache	d to building 300, entra	ince on opposite sic		
No	Building 400		20	20 West building at far end of community po					
No	Building 450		24		Attache	d to building 400, entra	ince on opposite sic		
No	Building 500		20		East bui	lding on far end of com	nmunity pool area. [
No	Building 550		28		Attache	d to building 500, entra	ince on opposite sic		
No	Building 600			20 Third building on right when entering			tering the communi		
No	Building 650			21 Attached to building 600,			ntrance on opposite sic		
No	Building 700		18		Second	building on right when	entering the comm		
No	Building 750		19		Attache	d to building 700, entra	ince on opposite sic		
No	Building 800		19		First bui	lding on right when ent	tering community po		
No	Building 850		18		Attache	d to building 800, entra	ince on opposite sic		
No	Community Build	ding	1		Entrance	e to apartment comple	x, leads to commur		
		<u>A</u>	,dd	<u>E</u> dit	De	elete			
Data Databa	abase Last Modi ase Last Modified	fied: 03-28-2000 1: I by: W.E. Coyote	3:32:25 , Acme Energy						
La Last F	st Published to D Published to DCC)CC: 03-21-2000 0	7:44:46		Say	e Save & Cl <u>o</u> se	Ca <u>n</u> cel T		

Figure 3-17: Edit Buildings Screen

- A. Building Spreadsheet. This screen shows the building descriptions, the number of registered repeaters in each building and the comments associated with each building. It also has a special "watch" feature. When you double-click a building under the Buildings tab in TapWatch 2, it opens the building to Edit Comments.
 - 1. The "watch" feature allows the user to 'tag' a building, meter, and / or repeater for observation. The Comm Sniffer then allows the user to 'watch' only the activity on the tagged items. Typically, this is used only when troubleshooting a site.
 - a. To select one building for the Watch feature in the Comm Sniffer, left click on the building then in the Watch column, right click to change from "No" to "Yes".
 - b. Right click on the header "Watch" column to toggle "No" and "Yes" selections.
- B. Add a Building.
 - 1. Click on Add button. Add a Building screen opens. Enter a Building Name up to 25 characters. Nonalphanumeric characters, such as "#" and "*" should NOT be used. Spaces are allowed. Enter Comments up to 200 characters. Click on "OK".

Add a Building Enter the building name then click [(DK] to save.
Building Name:	
Comments:	*
<u>Ō</u> K	<u>C</u> ancel

Figure 3-18: Add a Building Screen

- C. Edit a Building.
 - 1. Click on Edit button. Edit a Building screen opens. Enter a Building Name up to 25 characters. Enter Comments up to 200 characters. Click on "OK"
- D. Delete a Building.
 - 1. Click on Delete button. Message is displayed: "Are you sure you want to DELETE the 'Building Name' building and ALL the meters associated with it? Click on 'No,' and the screen returns to Edit Building screen without deleting any information. Click on 'Yes', and the building and all related meters and repeaters are deleted from the database.

3.4.4 Meters Tab

Meter Spreadsheet. This screen displays all of the meter information in each building. Select a building under Browse Meters in Building using the drop down button. The fields in each column are described under "Global Defaults" and "Add/Edit Meters". It also has a special "watch" feature.

Natch	Ant Unit #	Meter ID	IMP		L Itility	Conn	
No	1001	2684512345	19	UNREGISTERED	Gas	Other	
No	1001	2684512345	15	2684562963	Water	Hot	
No	1002	2684512345	18	UNREGISTERED	Electric	Other	
No	1002	2684512345	23	2684487576	Water	Cold	
No	1003	2684512345	21	2684423581	Gas	All	
No	1003	2684512345	10	2684562892	Electric	Other	
No	1004	2684512345	26	2684563014	Other	All	
No	1004	2684512345	22	2684519369	Water	Cold	
No	1005	2684512345	21	UNREGISTERED	Other	All	
No	1005	2684512345	32	2684455622	Water	Hot	
No	1006	2684512345	22	2684560494	Other	All	
No	1006	2684512345	22	UNREGISTERED	Gas	Other	
No	1007	2684512345	15	UNREGISTERED	Electric	All	
No	1007	2648512345	25	2684563146	Water	Hot	
No	1008	2684512345	19	UNREGISTERED	Electric	Other	
No	1008	2684512345	12	UNREGISTERED	Gas	All	
No	1009	2684512345	22	UNREGISTERED	Electric	Other	
	Register <u>U</u> nregistered Meters for this Building	<u>A</u> dd	E	dit <u>D</u> ele	te		
Dat	abase Last Modified: (03-28-2000 13:32:25					

- A. The "Watch" feature allows the user to 'tag' a building, meter, and/or repeater for observation. The Com Sniffer then allows the user to 'watch' only the activity on the tagged items. See "Uses for the COM Port Sniffer" on page 47.
- B. Add/Edit Meters.

Click on *Add* or *Edit* button. Add or Edit Meters screen opens. These screens look identical except for their name.



Figure 3-20: Add Meters Screen

- 1. Enter or edit the Apartment Unit #. Non-alphanumeric characters, such as "#" and "*" should NOT be used. Spaces are allowed.
- 2. Enter or edit the Initial Meter Count (IMC). (It is necessary to compensate for the count factor—corresponding to the reading on the meter dial.)
- 3. In Edit mode, use drop down box to move this meter to another building.
- 4. Enter or edit the Meter ID.

a.

- 5. The Meter Model, Tx Model and Count Factor should be set in the Global Settings under Site Information but you can add and edit that information here for each apartment unit.
- 6. Utility Type. Use the drop down box to select the type of utility the meter is monitoring. TapWatch can monitor water, natural gas or electric meters on the same site.

- 7. Meter Connection. This field limits the Utility type. Click on down arrow to see choices.
- 8. Tx ID. This number is automatically assigned when transmitter is registered.

Figure 3-21: Waiting for Register Screen .

Transmitter ID
Waiting for transmitter reset message
Press the transmitter reset button to log the transmitter into the system.
Cancel

- 9. Register and Save all meters in a building at one time using the "Register Unregistered Meters for this Building". The order for registering the meters will be the same order as they were entered.
- 10. After Save or Register and Save in the Add Meter screen, a blank add meters screen opens. To exit, click "Cancel".
- 11. The New Apartment Unit will appear under Meters screen.
- 12. After Save in the Edit Meters screen, the edit meters screen closes.
- C. Delete.

Click on Delete button. Message displayed: "Are you sure you want to DELETE the meter installation at Apartment "Unit Number" of Building "Name"? " Yes" deletes meter from database. "No" returns the screen to the Edit Meters screen without deleting.

3.4.5 Edit Repeaters Tab

	Site	<u>C</u> omments	Bu	ildings	1	Meters	<u>R</u> epeate	rs 🗋		
						Numbe	r of repeaters o	n this site	e: 17	
Natch	n Location			Tx ID		Comments				
٧o	Building 100			26844923	23	Repeater loc	ated next to uni	t 1001		
٧o	Building 150	45		UNREGIS	TERED	Repeater loc	ated next to uni	t 1051		
٧o	Building 200			268449290	08	Repeater loc	ated next to uni	t 2001		
٧o	Building 250			UNREGIS	TERED	Repeater loc	ated next to uni	t 2051		
٧o	Building 300			268449232	27	Repeater loc	ated next to uni	t 3001		
٧o	Building 350			UNREGIS	TERED	Repeater loc	ated next to uni	t 3051		
٧o	Building 400			26844923	35	Repeater loc	ated next to uni	t 4001		
٧o	Building 450			UNREGIS	TERED	Repeater loc	ated next to uni	t 4051		
٩٥	Building 500			268449179	94	Repeater loc	ated next to uni	t 5001		
lo	Building 550			UNREGIS	TERED	Repeater loc	ated next to uni	t 5051		
١o	Building 600			268449176	68	Repeater loc	ated next to uni	t 6001		
٥V	Building 650			UNREGIS	TERED	Repeater loc	ated next to uni	t 6051		
٩o	Building 700			268449176	69	Repeater loc	ated next to uni	t 7001		
١o	Building 750			UNREGIS	TERED	Repeater loc	ated next to uni	t 7051		
lo	Building 800			268449286	68	Repeater loc	ated next to uni	t 8001		
٩o	Building 850			UNREGIS	TERED	Repeater loc	ated next to uni	t 8051		
١o	Community Bui	lding		268449290	12	Repeater loc	ated next to ma	iin entran	ce	
			Add	Į	dit	<u>D</u> e	lete			
Dat	abase Last Modi	fied: 03-28-2000	13:32:25							
ataba	ase Last Modifie	d by: W.E. Coyo	ite, Acme Er	nergy						
1.2	et Publishod to	DCC- 03 21 200	107-44-46				- 1			1 =
La	Dublished to DC	C	5 07.44.40			Say	e Save &	Close	Ca <u>n</u> cel	T

Figure 3-22: Edit Repeater Screen

- A. Repeater screen. This screen displays the location, Tx ID and Comments related to each repeater. It also has a special "watch" feature.
 - 1. The "Watch" feature allows the user to 'tag' a building, meter, and / or repeater for observation. The Comm Sniffer then allows the user to 'watch' only the activity on the tagged items.
 - 2. To select one building for the Watch feature in the Comm Sniffer, left click on the building then in the Watch column, right click to change from "No" to "Yes".
 - 3. To select all of the buildings for the Watch feature, right click on the header "Watch" column to toggle "No" and "Yes" selections.
- B. Add/Edit a Repeater.





- 1. Click on Add or Edit button. Add a Repeater or Edit a Repeater screen opens. These screens share the same appearance.
- 2. Enter or edit the description of repeater location. The default text in the comments field is "Location Not Documented." Enter or edit location description during installation to have this information in the future.
- 3. Register repeater. It is recommended that repeaters are registered to provide diagnostic information.
- 4. New or edited Repeater will appear under Repeaters tab. "OK" saves and exits screen. "Cancel" exits screen without saving.
- C. Delete.
 - 1. Click on Delete button. Message: "Are you sure you want to DELETE the repeater at location "Description"? Click on "Yes", repeater is deleted from database. Click on "No", screen returns to Repeater screen without deleting.

