TapWatch³

wireless submetering

User Manual

inovonics®

Preface

Notice

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Technical Services Contact Information

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Document Conventions

The following notices are used throughout this document:

Note: Emphasizes points, provides supplementary infomation, or indicates minor problems in an expected outcome.

Caution: Indicates possible damage to equipment or loss of data, as well as potential problems in an expected outcome.

Warning: Indicates the possibility of minor injury to oneself or others.

Danger: Indicates the possibility of serious or fatal injury to oneself or others.

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Chapter 1

TapWatch Overview

1.1 TapWatch Introduction

TapWatch is a submetering system that reads and collects utility meter reading data. Already installed in millions of apartments nationwide, TapWatch helps multifamily property owners increase their net operating income by having residents pay individually for utilities they use.

Wireless technology allows for quick and easy installation of the TapWatch system, with minimal disruption to residents. Drilling holes through walls, running wire to each building, and digging trenches for cabling is not necessary.

Inovonics created and introduced TapWatch in 1998. Based on 900MHz spread spectrum wireless technology, this submetering system was created specifically for the multifamily housing market. The power of 900MHz technology allows hundreds of transmitters to send information to one receiver. Using repeaters, a mesh network can be created to cover large or multi-building properties.

1.1.1 How TapWatch Works

1. A pulse output meter installed in each apartment is connected to an Inovonics pulse meter transmitter (PMT).

2. The PMT converts the meter reading into a digital signal and transmits it.

3. Repeaters placed at strategic locations throughout the site receive signals from the transmitters, verify them, and amplify them for transmission to the receiver.

4. The data logger decodes transmissions from the receiver and stores the data for retrieval by TapWatch 3 software.

5. Authorized billing companies access the data logger remotely.

1.1.2 Pulse Meter Transmitter

The pulse meter transmitter (PMT) is a one-way end device that uses a meter's standard pulse or reed-switched output. As meter counts consumption, resulting pulses or switch closures are counted by the PMT. The PMT then transmits the data via the commercial mesh network.

The PMT:

- Accepts data from the water meter
- Transmits the data to the repeater or receiver
- Is self-monitoring
- Is primary battery powered, with an easily replaceable battery

1.1.3 Repeater

The repeater is an optional component of an Inovonics system that expands the coverage area of the mesh network. Repeaters can be easily included in the initial installation, or added as the system grows.

The repeater:

- Receives messages and retransmits them at high power
- Optimizes communication paths to effectively manage RF traffic
- Retransmits messages to other repeaters, extending site coverage

1.1.4 RF Gateway

There are several kinds of RF gateway used in Inovonics systems, depending on the application. TapWatch uses an EN4000 serial receiver to decode EchoStream signals from EchoStream end devices and repeaters, and/or an FA403 receiver to decode Frequency Agile (FA) signals from FA end devices and repeaters. The data is then outputted to the data logger.

The EN4000 and FA403:

- Listen for transmitted signals from end devices and repeaters
- Output data in a defined data stream to the data logger

1.1.5 Data Logger

The RDL8500 data logger can store meter readings from up to 2000 meters for 90 periods. At any time, the billing company can contact the data logger and download the readings along with site information and any system exceptions.

The data logger:

- Receives meter data from the receiver
- Stores meter data until needed
- Transmits data to a personal computer using TapWatch 3 software

1.2 TapWatch 3 Software

TapWatch 3 software collects, manages, and interprets the data received from the data logger. The software also allows the user to monitor the status of each PMT and repeater in your TapWatch submetering system.

1.2.1 TapWatch Startup

Start the TapWatch 3 software by either double-clicking the TapWatch 3 desktop icon, or selecting TapWatch 3 from the Inovonics TapWatch 3 folder in Programs.

1.2.2 About Window

The About window appears while TapWatch 3 loads, displaying the following information:

Build # The version of TapWatch software loaded on the computer.

1.2.3 Standard Software Features

The TapWatch 3 software has the following features:

- Pressing Alt + an underlined letter on a button will activate the button
- Tab can be used to move from field to field
- Shift + Tab moves between fields in reverse order
- Cursor can be positioned with a mouse click
- Ctrl + C and Ctrl + V shortcuts copy and paste highlighted items

• Data in fields can be sorted and filtered

1.2.3.1 Sorting and Filtering Data

Screens that include columns of information can be sorted and filtered.
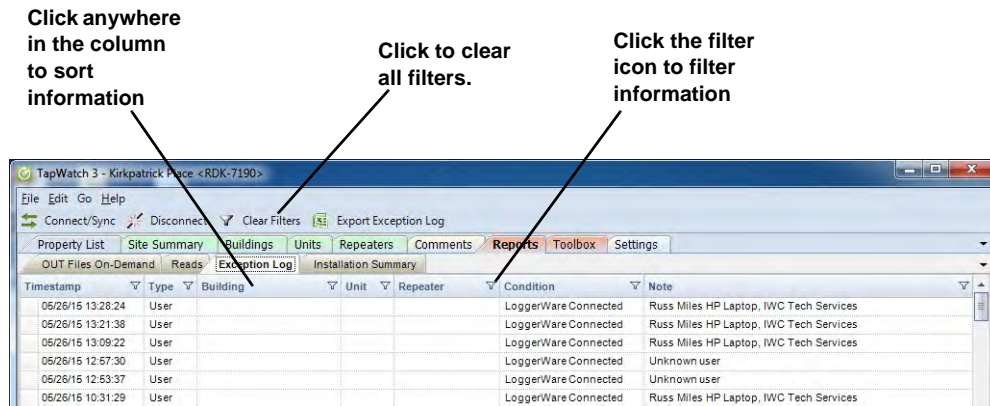
Figure 1-1 Sort and Filter Columns

To sort data:

1. Click anywhere in the column to sort the information in ascending order.

2. Click again to sort the information in descending order.

To filter information:

1. Click on the filter icon.

2. Choose the filter condition.

3. Only fields which meet the selected criteria will appear. To turn the filter off, click on the filter icon and select (All), or click the Clear Filters button.

To export a screen as a spreadsheet:

1. Navigate to File > Export.

2. Click on the file you wish to export.

3. To use the default backup location, click Save; to backup elsewhere, navigate a new location.

1.2.4 The Status Bar

The status bar at the bottom of all TapWatch 3 screens is separated into three sections: the first shows the time and date of the last synchronization or a count of the items currently being viewed; the second shows connection

status; and the third displays a brief update about what the software is currently doing.

Last sync or count of buildings, units, repeaters, or transmitters shown on the screen

What the software is currently doing

Connections status

Last Sync: 6/4/2009 9:37:47 AM   Phone number is blank. Dialup connection failed.   Disconnected
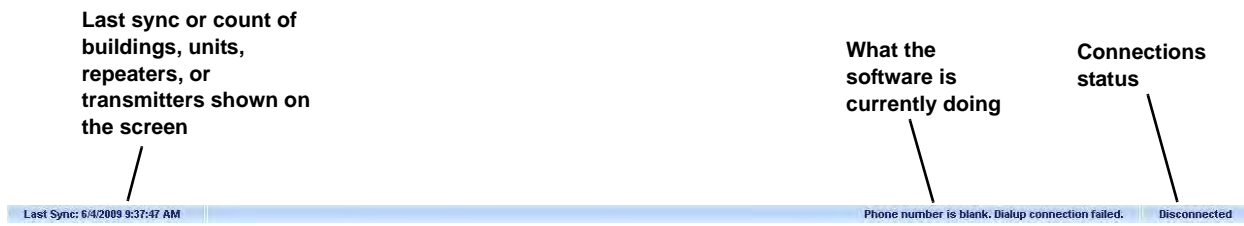
Figure 1-2 The Status Bar

Chapter 2

TapWatch Software Installation

2.1 Minimum System Requirements

Performance levels may decrease if the minimum requirements are not maintained.

- PC with 1.2 gigahertz processor

- Windows 7$^{®}$ or Windows 8.1$^{®}$

- 1 GB RAM

- 4 GB of available hard disk space

Note: Additional space may be needed depending on the number of sites, the amount of meter readings retrieved, etc.

- Ethernet port

- Available RS232 serial port and DB-9 connector or a USB serial port with an RS232 serial adapter (for receiver direct connectivity)

- 56k modem (for remote access to modem sites)

- Internet connectivity for installs and future updates and IP connectivity

- Video resolution of 1024x768

2.2 Recommended System Requirements

Following are the recommended performance levels to ensure optimal performance of the TapWatch 3 software. Assuming all other minimum requirements have been met:

- PC with 2 gigahertz processor
- 2 GB RAM
- 14 GB of available hard disk space

2.3 Software Installation Setup

If you are installing a new software release in an existing system, you will want to perform a database backup and check your database maintenance settings before proceeding.

2.3.1 Perform a Database Backup

To make sure no critical data is lost during the installation process, Inovonics strongly recommends you perform a database backup before installing a new software release. To perform a database backup:

1. Navigate to the \C:\ProgramData\Inovonics\TapWatch3 folder.
2. Copy the contents of the folder.

Note: It is essential that all files are copied, including hidden files. To view hidden files using Windows 8.1, open the Control Panel, navigate to Appearance and Personalization > Folder Options > View. Under Advanced settings, click Show hidden files, folders, and drives, and then click OK.