Figure 3-24: View Site Information

ndigo (Required)) Garden Apartments	(Required)		
ndigo (Required)) Garden Apartments	(Required)		
o Garden Apartments	(Required)		
agreen Circle			
sgroon on one			
e State: CA	•		
3 Country: USA			
ece Ocean			
55-0006 (before 5pm)			
55-6000 (24 hours)			
	Totals On Site		
bow Property Manageme	Buildings:	17	Water meters: 6
nk Spectrum	Units: Motore:	312	Gas meters: 4
-555-1111 - 8-5 EST	Repeaters:	16	Other meters: 2
-555-2222 - 24 hours			
1: 07-30-2001 16:50:49 V.E. Coyote, Inovonics			
	3 County: USA ece Ocean 55-0006 (before 5pm) 55-6000 (24 hours) ibow Property Manageme - - nk Spectrum - - -555-2222 - 24 hours - - #: 07-30-2001 16:50:49 # W.E. Coyote, Inovonics	3 County: USA ece Ocean 55-0006 (before 5pm) 56-6000 (24 hours) 1bow Property Manageme hk Spectrum -555-1111 - 8-5 EST -555-2222 - 24 hours t: 07-30-2001 16:50.49 & W.E. Coyote, Inovonics	Totals On Site Buildings: 17 Units: 312 Meters: 320 -555-2222 - 24 hours Repeaters: 16 -555-2222 - 24 hours

3.5.1 Site Information Tab

- A. "Site Information" contains the name, address and contact information for a site. To ensure that the most current information is displayed, retrieve data from the DCC prior to any activity within a site.
- B. "Totals On Site". This area contains the information on the hardware contained within a site. The total number of buildings, units within that building, repeaters, meters and the type of meter is displayed.
- C. "Property Management" information.
- D. "Database Last Modified" and "Database Last Modified by": these fields display information about the date and user that last modified and published modification to the DCC.
- E. "Close" button closes View screen, returns to Connection Screen.

3.5.2 Comments Tab



🖶 TapWatch 2.00 - [View	site data for - Indigo Garden	Apartments]		_ & ×
<u>S</u> ite	<u>C</u> omments	<u>M</u> eters	Exception Log	
Site Comments: Maintenance reported c replaced and will check Building 600 Unit 6010; maintenance to replace Building 200 Unit 2050; Contacted maintenance <th>over on meter had been rem regularly. Also said battery 12:59:58> battery on transmitter low. C 12:59:54> meter may have been tampe to check meter and report b 12:59:51></th> <td>oved. Have replaced on Contacted ack.</td> <td>Ľ\$</td> <td></td>	over on meter had been rem regularly. Also said battery 12:59:58> battery on transmitter low. C 12:59:54> meter may have been tampe to check meter and report b 12:59:51>	oved. Have replaced on Contacted ack.	Ľ\$	
Database Last Modifi Database Last Modified	ed: 03-28-2000 13:44:57 by: W.E. Coyote, Acme En	ergy		
Last Published to D Last Published to DCC	C C: 03-21-2000 13:44:57 by: a a, a			Cl <u>o</u> se TR

- A. View comments related to activity on site.
- B. "Close" button closes View screen, and returns to Connection Screen.

3.5.3 Meters Tab

Building for: 3/5/02 Calendar Building 1 0.20 10319409 2843 Suiding 1 0.15 10319409 2844 Suiding 1 0.15 10319416 2844 Suiding 1 0.16 10319415 2844 Suiding 1 0.16 10319415 2844 Suiding 1 0.16 10319410 2844 Suiding 1 0.16 10319410 2844 Suiding 1 0.01 10319410 2844 Suiding 1 0.02 10319411 2844 Suiding 1 0.02 10319410 2844 Suiding 1 0.02 10319410 2844 Suiding 1 0.05 10319406 2844 Suiding 1 0.01 10319407 2844 Suiding 1 0.01 10319417	E = E 5595993 V 1595993 V 159591 V 1596011 V 1596015 V 1596018 V 1596020 V 1596020 V 1596021 V 1596022 V 1596022 V 1596022 V 1596022 V 1596020 V	Jtility Water Water Water Water Water Water Water Water Water Water Water	Conn All All All All All All All All All A	E Status OK OK OK OK OK OK OK OK OK OK	B = Low Ba = Test IMC 0000004 0000000 0000000 0000000 0000001 0000000 0000001 0000000	ttery Count 0112139 0115441 0139683 0127209 0072180 0035398 0086101 0087039	= Inacti = Res CF 1 1 1 1 1 1 1 1 1 1	Ve et Total Flow 00000112143 00000115441 00000115441 00000115454 00000072181 00000072181 0000005398 00000066102 00000065102 00000066102 0000066102 0000066102 0000066102 0000066102 0000066102 0000066102 0000066102 000000670000 000000 00000 000000 00000 00000 0000
Julding Name Apt Unit# Meter ID Tx ID Julding 1 020 10319416 26844 Julding 1 015 10319416 26844 Julding 1 018 10319416 26844 Julding 1 018 10319416 26844 Julding 1 016 10319416 26844 Julding 1 010 10319401 26844 Julding 1 004 10319401 26844 Julding 1 021 10319410 26844 Julding 1 022 10319410 26844 Julding 1 005 10313940 26844 Julding 1 01319401 26844 Julding 1 01319401 26844 Julding 1 019 104139411 26844 Julding 1 017 10319406 26844 Julding 1 019 10419411 26844 Julding 1 017 10319417 26844	L L \$585983 V \$585931 V \$586001 V \$586015 V \$586018 V \$586020 V \$586021 V \$586022 V \$586022 V \$586024 V \$586026 V \$586027 V	Jtility Water Water Water Water Water Water Water Water Water	Conn All All All All All All All All All A	Status OK OK	IMC 0000004 0000000 0000000 0000000 0000001 0000000	Count 0112139 0115441 0139683 0127209 0072180 0035398 0086101 0087039	CF 1 1 1 1 1 1 1 1 1 1	Total Flow 0000112143 0000112144 00000112144 00000139683 00000127209 000007272191 00000035398 00000066102 0000087039
studing 1 020 10319409 2884 studing 1 015 10319416 2884 studing 1 016 10319416 2884 studing 1 016 10319416 2884 studing 1 016 10319417 2884 studing 1 010 10319401 2884 studing 1 004 10319401 2884 studing 1 021 10319410 2884 studing 1 015 10319406 2884 studing 1 016 10319406 2884 studing 1 017 10319417 2884	IS85983 V IS85991 V IS86001 V IS86011 V IS86015 V IS86018 V IS86020 V IS86021 V IS86022 V IS86022 V IS86024 V IS86024 V	Water Water Water Water Water Water Water Water Water	All All All All All All All All All	0K 0K 0K 0K 0K 0K 0K 0K	0000004 0000000 0000000 0000000 0000001 0000000	0112139 0115441 0139683 0127209 0072180 0035398 0086101 0087039	1 1 1 1 1 1 1 1 1 1	00000112143 00000115441 00000139683 00000172209 00000072181 000000035398 00000086102 00000087039
ulding 1 015 10319416 26843 ulding 1 018 10319418 26844 ulding 1 016 10319418 26844 ulding 1 010 10319418 26844 ulding 1 010 10319401 26844 ulding 1 004 10319401 26844 ulding 1 021 10319410 26844 ulding 1 022 10319410 26844 ulding 1 022 10319410 26844 ulding 1 005 10319409 26844 ulding 1 011 10319406 26844 ulding 1 0139406 26844 26844 ulding 1 019 10419411 26844 ulding 1 019 10419411 26844 ulding 1 019 10419411 26844 ulding 1 017 10319417 26844	IS85991 V IS86001 V IS86011 V IS86015 V IS86018 V IS86018 V IS86020 V IS86021 V IS86022 V IS86024 V IS86026 V	Water Water Water Water Water Water Water Water	AI AI AI AI AI AI AI AI AI	0K 0K 0K 0K 0K 0K 0K	0000000 0000000 0000001 0000000 0000000 000000	0115441 0139683 0127209 0072180 0035398 0086101 0087039	1 1 1 1 1 1 1 1 1	00000115441 00000139683 00000127209 00000072181 00000035398 00000086102 00000087039
uiding 1 018 10319418 268450 uiding 1 016 10319415 26844 uiding 1 010 10319404 26844 uiding 1 004 10319401 26844 uiding 1 004 10319401 26844 uiding 1 021 10319410 26844 uiding 1 022 10319410 26844 uiding 1 005 10313939 26844 uiding 1 011 10319406 26844 uiding 1 013 101319406 26844 uiding 1 017 10319407 26844 uiding 1 017 10319417 26844 uiding 1 017 10319417 26844	1586001 V 1586011 V 1586015 V 1586018 V 1586020 V 1586021 V 1586022 V 1586024 V 1586026 V 1586027 V 1586028 V 1586029 V	Water Water Water Water Water Water Water	AII AII AII AII AII AII AII	0K 0K 0K 0K 0K 0K	0000000 0000000 0000000 0000000 0000000	0139683 0127209 0072180 0035398 0086101 0087039	1 1 1 1 1 1 1	00000139683 00000127209 00000072181 00000035398 00000086102 00000087039
uklding 1 016 10319415 26844 uklding 1 010 10319404 26844 uklding 1 004 10319401 26844 uklding 1 021 10319401 26844 uklding 1 021 10319401 26844 uklding 1 022 10319401 26844 uklding 1 005 10319309 26844 uklding 1 005 10319409 26844 uklding 1 011 10319406 26844 uklding 1 019 10419411 26844 uklding 1 017 10319407 26844 uklding 1 017 10319407 26844 uklding 1 017 10319417 26844	1586011 V 1586015 V 1586018 V 1586020 V 1586021 V 1586022 V 1586024 V 1586026 V 1586026 V	Water Water Water Water Water Water	AI AI AI AI AI AI	0K 0K 0K 0K 0K	0000000 0000001 0000000 0000001	0127209 0072180 0035398 0086101 0087039	1 1 1 1 1	00000127209 00000072181 00000035398 00000086102 00000087039
uklding 1 010 10319404 286445 uklding 1 004 10319401 286445 uklding 1 021 10319413 28644 uklding 1 022 10319413 28644 uklding 1 022 10319410 28644 uklding 1 005 10319399 28644 uklding 1 011 10319406 28644 uklding 1 011 10319406 28644 uklding 1 019 10419411 28644 uklding 1 017 10319417 28644 uklding 1 017 10319417 28644	IS86015 V IS86018 V IS86020 V IS86021 V IS86022 V IS86024 V IS86026 V	Water Water Water Water Water Water	All All All All All	OK OK OK OK	0000001 0000000 0000001 0000000	0072180 0035398 0086101 0087039	1 1 1 1	00000072181 00000035398 00000086102 00000087039
aiding 1 004 10319401 26843 aiding 1 021 10319413 26843 aiding 1 022 10319410 26843 aiding 1 005 10319433 26843 aiding 1 005 10319399 26843 aiding 1 011 10319406 26843 aiding 1 019 10419411 26844 aiding 1 017 10319407 26844 aiding 1 017 10319417 26844 aiding 1 017 10319417 26844 aiding 1 017 10319417 26844	1586018 V 1586020 V 1586021 V 1586022 V 1586024 V 1586026 V	Water Water Water Water Water	All All All All	0K 0K 0K 0K	0000000 0000001 0000000	0035398 0086101 0087039	1 1 1	00000035398 00000086102 00000087039
aikding 11 021 10319413 26844 aikding 1 022 10319410 26844 aikding 1 005 10319399 26844 aikding 1 011 10319399 26844 aikding 1 011 10319406 26844 aikding 1 019 10419411 26844 aikding 1 017 10319412 26844 aikding 1 023 10319412 26844	1586020 V 1586021 V 1586022 V 1586024 V 1586026 V	Water Water Water Water	All All All	0K 0K 0K	0000001	0086101 0087039	1 1	00000086102 00000087039
aiking 1 022 10319410 26844 aiking 1 005 10319399 26844 aiking 1 011 10319406 26844 aiking 1 019 10419411 26844 aiking 1 019 10419411 26844 aiking 1 017 10319412 26844 aiking 1 012 10419411 26844	1586021 V 1586022 V 1586024 V 1586026 V	Water Water Water	All All	OK OK	0000000	0087039	1	00000087039
uilding 1 005 10319399 26845 uilding 1 011 10319406 26845 uilding 1 019 10419411 26845 uilding 1 019 10419411 26845 uilding 1 017 10319417 26845 uilding 1 023 10319412 26645	1586022 V 1586024 V 1586026 V	Nater Nater	All	OK	0000000			
illding1 011 10319406 26845 illding1 019 10419411 26845 illding1 017 10319407 26845 illding1 017 10319417 26845 illding1 023 10319412 26845	1586024 V 1586026 V	Nater	All		0000000	0119836	1	00000119836
illding 1 019 10419411 26845 illding 1 017 10319417 26845 illding 1 023 10319412 26845	1586026 V		0	OK	0000010	0112650	1	00000112660
uilding 1 017 10319417 26845 uilding 1 023 10319412 26845	(E0C000 \)	Mater	All	OK	0000002	0190616	1	00000190618
uilding 1 023 10319412 26845	FJ00UZ0 V	Water	All	OK	0000000	0101234	1	00000101234
	1586031 V	√ater	All	OK	0000000	0123870	1	00000123870
uilding 1 013 10319419 26845	1586037 V	√ater	All	OK	0000000	0099032	1	00000099032
uilding 1 008 10319402 26845	1586041 V	Nater	All	OK	0000000	0030194	1	00000030194
uilding 1 027 10319377 26845	1586043 V	Nater	All	OK	0000000	0055991	1	00000055991
uilding 1 028 10319393 26845	1586045 V	Nater	All	OK	0000019	0034886	1	00000034905
uilding 1 029 10319395 26845	1586048 V	Nater	All	OK	0000001	0052624	1	0000052625
uildina 1 027 10219282 26845	1586050 V	1/ ator	All	ΠK	0000000	0088711	1	00000099711
Clear Meter Readings Apt Uni	iit Readings			Expor	t Daily <u>R</u> ea	ading		Create Out <u>F</u> ile

Figure 3-26: View Meters Screen

- A. Meters Screen.
 - Displays the status of the meters and repeaters installed on a site based on the date displayed after 1. "Reading For:" in upper left corner. To select a different date to display, open "Calendar" and change date.
 - 2. Calendar -

Click on Calendar button to display calendar screen and select dates of data to view.

Figure 3-27: Calendar Screen

TapWatch 2.20	- [Vie	ew s	ite d	ata	for -	Nor	woo	d Towr
Site			Ύ		Con	nme	nts	
Reading for:	3/5/0	2			Cal	end	ar	
Building Name			Ma	reh 3	002		ъI)
Building 1	1-		Itera		.002			158596
Building 1	Sun	Mon	Tue	Wed	Thu	Fri	Sat	158599
Building 1	24	25	26	27	28	1	2	158600
Building 1	3	4	5	6	7	8	9	158601
Building 1	10	11	12	13	14	15	16	158601
Building 1	17	18	3	20	21	22	23	158601
Building 1	24	25	26	27	28	29	30	158602
Building 1	31	1	2	3	4	5	6	458602
Building 1	2	Tod	lay: 3	/19/0	2			458602
Building 1	01	1		1031	9406		268	3458602

3. The spreadsheet displayed contains the following columns. Each column can be sorted in ascending or descending order by clicking once on the column header.

		U		
a.	Building Name	—	The identifier for the building each transmitter is I	ocated in.
b.	Apt Unit #		The identifier for the apartment for each transmitte	er.
с.	Meter ID	—	The identifier for each meter assigned manually.	
d.	TX ID	_	A unique, unchangeable number in the transmitter	
e.	Utility		The type of utility to be metered – Water, Gas, Ele	ctric or Other.
f.	Conn	_	The connection type. A variable in the type of med	lium being metered.
g.	Status		The status at that point in time of the transmitter. I mitter has a low battery, has become inactive, is m cover, has recently been reset, or is in normal cond	ndicates if the trans- issing the case lition.
h.	Legend.	—	The legend defines the letter codes that relate to the tus.	e transmitters' sta-
		•	E = Exception.	
		•	B =Low Battery.	
		•	T=Test. (Cover is off.)	
		•	I=Inactive.	
		•	R=Reset.	
i.	IMC	_	The initial meter count.	
j.	Count		The raw count data from the transmitter.	
	Page 2	25 of 53	3.5 View	hc:2/28/06

k.	CF		The count factor selected based on the type of meter used.
1.	Total Flow	—	The meter dial should have same reading.

4. Clear Meter Readings

Click on "Clear Meter Readings" button to display calendar screen and select date of data to clear.

Figure 3-28: Clear Meter Readings.

lear Meter Rear	lina	e ho	fore		3/19	200	11	
		0.00			0,10			
	•]	Ma	rch 2	:001		▶	
	25	26	27	28	1	2	3	
	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	
	18	19	20	21	22	23	24	
	25	26	27	28	29	30	31	
	1	2	3	4	5	6	7	
	C	Tod	ay: 3	/19/0	2			
	Cla		1					
	Clea	ar						Cancel

- a. Select date on pop up calendar to clear meter readings from that date and before.
- b. Click clear. This does not clear meter readings on the DCC. It only clears the meter readings in Tap-Watch database.
- 5. Apartment Unit Readings

Select and apartment unit, and then click on "Apt Unit Readings" button to display apartment readings. Double click on an apartment line of the Meters Screen to see readings for that apartment.

Figure 3-29: Apartment Readings Screen

Building Nar Ap Tx	ne: Bldg 24 it #:24-7 ID: 2684490787	E = Exception			B = Low Battery T = Test	/ I = Inactive R = Reset
TxID	Date & Time	Count	IMC	CF	Status	
2684490772	05/19/2000 09:00:00	307	6	10	OK	
2684490772	05/18/2000 23:15:00	306	6	10	OK	
2684490772	05/17/2000 23:41:00	305	6	10	OK	
2684490772	01/14/1980 23:10:00	305	6	10	OK	
	Export Apt U	Jnit Reading:	5		<u>_</u>	<u>i</u> K

- a. Export Apt Unit Readings.
 - Exports text files (*.txt) or database files (*.csv)
 - File is named "Property ID"@Apt Unit Readings "date"
 - File is stored at C:\Program Files\TapWatch2\Files\PropertyID\Apt Unit Readings
- b. An entry line to the apartment unit readings display is generated at the end of each period (a day). The date and time displayed are the last time the DCC did receive a message from the transmitter in that apartment. If no new messages are received from a transmitter during a period (inactive transmitter), the date and time posted is the last time a message was received.
- 6. Export Daily Readings.
 - a. This feature permits the Daily Reading files to be opened in a spreadsheet program, such as Microsoft Excel, or in programs that can read text files, like MS Word. AWindows Browser dialog box opens on "Save Daily Reading" screen, "Save as type" choices are "Text" (*.txt) or "Spread-

sheet" (*.csv). ".txt" files can be viewed and edited with word processing applications; ".csv" files are formatted for database software.

7. Create Out File.

Creates a space-delimited text file that contains the most current meter information on a site. The text is organized in rows with one meter per row. Each row consists of several columns of current information on each meter. The files are called Out Files because of the ".out" suffix on the file name. The Out Files are often referred to as *.out files. The default location on the hard drive is *C:\Program Files\TapWatch2\Files\Site Name\Export*. The default name for each file is "*PropertyID_Date.out*". It is not possible to create an *.out file without data to export.