3. Paste the files in a safe location.

2.3.2 Check Database Maintenance Settings

The TapWatch 3 database has a 4 gigabyte size limit. When TapWatch 3 starts, it checks the current size of the database and issues warnings if your database approaches the maximum size.

Note: For more information about database maintenance, including purging and compacting the database, see section 3.11, "Database Maintenance" on page 22.

To keep the database within its size limit and to improve performance, Inovonics strongly recommends you ensure that the database is being automatically purged of old data during scheduler runs. To check database purge settings:

1. Navigate to Property List > Settings.

2. Ensure the Auto purge data after sync checkbox is checked per section 4.7.5.6, "Auto purge data after sync" on page 64.

3. Ensure that a reasonable number of days for which you want to retain data when it is purged is entered per section 4.7.5.7, "Days (prior to today) to retain reads and exceptions (0 to retain all)" on page 65.

2.4 Software Installation

To install TapWatch 3:

4. Double click the TapWatch3-Setup.exe.

5. If you get a warning that the publisher could not be verified, click Run.

6. If you get a notice that an unidentified application wants to access your computer, click Allow.

7. If you are prompted to reboot your computer during installation, the installer should restart after the reboot. If the install does not run again, it will automatically pick up where it left off.

Note: Each time you start TapWatch 3 it will check to see if there is a software update available. If there is, you will be prompted to update your software.

2.5 Setting Up the TapWatch 3 Software with Your Network

During installation of the TapWatch 3 software, you will need to set up the TapWatch 3 software with your network to ensure only authorized users can access your network.

The first time you run TapWatch 3 software, the following window will display:

Figure 2-1 Request and Import a Key Window

1. Click on Request a Key. The key request information dialog box displays.

Figure 2-2 Key Request Information Dialog Box

2. Enter your name in the Your Full Name field.

3. Optionally, enter any notes in the Notes field for the network administrator who will be creating the key from the key request file.

4. Click Save.

5. The Save As dialog box appears. Navigate to the location where you want to save the key request file and click Save.

6. Email the key request file to your RBC's TapWatch administrator. The TapWatch administrator will synchronize the key with your system and return it to you.

7. Restart the TapWatch 3 software. When the Request and Import a Key window displays, select Import a Key.

8. Navigate to the location of the key file in the Import a Key window and click on Import.

Note: See "Roles & Access" on page 79 for more information.

2.6 Connecting to RDL8500 or RF Gateway

Connecting to a traditional TapWatch submetering network using the RDL8500 remote data logger and an RF gateway is covered in the *RDL8500 Remote Data Logger Installation Instructions* included with the RDL8500. However, a computer running TapWatch 3 software can also be directly connected to either an RDL8500 or an RF gateway for purposes of maintenance or troubleshooting.

2.6.1 Directly Connecting to an RDL8500

The computer running TapWatch 3 software can be directly connected to an RDL8500 using the RDL8500 Ethernet port, shown below.
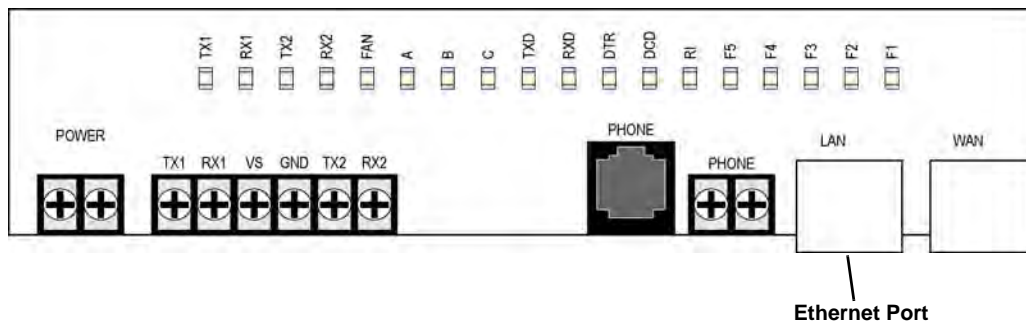
Figure 2-3 RDL8500 Ethernet Port

2.6.2 Directly Connecting to an RF gateway

The computer running TapWatch 3 software can be directly connected to an RF gateway using the Inovonics serial and power cable:

- http://www.inovonics.com/ACC643.aspx
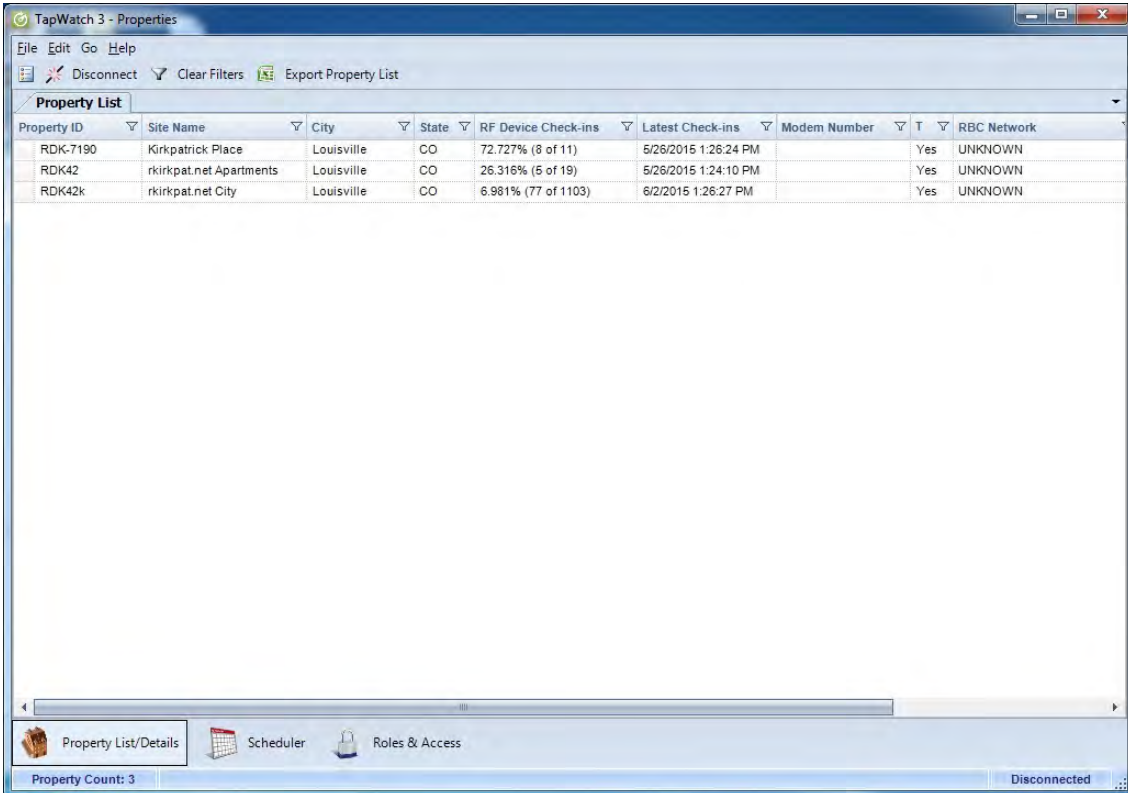
Chapter 3

Property List

3.1 Overview

The Property List screen shows all of the properties contained on your PC. From this screen, you can backup, restore, add, open, or delete a site.

Figure 3-1 Property List Screen

3.2 Add a New Property

To add a new property:

1. Navigate to File > New > Property; or, right click anywhere on the list of properties and select New > Property.

2. Enter a unique identifier of up to 12 alphanumeric characters in the required Property ID field.

3. Enter a brief description of up to 25 alphanumeric characters in the required Site Name field.

4. Enter any relevant property information.

5. Click Save to save the new site; or, if you want to cancel the procedure, click Cancel to delete all information and return to the Property List screen.

3.3 Import a TapWatch 3 Property

Use this option if a data logger already has site information loaded and you want to retrieve the information to your computer.

1. Navigate to File > Import > TapWatch 3 Property.

2. Choose a connection type.

Figure 3-2 Choose Connection Type

- If connecting directly to the data logger, select Direct.
- If you select Modem, enter the modem number of the data logger and click Connect.

- If you select TapWatch.com you will be prompted for your Username and Password. If you do not have a Username and Password, they are available from Inovonics technical services. Enter these and click Submit. Select a property and click Import.