Site	Y	Comm	ents	Me	ters		γ	Repeaters		Ϋ́	Exception Log	$\overline{}$	
— Reading for:	1/22/02	Calen	dar	E = Except	ion	E T	9 = Low Ba F = Test	attery I F	11 = 1 = 5	nactive Reset			
Building Name	Apt Unit#	Meter ID	TxID	Utility	Conn	Status	IMC	Count	la	F T	Total Flow	3	
#20	301		2684524272	Water	All	OK	0000000	0004181	11) (00000041810		
#24	23		2684605567	Water	All	0K	0000000	0000362	11) (0000003620		
#22	20		2684605604	Water	All	OK	0000000	0000066	11	0 0	0000000660		
#21	23		2684605610	Water	All	OK	0000000	0001240	11	0 0	00000012400		
#23	23		2684605618	Water	All	OK	0000000	0000776	11	0 0	0000007760		
#21	20		2684608840	Water	All	OK	0000000	0000142	11) (0000001420		
#21	11		2684608849	Water	All	OK	0000000	0002283	11) (0000022830		
#18	20		2684628756	Water	All	OK	0000000	0002474	11) (00000024740		
#14	24		2684628761	Water	All	OK	0000000	0001277	11	0 0	00000012770		
#18	14		2684628766	Water	AIL	nκ	0000000	0001274	_11) (00000012740		
#18	17	Save Outfile						? ×	1) (0000010400		
#17	11		Furnet			e l	ايخم الامح		11) (0000008050		
#20	302	save in: j 🔄	Export						11) (0000009670		
#21	14	💽 abacoa 1-	22-2002.out						11) (0000029220		Create Out File butte
#3	206	abacoa 2	14-2002 out						11) (00000021150		
#3	302		14 2002.000						11) (0000013930		
#3	201	1							11) (0000023370		
#3	207								11) (0000015590		
#2	301	1							11	n r	0000016950	-	
Clear Me <u>t</u> er	Readings										Create Out <u>F</u> ile		
		J							L				
Database Last Modified		File <u>n</u> ame:	abacoa_1-22-20	002.out				<u>S</u> ave					
ntabase Last M	odified by	Save as type:	*.out	_			•	Cancel					
Last Publish	ed to DCC		🗌 Open as <u>r</u> ea	d-only							Cl <u>o</u> se T	R	

Figure 3-30: View Meters Screen

a. Out Files are also created during Auto Downloads. See Section 3.7.

3.5.4 Repeaters Tab

Figure 3-31: Repeaters Tab Screen

<u>S</u> ite) I	<u>C</u> omments	<u>M</u> eters	Ľ	Repeaters	Exception Log
					Number of repeaters	on this site: 15
ocation	Status	Repeater Id	Date & Time	Comments		
Left	OK	2684579575	06/10/2002 11:47:00			
_eft	OK	2684579593	06/10/2002 11:48:00			
_eft	TE	2684579601	06/10/2002 11:50:00			
_eft	TE	2684579607	06/10/2002 11:50:00			
Right	OK	2684579613	06/10/2002 11:50:00			
Right	OK.	2684579635	06/10/2002 11:51:00			
Right	OK	2684579638	06/10/2002 11:48:00			
Right	OK	2684579641	06/10/2002 11:50:00	All rpters ar	e outside about 20 feet high, o	utside without nemas well prote
Right	OK	2684579649	06/10/2002 11:50:00			
_eft	OK	2684579664	06/10/2002 11:50:00			
	TE	2684798974	06/10/2002 11:47:00	fire access	at unit 3104	
	OK	2684798993	06/10/2002 11:50:00	fire access	at unit 2101	
	OK	2684798997	06/10/2002 11:47:00	fire access	at unit 1116	
	OK	2684800101	06/10/2002 11:51:00	fire access	at unit 5101	
	OK	2684800116	06/10/2002 11:48:00	fire access	at unit 4104	
	-					Export R <u>e</u> peaters
atabase Las base Last M	at Modified: 0 lodified by: ≬	4-05-2002 10:04 Aike McCarty, Ir	:28 iovonics			
Last Publish	ed to DCC: C	4-05-2002 10:04	:34			Cl <u>o</u> se T

- A. Repeater Spreadsheet. This screen displays the location, Status, Repeater ID, Date & Time, and Comments related to each repeater. Each column can be sorted in ascending or descending order by double clicking on the column header.
 - 1. Location Location for this repeater as it was entered during registration.

- 2. Status – Status of the repeater. More description is given below.
- 3. Repeater ID – The registered identification number of the repeater.
- 4. Date & Time – The date and time corresponding to the Status.
- 5. Comments - Comments for this repeater.
- B. Status Types
 - OK normal operation 1.
 - 2. I – Inactive
 - 3. B – Low battery (if repeater power is being backed up with a battery)
 - 4. Registered - just registered to the system.
- C. Export Repeaters

This feature permits the repeater tab data to be opened in Microsoft Excel or in programs that can read text files, like MS Word. A Windows Browser dialog box opens on Save Repeater Status screen; Save as types are "Text" (*.txt) or Excel (*.csv). File created is propertyID@Repeaters DATE. Default location is C:\Program *Files**TapWatch2**Files**PropertyID**Repeaters*.

3.5.5 Exception Log Tab

<u>S</u> ite	<u>C</u> orr	iments	Mete	rs)	<u>R</u> epeaters	Exception Log
ate & Time	Building Name	Unit #	Repeater	Condition		TxID
6/07/2000 12:00:11	Unknown	Unknown	Unknown	Loss of phon	e line	
6/07/2000 08:59:23	Unknown	Unknown	Unknown	Connection e	established	
6/07/2000 08:54:54	Unknown	Unknown	Unknown	Connection e	istablished	
6/07/2000 08:51:48	Unknown	Unknown	Unknown	Connection e	istablished	
6/05/2000 16:00:00	N/A	N/A	Repeater 4	Repeater Ina	ctive	2684599411
6/05/2000 11:05:43	Unknown	Unknown	Unknown	Connection e	istablished	
3/05/2000 11:05:42	Unknown	Unknown	Unknown	Log Off		
3/05/2000 11:02:04	Unknown	Unknown	Unknown	Site config m	odified.	
3/05/2000 10:34:25	Unknown	Unknown	Unknown	Logged on to	DCC, View and Edit - m may	
3/05/2000 10:34:13	Unknown	Unknown	Unknown	Failed log on	to DCC, View and Edit - m may	
5/02/2000 20:00:00	N/A	N/A	Repeater 4	Repeater Ina	ctive	2684599411
5/02/2000 20:00:00	Unknown	Unknown	Unknown	Tx Inactive		
5/02/2000 20:00:00	Unknown	Unknown	Unknown	Tx Inactive		
5/02/2000 20:00:00	Building 1	027	N/A	Tx Inactive		2684586043
5/02/2000 13:23:32	Unknown	Unknown	Unknown	Connection e	istablished	
5/02/2000 13:23:31	Unknown	Unknown	Unknown	Log Off		
5/02/2000 13:22:02	Unknown	Unknown	Unknown	Site config m	odified.	
5/02/2000 13:20:19	Unknown	Unknown	Unknown	Logged on to	DCC, View and Edit - Brian Frit:	z
2/02/2000 13:19:35	Hisknown	Hoknown	Unknown	Connection e	etablichad	
				Clear Al	L exceptions	Export Exceptions
		0.47.07.44				
iatapase Last M ibase Last Modi	fied by: Michael N	2 17:27:41 Aay, IWC				
		0.40-05-50				

Figure 3-32: Exception Log tab screen

A. Exception Log Spreadsheet

The spreadsheet contains the following columns. Each column can be sorted in ascending or descending order by double clicking on the column header.

	a.	Date & Time	—	The date and time exception occurred.
	b.	Building Name		The building where exception occurred.
	с.	Unit #		The unit number where exception occurred.
	d.	Repeater		The repeater where exception occurred.
	e.	Condition	_	Exception event. Those are described in more detail below.
	f.	Tx Id	_	The registered ID of the transmitter.
B.	Clear all except	ptions		-
	a.	Message	_	"Are you sure you want to clear ALL the exceptions in the database?"
	b.	Click on 'Yes'		"ALL exceptions in the database have been cleared."
	с.	Click on 'No'		Screen returns to Exception Log.

Screen returns to Exception Log. Click on 'No' —

NOTE: Does not clear exceptions in DCC: DCC stores 3,000 exceptions. After this, new data replaces old.

- C. Export exceptions
 - 1. This feature permits the Exception files to be opened in Microsoft Excel or in programs that can read text files, like MS Word. AWindows Browser dialog box opens on the "Save Exceptions" screen, "Save as type" choices are "Text" (*.txt) or "Excel" (*.csv). File: PropertyID@Exceptions DATE. Default location: C:\ProgramFiles\TapWatch2\Files\Property ID\Exceptions.

D. Exception Events.

An exception event is defined to be an event that occurs in EXCEPTION to normal TapWatch system opera-Page 28 of 53

tion; as well as a number of routine occurrences, such as connects and disconnects. As exceptions occur, they are written to an exception log. There are numerous types of exceptions described below.

E. "Reset" and "Private" Exceptions

The Tech mode and Corporate mode are able to retrieve two other types of exception information from the DCC in addition to the regular exceptions noted above. When a connection to a DCC is made with TW2 in Tech or Corp mode, and the user is retrieving the regular exception log, then the "Reset" and "Private" exceptions are automatically downloaded from the DCC and exported in *.csv format to the following directory and files. Note: these exceptions are not retrieved when using Auto-Download (Section 3.7).

C:/program files/tapwatch2/PROP-ID/Exceptions-Hidden/PROP-ID@Exceptions-Reset DATE.csv

C:/program files/tapwatch2/PROP-ID/Exceptions-Hidden/PROP-ID@Exceptions-Private DATE.csv

Exception	Comment
Tx Test	Indicates a test transmission, or that a cover has been removed from a piece of hardware.
Tx Tamper restoral	End of test transmission, or transmitter case has been closed
Tx Low battery	<i>Low battery</i> indicates that a battery needs to be replaced in a piece of hardware. Batteries are tested every eighteen hours and exceptions will be recorded until the battery is replaced.
Tx Low battery restoral	Low battery condition has been cleared.
Tx Inactive	<i>Inactive</i> indicates a piece of hardware is not transmitting as expected. A piece of hardware may just be inactive for one cycle which would result in a "No longer inactive" exception in the following cycle. It could also indicate that a piece of hardware has been damaged resulting in an inability to transmit.
Tx Inactive restoral	Transmitter has checked in.
Tx Initial Meter Reading Update	Initial meter reading has been updated.

Table 1: Transmitter Exceptions

Table 2: Repeater Exceptions

Exception	Comment
Repeater Test	Indicates that a cover has been removed from a piece of hardware.
Repeater Test restoral	Repeater case has been closed.
Repeater Inactive	<i>Inactive</i> indicates a piece of hardware is not transmitting as expected. A piece of hardware may just be inactive for one cycle which would result in a "No longer inactive" exception in the following cycle. It could also indicate that a piece of hardware has been damaged resulting in an inability to transmit.
Repeater no longer inactive	Repeater has checked in.
Repeater low battery	<i>Low battery</i> indicates that a battery needs to be replaced in a piece of hardware. Batteries are tested every eighteen hours and exceptions will be recorded until the battery is replaced.
Repeater low battery restored	Low battery condition has been cleared.

Table 3: Change to data

Change to data indicates that changes have been made to the data in the software and sent to the DCC.

Exception	Comment
Change of meter data	Meter data has changed.
Change of repeater data	Repeater data has changed.
Change of site data	Site data has changed.
Change of building data	Building data has changed.
Real time clock changed	Real-time clock has changed.

Table 4: Log On Exceptions

	0	-	
Log on and Failed log on indicate a successful of	or unsuccessful log-o	n to the DCC, and the	password level used to connect.

Exception	Comment
Failed log on to DCC, Corporate Back Door	Attempt failed.
Failed log on to DCC, View and Edit	Attempt failed.
Failed log on to DCC, View and Edit Temporary	Attempt failed.
Failed log on to DCC, View Only	Attempt failed.
Failed log on to DCC, Property Owner	Attempt failed.
Logged on to DCC, Corporate Back Door	Attempt failed.
Logged on to DCC, View and Edit	Attempt succeeded.
Logged on to DCC, View and Edit Temporary	Attempt succeeded.
Logged on to DCC, View Only	Attempt succeeded.
Logged on to DCC, Property Owner	Attempt succeeded.

Table 5: Miscellaneous Exceptions

Missing indicates a piece of hardware is not transmitting as expected. A piece of hardware may just be inactive for one cycle which would result in a "*No longer missing*" exception in the following cycle. It could also indicate that a piece of the hardware has been damaged resulting in an inability to transmit. The activity of every registered device in the system is monitored by the supervision window.

Exception	Comment
DCC reset	The previous date refers to the day and time of the creation of the last export file before the reset occurred.
Real time clock (RTC) reset	The previous date refers to the day and time of the creation of the last export file before the reset occurred. The present day and time are reset to zero.
Connection established	<i>Connection established</i> indicates that a computer has successfully established a connection to the DCC. The connection established exception refers to a phone connection. The previous date and time refer to when the connection is established and the present date and time refer to when the disconnection occurred.
Receiver missing	Receiver missing exception occurs if no valid transmission has occurred from any meter or repeater in the supervision window, or if the receiver failed to respond to the initialization string for the FA403.
Receiver no longer missing	<i>Receiver no longer missing</i> exception occurs when the first valid transmission occurs after the receiver has been declared missing.
Loss of phone line	<i>Loss of phone line</i> indicates that the telephone line is inactive. If the telephone line is only inactive for one cycle, the result would be an exception "Phone line no longer missing" in the following cycle. At the end of each supervision window and if no user is logged on and if a modem connection is not currently made, the modem on the DCC will cause the phone to go off hook and look for a dial tone. If a dial tone is not detected and a previous loss of phone line exception has not occurred, a loss of phone line exception is generated.
Phone line no longer missing	A <i>Phone Line No Longer Missing</i> exception is generated if a previous phone line missing exception has occurred and a phone line test at the end of a supervision window has occurred or a call has just been disconnected.
Failed data reception	<i>Failed data reception</i> indicates that data failed to be received from the DCC. The activity needs to be repeated until data is received or sent successfully.
Failed data transmission	<i>Failed data transmission</i> indicates that data failed to be sent to the DCC. The activity needs to be repeated until data is sent successfully.
Log Off	<i>Log off</i> exception occurs if a disconnect command is received while currently logged on or if a status or no other command has been received for a 4 minute period while logged on.

3.6 Passwords

- A. Passwords are an integral part of the communications between the TapWatch software and each DCC. In order to maintain the integrity of the site configuration and the value of the meter readings at each site, passwords are used to control who can access and who can change data in the DCC. The three major levels for passwords are the *corporate level*, the technician's *view & edit level*, and the billing center's *view-only level*.
- B. During the installation of the TapWatch software, the user must call Inovonics to get the installation activation code. Once this code is entered, they are asked for their first name, last name, and the name of the company. This is the beginning of establishing control of the software and DCC communications. Created during the installation of the software are two directories and one file under the TapWatch2 directory:
 - 1. Directory: C:/Program Files/TapWatch2/Files/Password File
 - 2. Directory: C:/Program Files/TapWatch2/Files/Password Key
 - 3. File: C:/Program Files/TapWatch2/Files/Password Key/Password Key First-name Last-name.txt

l igoio o	co. Exploring rasmola it	-,	
💐 Exploring - Password Key			
<u>File E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> elp			
All Folders	Contents of 'Password Key'		
🗐 🦳 TapWatch2	Name	Size Type	
🕀 🦲 Databases	🛄 Password Key John Doe.txt	1KB Text Doc	ument
Password File	-		
Password Key NedClass			
Modelles	<u> </u>		Þ
1 object(s) selected 51 bytes			

Figure 3-33: Exploring-Pasword Key

- C. When the TapWatch software tries to connect to the DCC, a connection may occur at one of five different authorization levels. TapWatch software users either manually provide passwords when prompted to do so, or—if there is a match—the password will be automatically provided from the user's Password Key file. Passwords for the site DCC are stored in the DCC. The five levels are:
 - 1. Corporate
 - a. Allows the user to both retrieve and send data to the DCC.
 - b. Allows for establishing and changing the service technician, temporary view & edit, view only, and property owner passwords in the DCC.
 - 2. View and Edit
 - a. Allows the user to both retrieve and send data to the DCC.
 - b. Allows for changing view & edit, temporary view & edit, view only, and property owner passwords in the DCC if the previous password is kown.
 - 3. View and Edit Temporary
 - a. Allows the user to both retrieve and send data to the DCC.
 - b. Does not allow user to change any passwords.
 - c. Password is not stored in the computer with TapWatch software so it must be manually typed in each time communications with the DCC are established.
 - 4. View Only
 - a. Allows the user (such as the billing center) to view and retrieve data from the DCC.
 - b. Does not allow the user to change anything.
 - c. User cannot change their own password.
 - 5. "Property Owner"
 - a. Same as View Only but password is not stored in the computer with TapWatch software so it must be manually typed in each time communications with the DCC are established.
 - b. Note: TapWatch software licensing agreements between Inovonics and its distributors do not allow the software to be installed at a property manager/owner site.

	Corporate	View & Edit	View & Edit Temporary	View Only	"Property Owner"
Send site info	Yes	Yes	Yes	No	No
Retrieve site info	Yes	Yes	Yes	Yes	Yes
Retrieve meter readings	Yes	Yes	Yes	Yes	Yes
Retrieve exception log	Yes	Yes	Yes	Yes	Yes
Change date and time	Yes	Yes	Yes	No	No
Change Corporate Password	Yes	No	No	No	No
Change View & Edit Password	Yes	Yes	No	No	No
Change View & Edit Temporary Password	Yes	Yes	No	No	No
Change View Only Password	Yes	Yes	No	No	No
Change "Property Owner" Password	Yes	Yes	No	No	Yes

Table 6: Password Access Summary Table

3.6.1 User setup: Setting up the default passwords in TapWatch software

- A. All passwords used to connect to a DCC can be controlled at the corporate level. Individual users may or may not have direct knowledge of what their passwords are.
- B. A password key (C:/Program Files/TapWatch2/Files/Password Key/Password Key First-name Last-name.txt) is created when the TapWatch software is run for the first time.
- C. The user typically will send their password key to the corporate office via e-mail or on a diskette via postal mail.
- D. The corporate office will send back to the user a new password key (Password Key First-name Last-name.txt) which contains encrypted information of the corporate password, the view only password and the view & edit password used by the technician. The user will place this file in the C:/Program Files/TapWatch2/Files/Password File directory of computer with TapWatch software. The file is unique for each computer and user and will not work on any other computer.
- E. When the user sets up a new DCC for the first time, the passwords from the password file in the C:/Program Files/TapWatch2/Files/Password File directory will automatically be loaded into the DCC.
- F. The default passwords in the user's computer can be reset by installing the a new password file created by the corporate office.

Analogy: Installation creates a blank "key" for the DCC. The installer sends this blank key to the corporate office, which cuts the key to fit the DCC "lock". The installer gets the key back from corporate, and places it into the Password File location for future use. Note: the password key is NOT required to use the DCC. Its purpose is to to allow the corporate office to embed an encrypted password in the DCC. If the password key is not created, technicians will be prompted for a local password each time they access the DCC.

3.6.2 Using TapWatch software to Connect to the DCC

A. When the TapWatch software tries to connect with a DCC (via either the serial port or modem) a check is made to determine what TapWatch software mode the program is in (Corporate, Technician, or View). The corresponding password in the user's Password Key file will be used to try to connect to the DCC. Programmed and stored in the DCC are the unique passwords which allow access to the individual DCC.

Note: The View software mode was formerly called the Billing software mode, due to its usage by billing centers. Any reference to the Billing software mode should be understood as the View software mode.

- B. There are two possible ways to have the DCC recognize the password of the user trying to connect to it.
 - 1. When establishing connection the DCC, a check will be automatically be made of the TapWatch software to find if any of the passwords existing there match those in the DCC. If there is a match, the DCC and TapWatch software will connect at the determined password level. Typically, the service technician will connect at the view & edit level.
 - 2. If there is no match, the user will be prompted to type in the password. Presented will be all the possible password levels and the user will select which level his password is and then type it in.