- If multiple properties are imported from Tapwatch.com at once, you can see which properties were just successfully imported by sorting on the Created column.
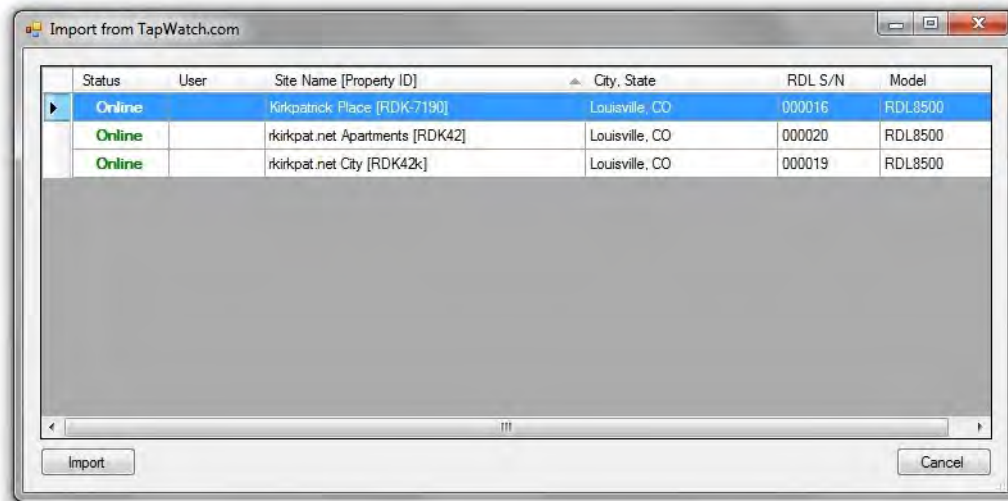
Figure 3-3 Select a Property

Note: If setting up a new RDL with IP connectivity, you will need to have it assigned to your RBC by Inovonics technical services before it will be available.

3.4 Convert a TapWatch 2 Property to TapWatch 3

Information formatted for TapWatch 2 can be transferred to TapWatch 3. To do this, both TapWatch 2, with the site information you wish to transfer, and TapWatch 3, must be loaded on the same computer.

To import a TapWatch 2 property:

3. Navigate to File > Import > From TapWatch 2 Database; the TapWatch 2 Data Import screen displays.
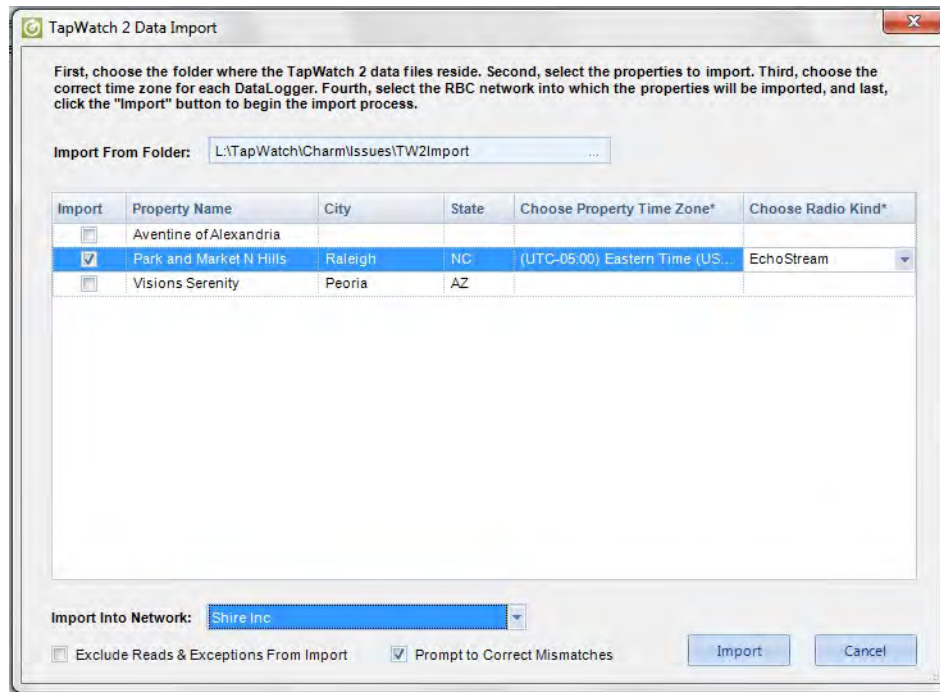
Figure 3-4 TapWatch 2 Data Import

4. Use the Import From Folder window to browse to the folder that contains the data file you wish to import.

5. Click on the property you wish to import.

6. Select your time zone from the Choose Property Time Zone drop-down menu.

7. Select the radio type used in your system, EchoStream or FA, from the Choose Radio Kind drop-down menu.

8. Select your network from the Import Into Network drop-down menu.

9. As desired, select Exclude Reads & Exceptions From Import.

10. As desired, select Prompt to Correct Mismatches.

- Prompt to Correct Mismatches is selected to correct perceived mismatches between EchoStream and FA devices. If the system finds an FA device being imported into an EchoStream system, or vice-versa, the following window will display:
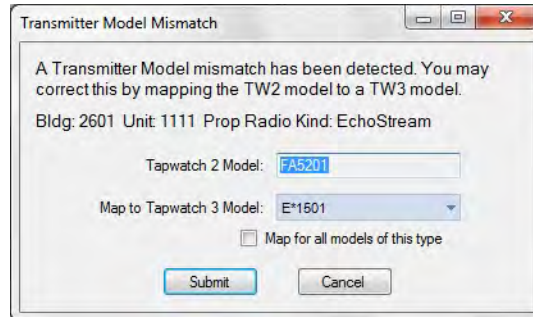
Figure 3-5 Transmitter Model Mismatch

- The transmitter detected as a mismatch will display in the TapWatch 2 Model field. Use the Map to TapWatch 3 Model drop-down menu to choose the transmitter you want to map it as instead.

- If you select Map for all models of this type, TapWatch 3 will map all mismatched transmitters of the type shown to the model selected without displaying the Transmitter Model Mismatch window.

3.5 Restore a Property

If you have a property backup file (*.sdf), you can restore the site information. To restore a property:

1. Navigate to File > Import > Restore from Backup.

2. The Restore window displays the default restore location. If your backup file is located elsewhere, navigate to it.

3. Highlight the backup file and click Open.

3.6 Export Property List

The property list can be exported as a spreadsheet. To export the property list:

1. Highlight a site and navigate to File > Export > Export Property List; or, right click anywhere on the list of properties and select Export Property List.

2. To use the default location, click Save; to save the file elsewhere, navigate to a new location.

3.7 Back Up a Property

It is strongly recommended that all properties be backed up regularly. Sites that lose data will have to be completely reprogrammed. This will require reaccessing every apartment, and resetting every transmitter.

1. Highlight the site and navigate to File > Export > Backup Selected Property; or right click on the property you want to back up, and select Backup Selected Property.

2. To use the default backup location, click Save; to back up elsewhere, navigate to a new location.

3. When the confirmation message displays, press OK.

3.8 Open a Property

This option opens a property for editing. To open a property, double click on the site you want to open.

3.9 Delete a Property

When a property is deleted, all buildings, repeaters, meters, and comments related to the property will also be deleted. Make sure to perform a backup before deleting a property.

To delete a property.

1. Highlight a property and navigate to Edit > Delete Property; or, right click on a property and select Delete.

2. When the confirmation message displays, either click Yes, to delete, or No, to cancel the deletion.

3.10 RF Network Health

The RF network health for each property can be viewed on the Property List in the RF Device Check-ins and Latest Check-ins columns. Both may be sorted to view which properties may require additional investigation or improvements within the RF network. Particular attention should be given to those properties where the RF Device Check-in percentage is low. If it is low, be sure to check the Latest Check-ins timestamp to ensure you have synchronized recently.

Manually synchronizing with a Property will always retrieve the latest RF Device Check-ins. For this to occur automatically using the scheduler, ensure the Sync RF Device Check-ins option is selected on the Scheduler Settings screen. For more information, see section 5.6, "Settings" on page 77.

3.11 Database Maintenance

TapWatch 3 comes with an embedded Microsoft SQL CE database to store its data. This database has a small footprint and does not require a separate IT installation or maintenance. However, it does have a 4 gigabyte size limit. When TapWatch 3 starts, it checks the current size of the database and issues warnings if your database approaches the maximum size.

Note: If you need a larger database please contact Inovonics Technical Services.

To keep the database within its size limit and to improve performance, TapWatch has both automatic and manual database maintenance features.

These features fall into two main categories:

- Purging old data.

Note: To setup automatic database purging, see section 4.7.5.6, "Auto purge data after sync" on page 64.

- Compacting the database.

To access Database Maintenance:

1. Navigate to File > Advanced > Database Maintenance.

2. The Database Maintenance screen will display, with the size of your current database. From the Database Maintenance screen, the following two procedures are available:

  – Compact database.
  – Repair database.

Note: Since a database compaction cannot be run when TapWatch 3 is actively accessing the database, all other TapWatch 3 operations, including the Scheduler, are disabled while the Database Maintenance screen is being displayed.

3.11.1 Purge Database Manually

Property reads, the property exception log, and the scheduler event history can be purged, keeping the database smaller and faster. To purge the database:

1. Click the Purge Now button.

3.11.2 Compact Database

Compacting the database helps keep the database smaller and faster. SQL CE databases do not always release space when data is deleted. As a result, the database can grow, resulting in poor performance and possibly even reaching the maximum SQL CE database size limit of four gigabytes. Compacting recovers unused space in the database and makes the database smaller.

Compacting a large database can take up to 30 minutes for a very large database.