Password Enter the passwo	rd for this site ar	nd then click [OK].	
I	Password:		
	€ View	& Edit	
	C View C View C Prope	& Edit Temporary Only erty Owner	
	<u>o</u> k	<u>C</u> ancel	

Figure 3-34: Password Screen

- C. View & Edit Password Control Level
 - 1. Once connected to a DCC in the view & edit mode, the user can select the Change Password button from the Connection Screen:

Change Password		
Edit the password settings and then click [Set] to save.		
Old Password:	SIMPLE	
New Password:	V25F89CX6734	
Confirm Password:	V25F89CX6734	
	0. I	
	 View & Edit 	
	C View & Edit Temporary	
	Ο View Onlγ	
	C Property Owner	
Set	Cancel	

Figure 3-35: Change Password Screen

- 2. The user may at this point:
 - a. Change his own view & edit password by entering his password (it must be known) and then typing in the new password twice.
 - b. Change the property owner password by entering this known password existing in the DCC and then typing in the new password twice.
 - c. User can not change the corporate password. The corporate password can only be changed at the Corporate Level.
- D. View & Edit Temporary Password Control Level
 - 1. Once connected in the View & Edit Temporary mode, they user cannot change any passwords.
 - 2. The user can view, retrieve, and change all the site data.
 - 3. The intended use of this password level is during situation when one RBC company is maintaining the site and another is doing the billing.
- E. View Only Password Control Level
 - 1. Once connected in the view only mode, the user can only view the data and retrieve data. Typically, this level is for the billing center.
- F. Property Owner Password Control Level
 - 1. Once connected in the property owner mode, the user can only view the data and retrieve data.

3.6 Passwords

- 2. This level has been created for future possible needs and it is the philosophy of most RBC companies that they want to provide assistance and data to the property owner.
- G. Corporate Level Password Control Level. Instructions regarding coporate password control are available from Inovonics. In order to maintain a secure level of control, instructions and information about this password level is available from your Inovonics Account Manager to the officer of the company who signed the Tap-Watch software license agreement.
- NOTE: The **default password** in DCC when it ships from Inovonics is the word "**INOVONICS**", for both Corporate and View & Edit passwords. If the RBC company does not issue password files to its technicians, then it is highly recommended that these passwords be changed to consistent and unique passwords. If the RBC company does issue password files to its technicians, then the encrypted passwords (Corporate, View & Edit, View & Edit Temporary, View Only) will be established in the DCC the first time the site data is published to the DCC
- NOTE: **If a DCC is moved** from one location to another—that is, if the site configuration is changed from one site to another—Inovonics tech support must be contacted. The DCC contains unique site identifiers that are established when data is first published to the DCC. These identifiers must be cleared in order for a DCC to be utilized at a different site.

3.7 Automatic Download

TapWatch 2 allows for data to be downloaded automatically from the site DCCs and an *.OUT file created in the Export directory for that property. This allows data be to obtained without the user having to do this manually and allows the data to be routinely retrieved during the night if an automatic scheduling program is used. This is accomplished by executing the Auto Download icon in each directory setup for each property. The icon is located in C:\program files\tapwatch2\files\PROP-ID\PROP-ID Auto Download. This icon is created after the software has connected to the site DCC. This requires the user to manually connect to a site once before they can start retrieving data automatically. The following sequence must be done to use this feature:

1. The site must have been connected to once before via telephone modem in order to create the Auto Download icon. The icon is located in C:\program files\tapwatch2\files\PROP-ID\PROP-ID Auto Download. The example shows an icon for the property "alpha 1".



Figure 3-36: The Autdownload icon

2. The user will select the data retrieval settings on the Connection Screen (See section 3.3) which data is desired to download (site configuration, exceptions, and/or meter readings for _____ periods). The setting selected here will be used for all Auto Downloads for this site until these values are changed. In addition, the phone number for the site DCC should be verified to be correct including any prefixes to dial.

Site Name: Inovonics	Property ID: iwc123	
Connect	Connected mode: Not Connected	
Djøconnect	Connection Type	
Retrieve data from DCC	C Modem	
Publigh data to DGG	Pre-dial #:	
Comm Port, Shiffer	Modem dial #: 9,303-939-9603	Data Retrieval setting
Check-In Monitor	Post-dial #:	
Change DSC Date/Time	C Direct Serial Connection	
Change Pasaword	Comm Port. 5	
CC System Information	Data Retrieval Settings	
BIOS Rev Level: Unknown Firmware Rev Level: Unknown Serial Number: Unknown Manufactured: Unknown	If Get Exceptions 10% Image: Comparison of max. Image: Get Meter Readings for 2 periods.	

Figure 3-37: Connection Screen



Under the Main Screen showing the list of sites and under the Options button, the 'Use default Passwords' check box must be checked in order for passwords to be automatically checked. In addition, the type of *.OUT file should be confirmed at this screen along with the locations for the *.OUT file to be created.

Out File Type	Out File Location	
Selected File: File Type #1.mod File Type #1.mod File Type #2.mod File Type #3.mod File Type #4.mod	Auto downloaded Out Files go to: C Default location C Default and optional location C Optional location	
View Description File	Optional Location: C:\My Documents	Browse
Vse Default Passwords		

- 3. Close the Connection Screen and exit the TapWatch software program. The TapWatch program must be closed in order for the Auto Download to work.
- 4. Run the program icon created in #1 above by either using Windows explorer, The Windows Start Menu, selecting Run and then Browsing to the icon, or an automatic program scheduling.

Note: a common automatic program scheduling software is Norton Program Scheduler[™]. This program has a limit of approximately 25 programs that can be scheduled which may be limiting if you have many properties. The Windows program accessory of "Scheduled Tasks" can also be used to launch the icon for each site.

When the program is run, it will automatically start the TapWatch program, dial the phone number for that site DCC, connect to the site if the "View and Edit" passwords match, retrieve the selected data, disconnect from the DCC, create in the Export directory an *.OUT file for that property, and close the TapWatch program.

5. After Auto Download has been run, a log of the event is recorded in the 'Auto Download Log.txt' file. This file is located in the C:\program files\tapwatch2\files directory. This log can be viewed to determine if the download was successful or not. Note that if power is lost to the PC running TapWatch during the data retrieval, no note will be in the log. It is recommended that the user check for a "good retrieval" message for each site in the log.



Figure 3-39: Auto Download Log. txt file

6. Passwords are important for using the Auto Download. When the Auto Download routine is used, the DCC and TapWatch program will try to connect using the "View and Edit" password set in the default passwords. If the password in DCC does not match the password in the user's Password File, no data will be retrieved.

If the password in any of the DCCs does not match the password in the user's Password File, no data will be retrieved.

TapWatch Program Mode	Password Level
Corporate	Corporate
Technician	View & Edit
View	View Only

7. If the Site configuration in the DCC is different from that in the TapWatch database, the site configuration in the user's TapWatch database will be overwritten. It is expected that the configuration at the site is the most accurate and current. If the user needs to revert back to the old configuration, that information is stored in the Auto Backup directory for that property.

Section 4.0 File Locations

4.0.1 Desktop Icon

- A. An icon with a shortcut to TapWatch is created during setup.
 - 1. The shortcut location: C:\Windows\Desktop.
 - 2. The shortcut target: C:\PROGRAM FILES\TAPWATCH2\TW2.exe.

4.0.2 Start Navigator

A. Click on "Start" button. TapWatch is located above the Programs icon on the Start list.

4.0.3 Directory and Subdirectory Structures

- A. Directory and Subdirectory
 - All TapWatch2 folders and files are saved in C:\PROGRAM FILES\TAPWATCH2 during setup.

Figure 4-1: TapWatch2 Files (C:\Program Files\TapWatch2)

Address 🗀 C:\Program Files\TapWatch2	
Folders	× Name
	🔳 🛄 Databases
	Files
🖨 🔂 TapWatch2	💭 ModFiles
🕀 🛅 Databases	📕 🖻 INSTALL.LOG
🕀 💼 Files	RESIZE32.0CX
- ModFiles	TW2.exe

- 1. Install.log
- 2. Resize32.ocx
- 3. TW2.exe Application File: This is the executable file that opens TapWatch software. Add this file to the Startup directory in Windows to open TapWatch when Windows opens.
- 4. unwise.exe Application to uninstall TapWatch software.

B. TapWatch2 \ **Databases** Folder

In general, these files are for storing data generated by features of the TapWatch software.

Figure 4-2: Databases folder (Viewed in Windows Explorer)



4.0.4 TapWatch2 \ Mod Files Folder

These files should NOT be modified by Technicians.

Figure 4-3: ModFiles folder (Viewed in Windows Explorer.)



- A. File Type #1.mod
- B. File Type #2.mod
- C. File Type #3.mod
- D. File Type #4.mod
- E. ModFileDesc.txt

4.0.5 TapWatch2\ Files Folder

Every site created in TapWatch creates a User Site File Folder by Property ID with all of the subdirectories listed below. The files created appear in alphabetical order by the Site Name.



- A. TapWatch creates a unique Identifier Folder ("Indigo" in the example shown) for every site based on the property ID name.
 - 1. Apt Unit Readings.
 - a. Default location for all exported Apt Unit Readings.
 - 2. Autobackup
 - a. Location of automatic backup files.
 - 3. Backup.
 - a. Default location for all Backup files.
 - 4. Check-in
 - a. Default loation for check-in monitoring report
 - 5. Comments.

a. Default location for all exported site Comments.

- 6. CommSniffer.
 - a. Default location for all exported CommSniffer files.
- 7. Daily Readings.
 - a. Default location for all exported Daily Readings.
- 8. Exceptions.
 - a. Default location for all exported Exception Reports.

- 9. Export.
 - a. Default location for exported *.out file.
- 10. Summary.
 - a. Default location for all exported summary reports.
- 11. Repeaters
 - a. Default location for repeater monitoring report.
- 12. DCC System
- a. Default location for BIOS rev level, Firmware rev level, Serial #, and manufactured date of DCC.
- B. Password File. Put the password file returned from corporate in this folder.
- C. Password Key. Send the file in this folder to you corporate office.
 - 1. Password Key User Name

5.1 DCC and FA403 Description and Installation

5.1.1 DCC and FA403 (Head-End) installation.

The DCC (<u>Data</u> <u>C</u>oncentrator and <u>C</u>ommunicator) is installed at the submetering site's Head-End location to collect data from the FA5200- series transmitters via the FA403 receiver. It communicates with the <u>Read/Bill/C</u>ollect service via modem over the telephone line, or to a technician's laptop PC via a serial port when the technician is on-site. This allows the service technician to do site data entry, data retrieval, trouble shooting, and to easily make changes to the site information in the DCC.

- Mount the DCC below the FA403 on wall using anchors and screws provided. The DCC and FA403 are usually mounted in an unobtrusive location near phone lines and a single standard 120VAC wall outlet. Note: The FA403 provides the means for passing RF messages to the DCC.
- 2. Connect the FA403 to the DCC using 4-conductor, 22 gauge, unshielded wire with a maximum length of 100 feet. In typical applications, the FA403 can be wall-mounted at 6 to 7 feet. As a general rule, the higher inside the building that the FA403 is mounted, the better the RF reception.
- 3. Connect the phone line from the screw terminals on a hardwired wall bracket to the terminal blocks on the DCC.
- 4. The phone line should be connected via the screw terminals to the telephone wall outlet. The plug-in phone connector is provided for easy access to the phone line during future on-site maintenance.
- 5. Connect 14VAC power to the DCC with the transformer provided. Inovonics recommends 18 or 20-gauge wire.
- 6. Circuit protection is built into the DCC. Therefore, there is no need for any additional power strip protection.
- 7. Secure the transformer to the outlet with the screw provided.
- 8. Wiring should exit through the back of the DCC, be cut to length, and stapled neatly to the wall for a professional appearance and to reduce danger to personnel and equipment damage.
- 9. The DCC and FA403 should never be installed on the floor or at floor level



Figure 5-1: DCC Connections .

5.1.2 FA-5570 Repeater

Figure 5-2: FA5570 Repeater (left) / FA5570 mounted inside ACC640 weatherproof housing (center) / ACC640 (right')







- A. The FA5570 is a sophisticated repeater that receives, decodes, and transmits signals from TapWatch Submetering transmitters. The repeater acts as a "range extender" for any decodable TapWatch transmission. For outdoor installation, the ACC640 NEMA-4 housing kit is required. Repeaters allow flexibility to confidently submeter even difficult environments like stucco construction, heavily forested areas, and steep terrain.
- B. A network of repeaters are deployed around the site to amplify the signals coming from the PMT's. Repeaters are unobtrusive devices that can be mounted in attics, breezeways, and out-of-the-way locations. Each repeater is powered from a plug-in transformer. A low voltage wire run of up to 300 feet can be run to the repeater.
 - 1. If mounting in a non-controlled environment, be careful to observe the stated temperature specification of 0 to 145 degrees F. Exposures to temperatures outside of these limits should not damage the equipment, unless extreme. However, radio performance may be affected.
 - 2. For outdoor installations, the ACC640 NEMA-4 enclosure (available from Inovonics) can be used. Care should be taken to make certain any enclosure used carries a NEMA-4 rating or better for UV and moisture protection.
 - 3. FA5570 and FA5535 repeaters work with FA5200 series TapWatch transmitters produced after June 1, 1998. For TapWatch transmitters manufactured prior to that date, contact Inovonics Technical Service.

5.1.3 Pulse Meter Transmitters (PMTs)





- A. The FA5200 series PMTs track and broadcast pulse count information. A hardwire connection is made between the PMT and the meter generating a pulse output. Each pulse or switch closure is counted and transmitted by the PMT periodically on multiple random frequencies to insure successful reception and guard against signal blockage.
- B. A hardwire connection is made between the meter and the removable 2-pin terminal block on the PMT.



Figure	5-4:	DCC	Specifications
--------	------	-----	----------------

Operating Temperature		0 to 60 $^{\circ}$ C (32 to 140 $^{\circ}$ F)
Humidity (non-condensing)	—	less than 90%
Transformer power requirements	—	105 to 120 VAC, 60 Hz
DCC power requirements	—	14VAC, 20VA
Number of periods of data stored	—	90
Number of meters	—	2,000
Number of repeaters	_	300
Number of buildings	—	300
Number of exceptions saved		3,000
Real Time Clock retention time with DCC not powered	—	30 days
Clock accuracy	—	better than 2 minutes per month
Modem baud rate	—	33,600 bps
PC baud rate	_	38,400 bps
FA403 cable length	_	up to one hundred (100) feet
PC serial cable length		25 feet or less
DCC dimensions	—	11" x 8.5" x 1.75"
DCC weight	—	1 pound, 11 ounces
Installation	_	Indoor, mounts to wall

Section 6.0 Using TapWatch as a Troubleshooting Tool

6.1 Ways to Set up a Site

- Register as you go
- Setting defaults
- Data entry followed by registry
- Registering entire building at once

Transmitter ID
REGISTERED AS:2684631707
Place a label on the transmitter and then press the [Next unit>] button to register more.
Building Name: Building 100
Apartment Unit #: 1008
Utility Type: Electric
Meter Connection: Other
Initial Meter Count (IMC): 19
Meter ID: 2684512345
Done Cancel Skip > Next Unit >

Figure 6-1: Register Screen

6.2 Managing Passwords

6.2.1 Understanding how passwords work

Passwords are known ONLY by the corporate office. When the connection is established, the coprorate-controlled default password, stored in the PC making the connection, are compared to the DCC passwords. If they do not match, the password screen requests the proper password. **You get only ONE try.** If you fail, you will be disconnected. This feature allows customers to control access at a high level.

6.2.2 Limitations for the various password level

If a "View and Edit" user knows a password that is set in the DCC, then connects to the DCC, they can then CHANGE it. Property owners cannot change passwords.

6.3 Uses for the COM Port Sniffer

- A. Active when connected to DCC or FA403
- B. The Comm Port Sniffer displays RF messages as they are received by the DCC from registered transmitters and repeaters at the site. The grid will hold up to 500 entries. It is most commonly used to during field trouble-shooting as it displays that an RF message has been received by the DCC to test the RF backbone from the location of the transmitter. Transmitters can be forced to transmit by opening their housing, pressing the reset button, or closing their housing. Repeaters can be forced to transmit by opening their housing, pressing the

reset button, pressing the test button, or closing their housing.

Comm Port Sniffe	r							
Building	Unit	Count	TxID	Status	Utility	Connection	Date	Time 🔺
9357-D	423	0002461	2684501703	OK	Water	Hot	5/20/02	11:45:23
9363-H	219	0002794	2684517324	OK	Water	Hot	5/20/02	11:45:23
9357-D	423	0002461	2684501703	OK	Water	Hot	5/20/02	11:45:23
9357-D	403	0003017	2684510343	OK	Water	Hot	5/20/02	11:45:26
9359-F	301	0000946	2684501259	OK	Water	Hot	5/20/02	11:45:27
9373-K	237	0001304	2684503524	OK	Water	Hot	5/20/02	11:45:30
9371-1	216	0000166	2684501222	OK	Water	Hot	5/20/02	11:45:31
9365-E	241	0004265	2684503449	OK	Water	Hot	5/20/02	11:45:37
9351-B	111	0002724	2684501710	OK	Water	Hot	5/20/02	11:45:42
9351-B	421	0001911	2684501553	OK	Water	Hot	5/20/02	11:45:52
9351-B	421	0001911	2684501553	OK	Water	Hot	5/20/02	11:45:54
9351-B	421	0001911	2684501553	OK	Water	Hot	5/20/02	11:45:55 💌
Incoming Data: O All Transmitter ID's for this Site Total Items Listed: 79						E	Export	
Watch Selected Items					Cle	ear Grid		
Selected Buildings		Clear Selected Buildings						
Selected R	epeaters	Clear Selected Repeaters						
Selected Meters		Clear Selected Meters						<u>C</u> lose

Figure 6-2: Comm Port Sniffer Screen

- C. To select which transmitters or repeaters to display, one of the two choices must be made.
 - 1. "All Transmitter ID's for this Site" displays all transmitters and repeaters that are registered at this site.
 - 2. "Watch Selected Items" displays selected transmitters and repeaters that have been tagged with a "yes" in the Watch column in the Edit Repeaters tab, Edit Meters tab, and Edit Buildings tab.
 - a. To select a building for the Watch feature in the Comm Port Sniffer, go to the Edit Buildings screen. *Left* click on the desired building and then in the Watch column, *right* click to change from "no" to "yes".
 - b. To select a meter for the Watch feature in the Comm Port Sniffer, go to the Edit meters screen. *Left* click on the desired meter and then in the Watch column, *right* click to change from "no" to "yes".
 - c. To select a repeater for the Watch feature in the Comm Port Sniffer, go to the Edit repeaters screen. *Left* click on the desired repeater and then in the Watch column, *right* click to change from "no" to "yes".
 - d. To select toggle all items in the Watch column, right click on the header 'Watch" column.
 - 3. Clearing selected items
 - a. "Clear Selected Buildings" will change all builds that have been tagged with "yes" in the Watch column to a "no".
 - b. "Clear Selected Repeaters" will change all builds that have been tagged with "yes" in the Watch column to a "no".
 - c. "Clear Selected Meters" will change all builds that have been tagged with "yes" in the Watch column to a "no".
 - 4. Clicking the "Export" button opens a Windows Browser dialog box to save the data in a *.csv or *.txt file. The default location is: C:/programFiles/tapwatch2/files/*propertyID*/CommSniffer.
 - 5. Clicking the "Clear Grid" button will clear all displayed items in the grid.

6.4 DCC-Phone connections

- A. If you are in an active session, the DCC confirms that the connection is still valid periodically. If it does not receive back an indication that the session is valid it will disconnect itself and go back to a dial-tone status.
- B. Even if a session is not in progress and the phone line is hung for some reason, the DCC will check this status every time the supervision window expires. If it finds an invalid state on the phone line it will attempt to reset it.
- C. If you are in a session and a warning window is displayed the program must have a response within 4 minutes or the DCC will disconnect you.