To compact your database:

1. On the Database Maintenance screen, select Compact Database.

Note: Compact Database will be selected by default when you open the page.

2. Click Run.

3. A dialog box warning that compacting large databases can take up to 30 minutes displays. Click OK to proceed; click Cancel to cancel the operation.

4. If you proceed, the Database Maintenance screen will display the compaction progress until it is complete.

Except for during certain critical parts, compacting can be canceled by clicking the Cancel button. However, if the operation is canceled it will leave a background task running until it completes. After cancellation you can perform TapWatch 3 functions, but you will not be able to start a new database compaction or repair, and Scheduler will not start a run.

3.11.3 Repair Database

The Repair Database operation is used in the unlikely event that the SQL CE database becomes corrupted. Repair usually just runs one phase: Phase 1 RecoverAllOrFail. If Phase 1 fails, two further phases are run to recover as much data as possible.

To repair your database:

1. On the Database Maintenance screen, select Repair Database.

2. Click Run.

3. The Database Maintenance screen will display the repair progress until it is complete.

Except for during certain critical parts, database repair can be canceled by clicking the Cancel button. However, if the operation is canceled it will leave a background task running until it completes. After cancellation you can perform TapWatch 3 functions, but you will not be able to start a new database compaction or repair, and Scheduler will not start a run until the background task has completed running.

3.12 View Maintenance Log

Both manual and automatic database maintenance operations write log messages to the database maintenance log file. To view the maintenance log:

1. Navigate to File > Advanced > View Maintenance Log.

The maintenance log displays in your simple text editor. The log file is not updated while you are viewing it; you will need to re-view the log to see any new messages. By default, the log file is limited to approximately the last 2,000 log messages.

Chapter 4

Site Information

4.1 Site Summary

The site summary screen allows the user to view and edit property information, including buildings, meters, repeaters, and comments.
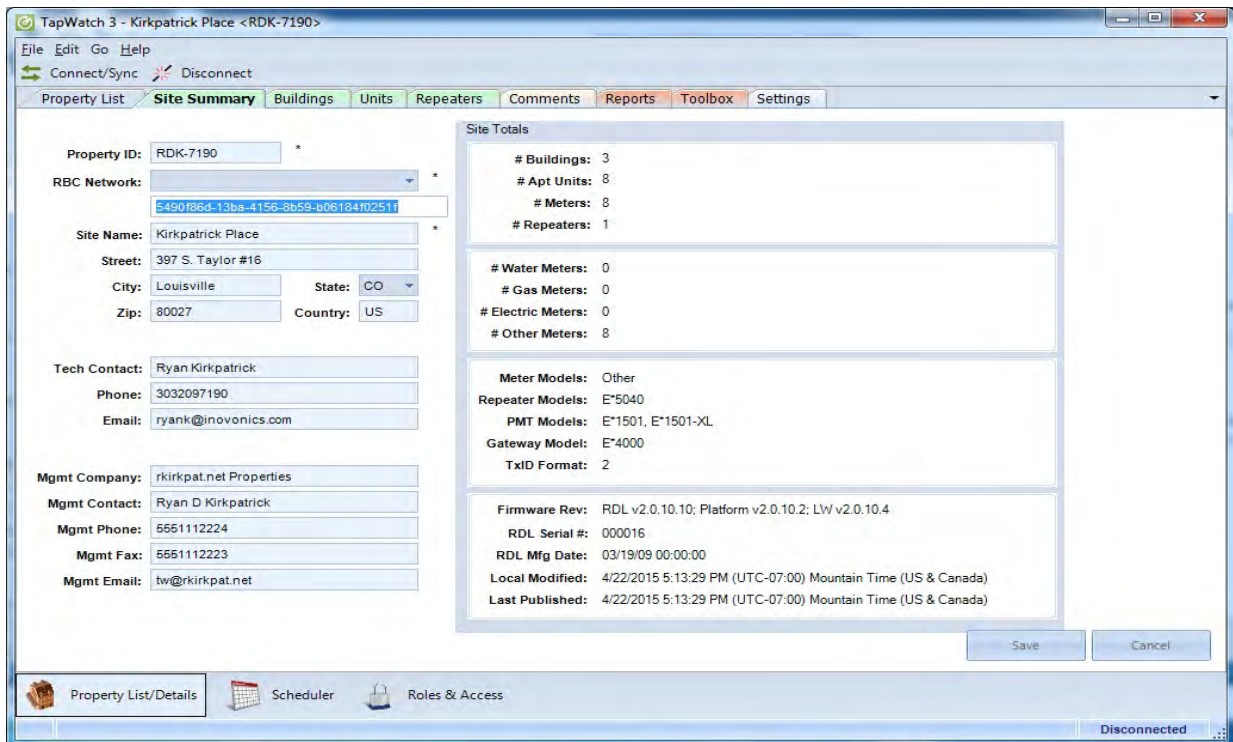

Figure 4-1 Site Summary Screen

4.1.1 Site Information

All of the fields here are editable. Click Save to save any edits; click Cancel to clear edits.

Property ID: The property ID was entered when you added the site.

Caution: The property ID is used to name files containing site information. Changing an existing property ID can affect assorted files. All impacted files will need to be renamed with the new property ID.

Site Name: The site name is typically a descriptive name for the site.

Street: The site's street address.

City: The site's city.

State: The site's state.

Zip: The site's zip code.

Country: The site's country.

Tech Contact: The name of the technical contact for the site.

Phone: The technical contact phone number.

Email: The technical contact email address.

Mgmt Company: The management company for the site.

Mgmt Contact: The management contact.

Mgmt Phone: The management phone number.

Mgmt Fax: The management fax number.

Mgmt Email: The technical contact email address.

RBC Network: The RBC network to which the site belongs.

4.1.2 Site Totals

These fields are not editable, but instead display hardware information entered on other screens. The total number of buildings, units, repeaters, and meters are displayed. The model of the gateway, repeater, PMT, and meter are also displayed. Basic information about the data logger can also be found here, including firmware revision, serial number, and manufacture date.

4.1.3 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

- If the site is a TapWatch.com site, and is to be published to a blank RDL, then you will be prompted to select which available blank RDL to publish to. Select the blank RDL by serial number and click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.
2. Synchronization progress will display in the status bar.

4.2 Buildings

This screen shows the building name, the number of units, and any notes associated with each building.
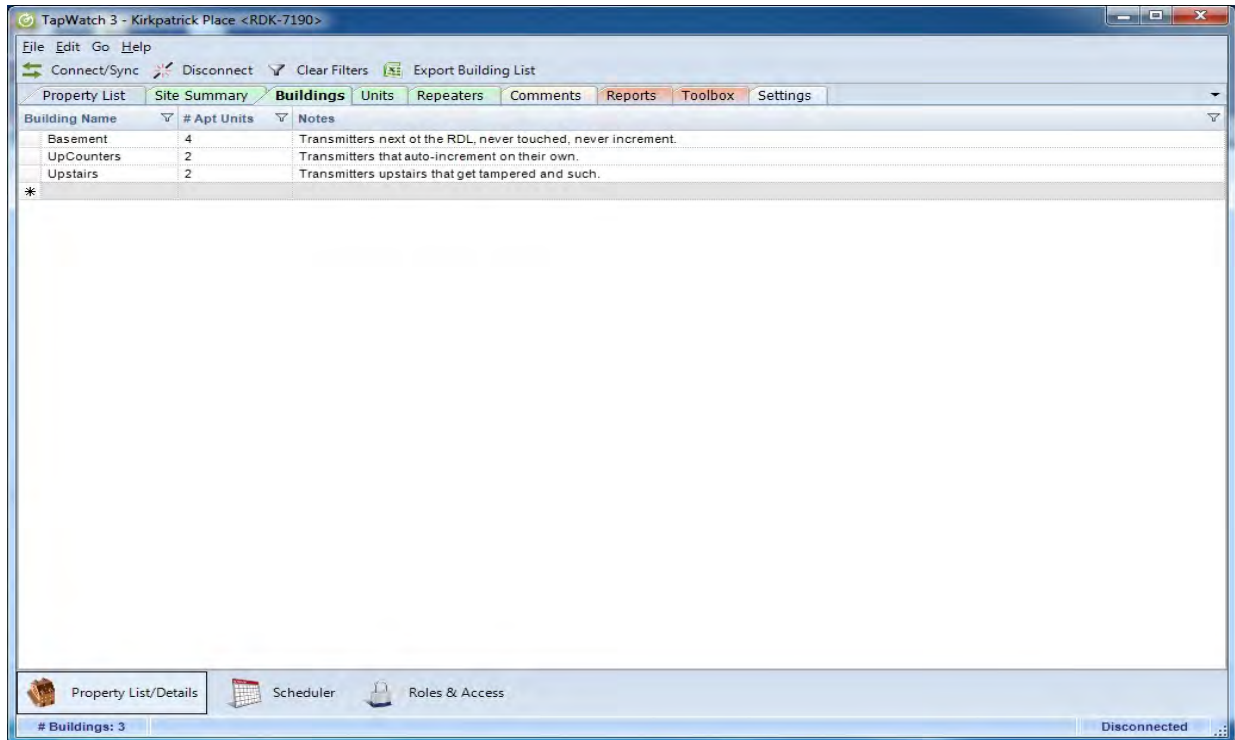
Figure 4-2 Buildings Screen

4.2.1 Add New Building

To add a new building:

1. Navigate to File > New > Building; or, click on the asterisk below the last building listed.

2. Fill in the necessary fields.

3. When complete, press the Enter button on the keyboard.

4.2.2 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

4.2.3 Export Buildings List

The property list can be exported as a spreadsheet. To export the property list:

1. Highlight a site and navigate to File > Export > Export Property List; or, right click anywhere on the list of properties and select Export Property List.