6.5 **Configuration changes**

A. If you connect to a site and the site configurations are POTENTIALLY different, the program will give you a

Figure 6-3: Configuration Change Warning

Message	×
Â	Warning:[R1] You do not have the same site config as that on the DCC. If you choose to get the readings the site configuration on your computer will be overwritten by that on the DCC If you have made changes to the data you will need to publish them to the DCC prior to retrieving data.
	DCC Date and Time:07/13/2000 2:49:35 PM DCC Modified By: W/E, Cojote -, Inovonics
	DATABASE Date and Time:07/13/2000 2:51:54 PM DATABASE Modified By: W.E. Cojote _, Inovonics
	Do you want to overwrite your data with that from the DCC?
	Yes

- B. If you try to retrieve meter readings ONLY and the configurations could POTENTIALLY differ it will also give you a warning screen.
- C. If you try to send data to the DCC and the site configuration on the DCC is POTENTIALLY *different from that your modifications are based on the program will give you this warning.*

6.6 Loss of Real Time Clock

A. When the DCC has been disconnected from power long enough, the real time clock will lose its settings. Files for each day will not have started or ended at midnight, as usual. The meter readings for the day are accurate, but they are shown as starting at January 1, 1980. When TapWatch sees clock/calendar readings earlier than 1981, it displays a warning to manually set the clock.

Figure 6-4: Loss of Power Warning



- B. When the clock is set for the correct time, an exception is created that tells what the DCC thought the time was, and what the reset time is. Readings stamped for the day prior to the clock being lost will be correct, but the readings for the other data will start on January 1, 1980.
- C. Contact Inovonics Technical Services and have us manually connect to your computer and modify its database to reflect the proper days in the meter readings, IF outfiles are needed for that period. Loss of clock should be a rare occurrence as there is a capacitor on the DCC that will hold the clock for several days.

6.7 Data Entry Recommendations

Because many functions of TapWatch utilize database sorting and because the data stored in the DCC is used by different people, it is helpful if installers use the same conventions for naming sites, formatting numeric entries, using abbreviations, etc.

Following are recommendations to help standardize data entry procedures. If feasible, provide employees and installers with written instructions listing your company's rules for entering data, using abbreviations, and setting times. It is also a good idea to include a list of correct spellings of names or locations used in addresses and site names.

Be aware of data that affects sorting! Always be consistent!

- A. Data that will affect sorting:
 - 1. Site name
 - 2. Property ID

Alpha-numeric format and punctuation must be consistent. Use the format established by your billing center. The property ID is used in the default name of files when exporting data. (Example: "*Mountain View_06-06-2000.out*")Name

- 3. Building Name "Bldg 3", "Bldg 03", "Building 03" will be sorted as separate records. Also be sure that terms such as "Building", "Unit", or "Site" are not used interchangeably.
- 4. Phone formats "(303)758-8759", "303-758-8759", "3037588759" will be sorted as separate records.
- B. Give clear, detailed descriptions of repeater locations.
- C. Only use common abbreviations. It is a good practice to circulate a list of abbreviations to be used by your company, including words which should *not* be abbreviated.
- D. Decide on time format when setting time in the DCC. (GMT, Local time, Time at Corporate/RBC headquarters, or other.)
- E. Date and time-stamp all comments and indicate what changes were made. *This is your only record of changes!*
- F. Data Retrieval: It is recommended that you select the maximum (90 day) option for data retrieval. Although this may take longer to download, the result is that you have a full dataset on your PC. Should there be questions about meter data during the period, or should there be a problem on site resulting in data loss, your PC would have the needed information. Note that Site Backup stores site configuration information, but no meter reading data.
- G. Site Backup : **Backup should be performed on a regular basis.** In the event the DCC is damaged or destroyed, current site configuration can be easily re-loaded in a replacement DCC.
- H. Non-alphanumeric characters, such as "#" and "*" should NOT be used. Spaces are allowed.

6.8 Check-in Monitor

- 1. Active when connected to DCC.
- 2. Displays whether or not the DCC has heard from a meter or repeater since last publishing or start of supervision window. The intended use is during installation of a system to monitor if each repeater and meter registered into the system has transmitted a message and been heard by the DCC/Receiver.
- 3. Each row is highlighted red until it has checked in with the DCC and then it will be highlighted white. A summary of the transmitters that have checked in at the site is displayed in the upper left corner.
- 4. The information displayed can be updated by clicking on the Refresh button.
- 5. Clicking on the "Export Check-in Data" button, opens a Windows Browser dialog box to save the data in a *.csv or *.txt file. The default location is: C:/programfiles/tapwatch2/files/*propertyID*/check-in.

Checked-In? Building Unit Count T x ID Status Date & Time No Bldg.03 <repeater> N/A 2884492856 ??? 01/01/1980.00:00:00 No Bldg.5 5-305 0000000 2684571855 ??? 01/01/1980.00:00:00 No Bldg.5 5-306 0000000 2684571855 ??? 01/01/1980.00:00:00 No Bldg.5 5-304 0000000 2684571851 ??? 01/01/1980.00:00:00 No Bldg.5 5-308 0000000 2684571851 ??? 01/01/1980.00:00:00 Yes Bldg.102 <repeater> N/A 2584571847 ??? 01/01/1980.00:00:00 Yes Bldg.5 5-307 0000000 2684571861 0K 08/01/2001.09:50:00 Yes Bldg.4 4-306 0000000 2684571863 0K 08/01/2001.09:50:00 Yes Bldg.4 4-307 0000000 2684571863 0K 08/01/2001.09:50:00 Yes Bldg.5 5-3</repeater></repeater>	T x ID Status Date & Time 2684492856 ??? 01/01/1980 00:00:00 000 2684571885 ??? 01/01/1980 00:00:00 000 2684571870 ??? 01/01/1980 00:00:00 000 2684571870 ??? 01/01/1980 00:00:00 000 2684571845 ??? 01/01/1980 00:00:00 000 2684571845 ??? 01/01/1980 00:00:00 000 2684571845 ??? 01/01/2080 00:00:00 000 2684571845 ??? 01/01/2001 09:40:00 000 2684671881 OK 08/01/2001 09:40:00 000 2684671881 OK 08/01/2001 09:40:00	Unit <repeater></repeater>	Checked-In? Building
No Bldg 03 REFEATER> N/A 2684432656 ??? 01/01/1980 00:00:00 No Bldg 5 5:305 0000000 268457185 ??? 01/01/1980 00:00:00 No Bldg 5 5:306 0000000 2684571857 ??? 01/01/1980 00:00:00 No Bldg 5 5:306 0000000 2684571870 ??? 01/01/1980 00:00:00 No Bldg 5 5:304 0000000 2684571870 ??? 01/01/1980 00:00:00 No Bldg 5 5:308 0000000 2684571847 ??? 01/01/1980 00:00:00 Yes Bldg 4 4:306 0000000 2684571841 P?? 01/01/1980 00:00:00 Yes Bldg 4 4:306 0000000 2684571861 0K 08/01/2001 09:50:00 Yes Bldg 4 4:307 0000000 2684571863 0K 08/01/2001 09:50:00 Yes Bldg 5 5:303 0000000 2684571852 0K 08/01/2001 09:50:00 Yes Bldg 4 4:307 </th <th>2664492856 ??? 01/01/1980 00:00:00 000 2684671885 ??? 01/01/1980 00:00:00 000 2684671870 ??? 01/01/1980 00:00:00 000 2684671870 ??? 01/01/1980 00:00:00 000 2684671861 ??? 01/01/1980 00:00:00 000 2684671884 ??? 01/01/1980 00:00:00 02 2684620002 R 08/01/2001 09:40:00 0300 2684671881 OK 08/01/2001 09:40:00</th> <th><repeater></repeater></th> <th></th>	2664492856 ??? 01/01/1980 00:00:00 000 2684671885 ??? 01/01/1980 00:00:00 000 2684671870 ??? 01/01/1980 00:00:00 000 2684671870 ??? 01/01/1980 00:00:00 000 2684671861 ??? 01/01/1980 00:00:00 000 2684671884 ??? 01/01/1980 00:00:00 02 2684620002 R 08/01/2001 09:40:00 0300 2684671881 OK 08/01/2001 09:40:00	<repeater></repeater>	
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Section 7.0 Addendum to the TapWatch[®] 2 User Manual

7.1 SW5800-CONT: Contractor Mode

7.1.1 General Description

The TapWatch Contractor mode is intended for individuals performing contractual work for TapWatch Authorized Distributors, such as contractors who install the submetering equipment at a site. This mode of the Tap-Watch software is not intended for retrieval of meter readings on a regular basis, such as for billing.

7.1.2 Installation Variations

When the user installs the SW5800-CONT software, it installs automatically in the Contractor Mode. Any installation of this software requires the user to call Inovonics to obtain the activation code that allows the software installation to proceed. It is not possible to upgrade this mode of the TapWatch software like can be done with the other modes of the software.

7.1.3 Unique features of contractor mode

A. Limited Retrievals

TapWatch Software Contractor Mode (TW2C) will limit the number of times the site meter readings can be retrieved. After 100 meter reading retrievals, the software will no longer function. Upon starting, exiting, or after a meter reading retrieval, a message box will appear on the screen. The information shown includes the maximum retrievals allowed (usually 100), amount used, and amount remaining.

Message	×
1	Meter Reading Retrievals Limit: 108 Amount used: 3 Amount remaining: 105
	This is the Contractor Mode of TapWatch 2 software which has limited functionality. You will need to contact Inovonics to purchase another copy
	once any of the above limits are reached. A full use mode is also available. Contact your Account Manager for details. 800-782-2709 or sales@inovonics.com
	[0K

Each time the Meter Readings are retrieved from a DCC, TW2C checks to see if the Meter Reading Retrieval count factor has reached its limit. Upon starting TW2C and if the limit is reached, the program will display the following message and then close the program once the user clicks an "OK" box.



B. Re-installation & Upgrading

When the user runs out of the 100 Meter Reading retrievals, he can call Inovonics to buy another copy of SW5800-CONT or a full use mode (such as SW5800-TECH). A re-installation of TW2C can be done if the user is close to using all the 100 "units". Usage credits purchased with the TW2C software are added to any remaining usage credits. Example: if a user had used 80 of 100 Meter Reading Retrievals (leaving 20 remaining) and then reinstalled the software, he would then have 120 (20 + 100) Meter Reading Retrievals remaining. If the user desires to upgrade to a full user mode of TapWatch software, it would be treated as a new event.

Page 52 of 53

Contact a Sales Account Manager at Inovonics Wireless for qualification process. The user would then be required go through the TapWatch

software installation process as if for the first time.

C. Auto-Download

With TW2C, the auto-download feature is disabled since this mode is not for regular meter reading retrievals.