2. To use the default location, click Save; to save the file elsewhere, navigate a new location.

4.2.4 Building Name

Click on the name of a building to enter or edit the building name of up to 25 alphanumeric characters and/or spaces.

4.2.5 # Apt. Units

Displays the number of units in this building, as entered on the Units screen. Clicking on this field will take you to the Units screen.

4.2.6 Notes

Click to enter notes of up to 200 characters.

4.3 Units

This screen shows transmitter and meter information for each unit.

Figure 4-3 Units Screen

4.3.1 Add New Unit

To add a new unit:

1. Navigate to File > New > Unit; or, click on the asterisk below the last unit listed.

2. Fill in the necessary fields.

3. When complete, press the Enter button on the keyboard.

4.3.2 Enable RF for Registration and Com Port Sniffer

To enable the RF gateway for end device registration and the Com Port Sniffer:

1. Navigate to File > Connect > Enable RF; or, click on the Enable RF button.

Note: If you try to enable RF to a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Select.

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2. Once a message displays in the status bar that your RF gateway is remotely connected, RF messages will begin to appear.

4.3.3 Export Unit List

The unit list can be exported as a spreadsheet. To export the unit list:

1. Highlight a unit and navigate to File > Export > Export Unit List; or, right click anywhere on the list of properties and select Export Unit List.

2. To use the default location, click Save; to save the file elsewhere, navigate a new location.

4.3.4 Import Units

The import units feature allows you to import units into an existing TapWatch 3 property by importing an Excel (.xls or .xlsx) spreadsheet. To import units:

1. Click the Import Units button.

2. Navigate to the spreadsheet you want to import.

The Excel file content to be imported should be identical to that created when a Unit list is exported using the Export Unit List feature, with addition of a Serial Number field:

- Building
- Unit
- TXID
- Serial Number

- IMC
- Meter Model
- TX Model
- CF
- Util Type
- Meter ID
- Notes

If the Building and/or Unit fields are empty, then the row(s) will be ignored. Any column name starting with a # character will likewise be ignored.

If you are designating a known transmitter, then the TXID and/or Serial Number fields must be populated. If the TXID and Serial Number are both empty, the columns will be ignored.

If both the TXID and Serial Number fields are populated, the cell values must be equivalent. (For example, a TXID value of 2684478016 would be equivalent to a serial number of 123456.)

If the unit list already contains an entry for a TXID or Serial Number in the spreadsheet you are importing, that row will be ignored.

Please refer to the following table for details:

Table 4-1 Import Unit Spreadsheet Fields

Column Name	Data Type	Required	Default Cell Value if Empty
Building	Alphanumeric	Yes*	N/A
Unit	Alphanumeric	Yes*	N/A
TXID	Numeric	No**	
Serial Number	Numeric	No**	
IMC	Numeric	No	0
Meter Model	Alphanumeric	No	Other
TX Model	Alphanumeric	No	Other
CF	Numeric	No	1
Util Type	Alphanumeric	No	Other
Meter ID	Alphanumeric	No	
Notes	Alphanumeric	No	
Starts with the '#' character	Any	Column is ignored	N/A
Any other column name	Any	Error is displayed	N/A

If Building and Unit are blank, the row is ignored and skipped.
** If the TXID and/or Serial Number already exists in the property, the row is ignored and skipped.

4.3.5 Building

Displays the building name to which the unit is assigned.

4.3.6 Unit

Click to enter or edit the unit number.

4.3.7 TXID

The TXID field displays the factory coded unique identification number of registered Inovonics transmitters. This field is also used for registration.

To register an Inovonics transmitter:

1. Click the enable RF button to connect to the Inovonics RF gateway.

Site Information

2. Click on the appropriate TXID field. The system enters registration mode, and a message appears on the bottom of the screen informing you that it is waiting for a reset message from the Inovonics transmitter.

3. Press the reset button on the Inovonics transmitter. The TXID field will populate with the transmitter's unique identification number.

Note: You will receive a notification if the transmitter's unique identification number has already been registered.

4.3.8 IMC

Click to enter or edit the initial meter count of the unit's meter.

4.3.9 Meter Model

Click to choose the model of the meter in the unit from a dropdown menu.

4.3.10 TX Model

Click to choose the model of the Inovonics transmitter from a dropdown menu.

4.3.11 CF

Click to enter or edit the count factor for this transmitter.

4.3.12 Util Type

Click to choose the utility type from a dropdown menu.

4.3.13 Meter ID

Click to enter or edit the unique identification number for the meter.

4.3.14 Notes

Click to enter notes of up to 200 characters.

6.8.15 05855H   **35**
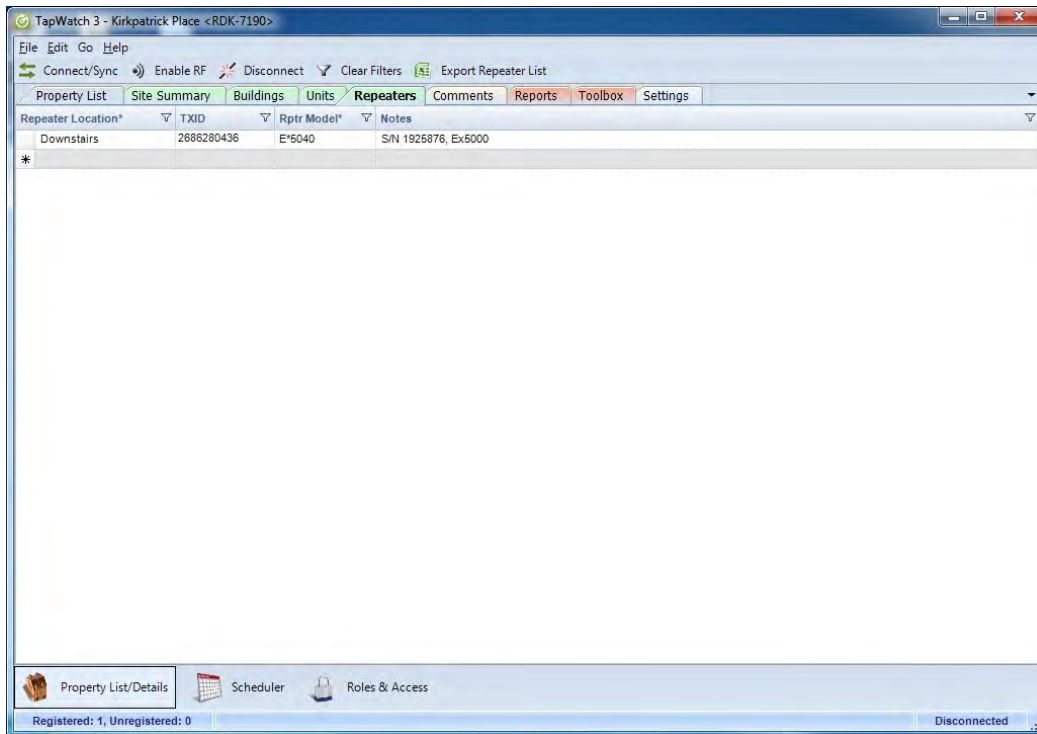
4.4 Repeaters

Figure 4-4 Repeaters Screen

This screen shows information for repeaters on the selected property, including repeater location, unique identification number, and notes.

4.4.1 Add New Repeater

1. Navigate to File > New > Repeater; or click on the asterisk below the last repeater listed.

2. Fill in the necessary fields.

3. When complete, press the Enter button on the keyboard.

4.4.2 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

4.4.3 Enable RF for Registration and Com Port Sniffer

To enable the RF gateway for end device registration and the Com Port Sniffer:

1. Navigate to File > Connect > Enable RF; or, click on the Enable RF button.

Note: If you try to enable RF to a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Select.

2. Once a message displays in the status bar that your RF gateway is remotely connected, RF messages will begin to appear.

4.4.4 Repeater Location

Click to enter or edit the building in which the repeater is located. Though this is optional, entering the location of the repeater is essential in the event of field service.

4.4.5 TXID

The TXID field displays the factory coded unique identification number of registered Inovonics transmitters. This field is also used for registration.

To register an Inovonics transmitter:

1. Click the enable RF button to connect to the Inovonics RF gateway.

2. Click on the appropriate TXID field. The system enters registration mode, and a message appears on the bottom of the screen informing you that it is waiting for a reset message from the Inovonics transmitter.

3. Press the reset button on the Inovonics transmitter. The TXID field will populate with the transmitter's unique identification number.

Note: You will receive a notification if the transmitter's unique identification number has already been registered.

4.4.6 Notes

Click to enter or edit notes for the repeater. It is recommended that the location of the repeater be noted for future maintenance.
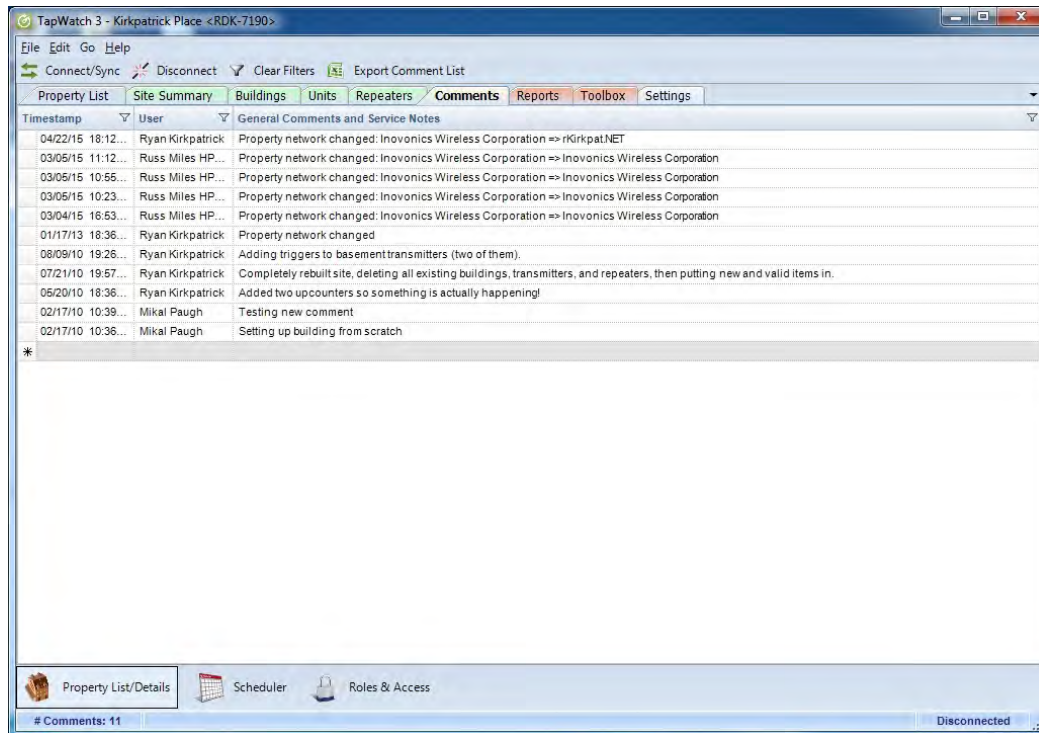
4.5 Comments

Figure 4-5 Comments Screen

This screen shows user entered comments.

4.5.1 Add New Comment

1. Navigate to File > New > Comment to add a new comment; or click on the asterisk below the last comment listed.

2. Fill in the necessary fields.

3. When complete, press the Enter button on the keyboard.

4.5.2 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

4.5.3 Export Comments List

The comments list can be exported as a spreadsheet. To export the comments list:

1. Navigate to File > Export > Export Comments List to export a file containing all comments for the selected property; or, right click anywhere on the list of properties and select Export Comments List.

2. To use the default location, click Save; to save the file elsewhere, navigate to a new location.

4.5.4 Timestamp

Displays the date and time the comment was entered.

4.5.5 User

Displays the user who entered the comment.

4.5.6 General Comments and Service Notes

Displays the comments. It is recommended that the location of the data logger be noted for future maintenance.

4.6 Reports

The reports screens allow you to view and export relevant system reports. There are three reports screens: .OUT files on-demand, reads, and exception log.
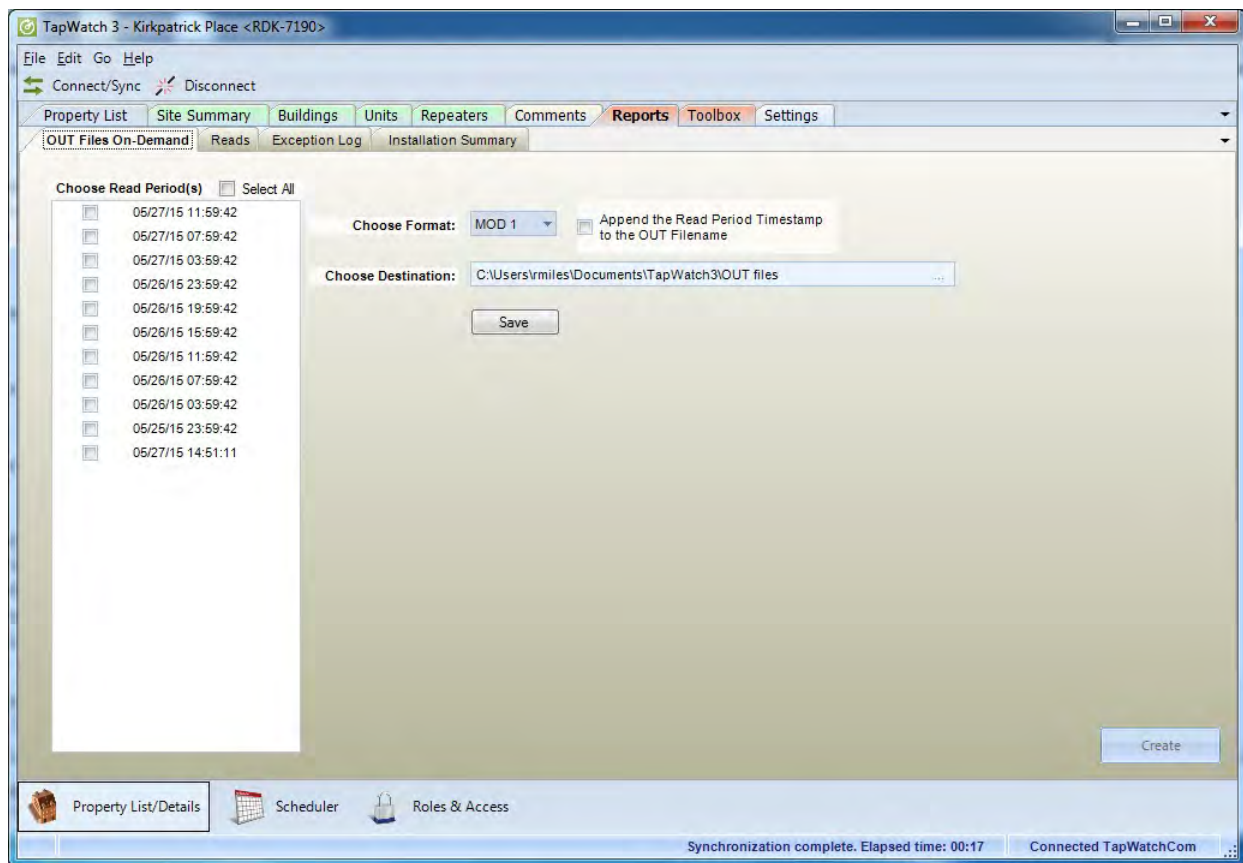
4.6.1 .OUT Files On-Demand

Figure 4-6 .OUT Files On-Demand Screen

This screen is used to create .OUT files as needed. .OUT files are used by the RBC to collect the information necessary to create a bill. .OUT files can be created as XML and CSV files, or as one of five fixed column text file formats.

The following tables can be used to locate information as needed.

Field The type of information.

Start Column At what character this information begins.

Length The number of characters required to convey this information.

Description   Description of the information contained in this field.

4.6.1.1 MOD 1

Field	Start Column	Width	Description
Building Name	1	25	Building name
Apartment Unit #	27	5	Apartment or unit within building
Property ID	33	6	Site name or billing identifier
Transmitter ID	40	10	Factory-assigned serial number; universally unique
Meter Count	51	6	Reading on meter in respective unit
Utility Type	58	1	W: Water; other meter types have not been implemented
Meter Connection	60	1	H: Hot; C: Cold; A: All
Date of Last Read	62	8	Date when last meter read was recorded
Time of Last Read	71	5	Time when last meter read was recorded
Meter ID	77	12	User-assigned to help identify the meter location
Exception Code	90	4	E: exception that cleared on same day; I: inactive; B: low battery; T: test mode; R: reset; P: registered but never checked in
|	95	1	End of line indicator

4.6.1.2 MOD 2

Field	Start Column	Width	Description
Transmitter ID	6	10	Factory-assigned serial number, universally unique
Meter Count	19	6	Reading on meter in respective unit
Utility Type	26	1	W: Water; other meter types have not implemented
Meter Connection	28	1	H: Hot; C: Cold; A: All
Exception	31	1	E: notes that an exception has occurred on the same day
Date of Last Read	33	8	Date when last meter read was recorded
Time of Last Read	42	5	Time when last meter read was recorded
Meter ID	48	12	User-assigned to help identify the meter location

4.6.1.3 MOD 3

Field	Start Column	Width	Description
Transmitter ID	7	10	Factory-assigned serial number, universally unique
Meter Count	20	6	Reading on meter in respective unit
Utility Type	27	1	W: Water; other meter types have not been implemented
Meter Connection	29	1	H: Hot; C: Cold; A: All
Exception	32	1	E: notes that an exception has occurred on the same day
Date of Last Read	34	8	Date when last meter read was recorded
Time of Last Read	43	5	Time when last meter read was recorded
Meter ID	49	12	User-assigned to help identify the meter location
Exception Code	62	3	I: inactive; B: low battery; T: test mode; R: reset; P: registered but never checked in

4.6.1.4 MOD 4

Field	Start Column	Width	Description
Meter ID	7	12	User-assigned to help identify the meter location
Meter Count	20	6	Reading on meter in respective unit
Utility Type	27	1	W: Water; other meter types have not been implemented
Meter Connection	29	1	H: Hot; C: Cold; A: All
Exception	32	1	E: notes that an exception has occurred on the same day
Date of Last Read	34	8	Date when last meter read was recorded
Time of Last Read	43	5	Time when last meter read was recorded

4.6.1.5 MOD 5

Field	Start Column	Width	Description
Building Name	1	25	Building name
Apartment Unit #	27	5	Apartment or unit within building
Property ID	33	7	Site name or billing identifier
Transmitter ID	40	10	Factory-assigned serial number; universally unique
Meter Count	51	10	Reading on meter in respective unit
Utility Type	62	1	W: Water; other meter types have not been implemented
Meter Connection	64	1	H: Hot; C: Cold; A: All
Date of Last Read	68	8	Date when last meter read was recorded
Time of Last Read	77	5	Time when last meter read was recorded
Meter ID	83	12	User-assigned to help identify the meter location
Exception Code	96	4	E: exception that cleared on same day; I: inactive; B: low battery; T: test mode; R: reset; P: registered but never checked in

4.6.1.6 XML 1

The XML 1 format contains the following fields:

Field	Parent	Data Type	Description
Date	OutFile	Date/Time	When the outfile was generated
Property	OutFile	Record	Contains reads for one property
Code	Property	String	Site short name or billing identifier
Name	Property	String	Name of the property
Period	Property	Array	Contains the reads of a period
Read	Period	Record	Contains the details of a read
Building	Read	String	Name of the building via associated transmitter
Unit	Read	String	Name of the unit via associated transmitter
MeterConnection	Read	String	One of: Hot, Cold, All, Other
MeterUtilityType	Read	String	One of: Water, Electric, Gas, Runtime, Other
MeterSerialNumber	Read	String	The serial number of the meter
TransmitterModel	Read	String	The model number of the RF transmitter
TransmitterSerialNumber	Read	String	The serial number of transmitter
TransmitterCount	Read	Integer	The pulse count reported by the transmitter
InitialMeterCount	Read	Integer	The meter reading when transmitter last reset
HadExceptionDuringPeriod	Read	Boolean	If there was an exception today on this transmitter.
IsBatteryLow	Read	Boolean	If the transmitter reported a low battery condition
IsInactive	Read	Boolean	If the transmitter failed to report in
IsReset	Read	Boolean	If the transmitter reported a reset condition
IsTamper	Read	Boolean	If the transmitter reported a case tamper condition
PeriodEnd	Read	Date/Time	When this period ended

Received	Read	Date/Time	When the transmitter was last heard from

The following is an example of the XML 1 format:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<OutFileXmlExport>
    <Date>2014-09-30T06:08:59.1906621-08:00</Date>
    <Property>
        <Code>156111</Code>
        <Name>155 20th AVENUE APTS</Name>
        <Buildings>
          <Building>
          <Name>Building 9</Name>
          <Units>
          <Unit>
          <Name>307</Name>
          <Meters>
          <Meter>
          <SerialNumber>307</SerialNumber>
          <UtilityType>
          <Name>Water - All</Name>
          </UtilityType>
          <Transmitter>
          <SerialNumber>2685451602</SerialNumber>
          <Reads>
          <Read>
          <HadExceptionDuringPeriod>false</HadExceptionDuringPeriod>
          <IsBatteryLow>false</IsBatteryLow>
          <IsInactive>false</IsInactive>
          <IsReset>false</IsReset>
          <IsTamper>false</IsTamper>
          <Period>2014-03-17T23:59:42-08:00</Period>
          <Read>301231</Read>
          <InitialMeterCount>4</InitialMeterCount>
          <Received>2014-03-17T23:15:53-08:00</Received>
          </Read>
          </Reads>
          </Transmitter>
          </Meter>
          </Meters>
          </Unit>
          </Units>
          </Building>
```

```
            </Buildings>
        </Property>
    </OutFileXmlExport>XML 2
```

4.6.1.7 XML 2

The XML 2 format contains the following fields:

Field	Parent	Data Type	Description
Date	OutFile	Date/Time	When the outfile was generated
Property	OutFile	Record	Contains reads for one property
Code	Property	String	Site short name or billing identifier
Name	Property	String	Name of the property
Period	Property	Array	Contains the reads of a period
Read	Period	Record	Contains the details of a read
Building	Read	String	Name of the building via associated transmitter
Unit	Read	String	Name of the unit via associated transmitter
MeterConnection	Read	String	One of: Hot, Cold, All, Other
MeterUtilityType	Read	String	One of: Water, Electric, Gas, Runtime, Other
MeterSerialNumber	Read	String	The serial number of the meter
TransmitterModel	Read	String	The model number of the RF transmitter
TransmitterSerialNumber	Read	String	The serial number of transmitter
TransmitterCount	Read	Integer	The pulse count reported by the transmitter
InitialMeterCount	Read	Integer	The meter reading when transmitter last reset
HadExceptionDuringPeriod	Read	Boolean	If there was an exception today on this transmitter.
IsBatteryLow	Read	Boolean	If the transmitter reported a low battery condition
IsInactive	Read	Boolean	If the transmitter failed to report in
IsReset	Read	Boolean	If the transmitter reported a reset condition

IsTamper	Read	Boolean	If the transmitter reported a case tamper condition
PeriodEnd	Read	Date/Time	When this period ended
Received	Read	Date/Time	When the transmitter was last heard from

The following is an example of the XML 2 format:

```
<?xml version="1.0" encoding="utf-8"?>
<OutFile xmlns="http://reads.tapwatch.com/xml/1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <Date xmlns="">2015-05-19T07:34:54.5626561-07:00</Date>
    <Property>
            <Code xmlns="">65011</Code>
            <Name xmlns="">1000 South Ulster Street </Name>
            <Period>
              <Read>
              <Building xmlns="">Building 4</Building>
              <Unit xmlns="">429</Unit>
              <MeterConnection xmlns="">All</MeterConnection>
              <MeterUtilityType xmlns="">Water</MeterUtilityType>
              <MeterSerialNumber xmlns="" />
              <TransmitterModel xmlns="">E*1501</TransmitterModel>
              <TransmitterSerialNumber xmlns="">2692311296</
              TransmitterSerialNumber>
              <TransmitterCount xmlns="">1146</TransmitterCount>
              <InitialMeterCount xmlns="">3</InitialMeterCount>
              <HadExceptionDuringPeriod xmlns="">false</HadExceptionDuringPeriod>
              <IsBatteryLow xmlns="">false</IsBatteryLow>
              <IsInactive xmlns="">false</IsInactive>
              <IsReset xmlns="">false</IsReset>
              <IsTamper xmlns="">false</IsTamper>
              <PeriodEnd xmlns="">2015-03-11T23:59:42-07:00</PeriodEnd>
              <Received xmlns="">2015-03-11T23:29:47-07:00</Received>
              </Read>
            </Period>
    </Property>
</OutFile>
```

4.6.1.8 CSV 1

The CSV format is a comma separated values version of the XML 2 format, with the same data fields. The first line contains a list of the field/column names as follows:

Field	Description
Date	When the outfile was generated
Property Code	Site short name or billing identifier
Property Name	Name of the property
Building	Name of the building
Unit	Name of the unit
Meter Serial Number	The serial number of the meter
Meter Connection	One of: Hot, Cold, All, Other
Meter Utility Type	One of: Water, Electric, Gas, Runtime, Other
Transmitter Model Number	The model number of the RF transmitter
Transmitter Serial Number	The serial number of transmitter
Had Exception During Period	If there was an exception today on this transmitter
Is Battery Low	If the transmitter reported a low battery condition
Is Inactive	If the transmitter failed to report in
Is Reset	If the transmitter reported a reset condition
Is Tamper	If the transmitter reported a case tamper condition
Period End	When this period ended
Transmitter Count	The pulse count reported by the transmitter
Initial Meter Count	The meter reading when transmitter last reset
Received	When the transmitter was last heard from

The following is an example of the CSV 1 format:

```
08/06/2011 10:07:05,WestWood1,West Wood Apts,West,303,204353,Hot,
Water,E*1501,2684922450,False,False,True,False,False,False,
08/05/2011 23:59:57,150,1042,08/01/2011 07:00:04
```

4.6.1.9 None

There may be cases when the scheduler is required to retrieve reads and exceptions without generating OUT files. If None is selected, no OUT files will be generated; only reads and exceptions are retrieved.

4.6.1.10 Choose Read Period(s):

Displays the reads from which you can create an .OUT file. To create an .OUT file, check an available read, and click the Create button. To select all periods, check the Select All checkbox.

4.6.1.11 Choose Format:

Allows you to choose the format in which the .OUT file will be created.

4.6.1.12 Append the Read Period Timestamp to the OUT Filename

Check this to add the timestamp to the name of the .OUT file.

4.6.1.13 Choose Destination:

Allows you to choose the destination to which the .OUT file will be exported.

4.6.1.14 Save

Click to save changes to this form.

4.6.1.15 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

4.6.2 Reads

Figure 4-7 Reads Screen

This screen displays read information.

4.6.2.1 Period

Displays the date/time of the start of the next period. (May vary with daylight savings time.)

4.6.2.2 Building

Displays the building in which the transmitter providing the read is located.

4.6.2.3 Unit

Displays the unit in which the transmitter providing the read is located.

4.6.2.4 Util Type

Displays the type of utility for which the transmitter is providing the read.

4.6.2.5 Meter Model

Displays the model of the meter.

4.6.2.6 Meter ID

Displays the unique identification number of the meter.

4.6.2.7 TX Model

Displays the Inovonics part number of the transmitter.

4.6.2.8 TxID

Displays the unique identification number of the transmitter providing the read.

4.6.2.9 Received

Displays the date and time when the read was received.

4.6.2.10 Count Factor

Displays the number of units which each meter pulse represents.

4.6.2.11 IMC

Displays the initial meter count when the meter was installed or last serviced.

4.6.2.12 Count

Displays the count of meter pulses at the time of the read.

4.6.2.13 Total Flow

Displays the total flow of the meter at the time of the read.

4.6.2.14 Status

Displays the status of the transmitter.

- OK - indicates the transmitter is operating as it should be.

- B - indicates a low battery.

- I - indicates the transmitter is inactive.

- T - indicates the transmitter has been tampered with.

- R - indicates the transmitter has been reset.

4.6.2.15 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

4.6.2.16 Export Reads

Navigate to File > Export > Export Reads to export a file containing all read information for the selected property.

4.6.3 Exception Log

Figure 4-8 Exception Log Screen

The exception log screen displays exceptions to normal operation by transmitters.

4.6.3.1 Timestamp

Displays the date and time of the exception.

4.6.3.2 Building

Displays the building that contains the transmitter with an exception.

4.6.3.3 Unit

Displays the unit that contains the transmitter with an exception.

4.6.3.4 Repeater

If it was a repeater that had the exception, the repeater information is displayed here.

4.6.3.5 Condition

Displays a description of the exception.

4.6.3.6 ID

Displays the identification number of the transmitter or repeater that had the exception.

4.6.3.7 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

4.6.3.8 Export Exception Log

Navigate to File > Export > Exception Log to export a file containing all exception information for the selected property.

4.6.4 Installation Summary

The installation summary tab creates a .pdf report of installation information.

4.7 Toolbox

The toolbox screens provide troubleshooting and maintenance tools for your EchoStream TapWatch system. There are two toolbox screens: the Com Port Sniffer screen and the Check-In Monitor screen.
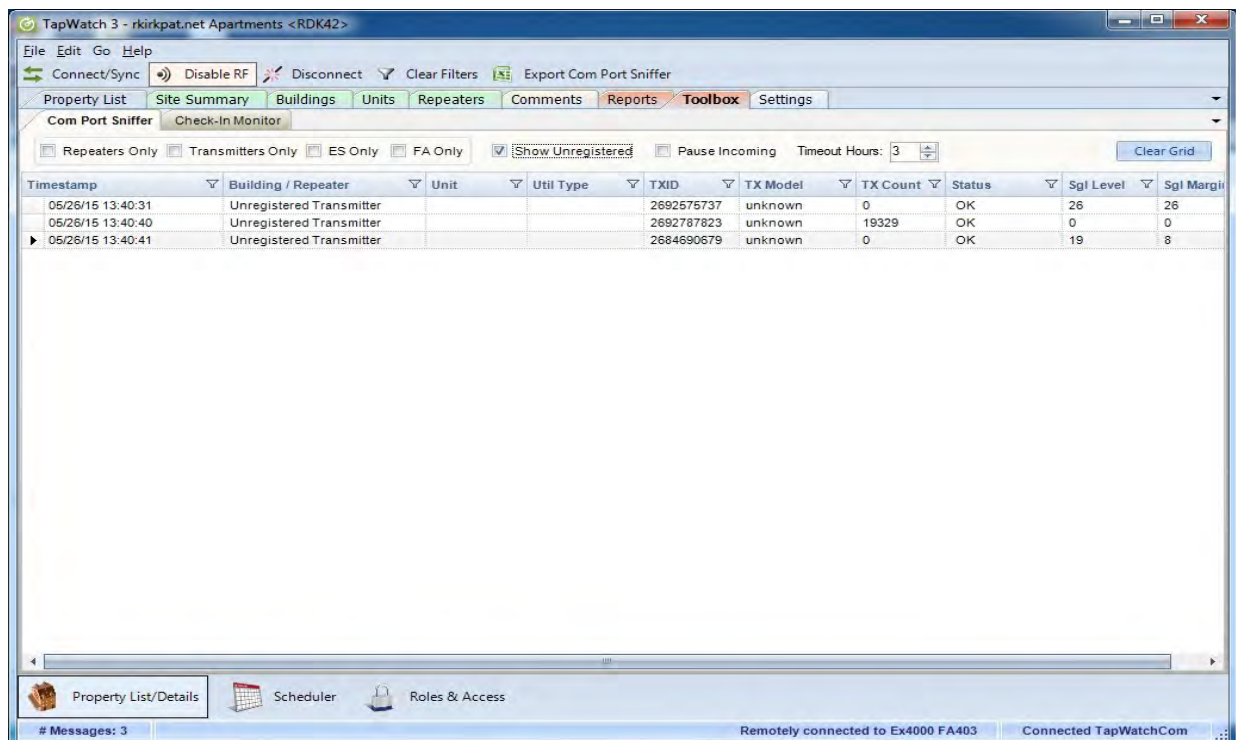
4.7.1 Com Port Sniffer

Figure 4-9 Com Port Sniffer Screen

The Com Port Sniffer screen displays RF messages from registered transmitters and repeaters as they are received by the receiver when Enable

RF is active. It is most commonly used during field troubleshooting to test the RF backbone of the EchoStream Commercial Mesh Network.

4.7.1.1 Repeaters Only

Select this to show only repeater messages as they are received by the RF gateway.

4.7.1.2 Transmitters Only

Select this to show only transmitter messages as they are received by the RF gateway.

4.7.1.3 Show Unregistered

Select this to include messages from unregistered devices.

4.7.1.4 Pause Incoming

Select this to pause the display of incoming messages received by the RF gateway.

4.7.1.5 Timestamp

Displays the date and time when the message was received by the RF gateway.

4.7.1.6 Building/Repeater

Displays the building/repeater for the registered device.

4.7.1.7 Unit

Displays the unit for the registered device.

4.7.1.8 Util Type

Displays the type of utility for which the registered device is providing the read.

4.7.1.9 Utility Type

Displays the utility type of the registered device.

4.7.1.10 TXID

Displays the identification number of the repeater or transmitter that sent the message.

4.7.1.11 TX Count

Displays the total number of the transmitter's pulse counts.

4.7.1.12 Status

Displays the status of the transmitter that sent the message.

- OK - indicates the transmitter is operating as it should be.
- A - indicates the repeater is not receiving AC power.
- B - indicates the transmitter has a low battery.
- F - indicates the transmitter is in rapid transmit mode.
- I - indicates the transmitter is inactive.
- M - indicates that the model of the transmitter does not match how it was registered into the software. The model registered into the software is displayed next to the M status.
- N - Indicates loss of power to repeater.
- T - indicates the transmitter has been tampered with.
- R - indicates the transmitter has been reset.
- Z - indicates the last check-in message from a transmitter before going into sleep mode.

4.7.1.13 Sgl Level

Displays the signal level of the message as measured by the RF gateway. The signal level indicates the signal's relative strength. The higher the value, the stronger the signal strength.

4.7.1.14 Sgl Margin

Displays the signal margin of the message as measured by the RF gateway. The signal margin is the measurement of the decibel level of the message, minus the decibel level of any interfering signals. Inovonics recommends that equipment be placed within a facility such that all end devices produce signal margin readings of at least 10 decibels.

4.7.1.15 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to

make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

4.7.1.16 Export Reads

Navigate to File > Export > Export Com Port Sniffer to export a file containing all Com Port Sniffer information for the selected property.

4.7.1.17 Enable RF for Registration and Com Port Sniffer

To enable the RF gateway for end device registration and the Com Port Sniffer:

1. Navigate to File > Connect > Enable RF; or, click on the Enable RF button.

Note: If you try to enable RF to a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Select.

2. Once a message displays in the status bar that your RF gateway is remotely connected, RF messages will begin to appear.

4.7.2 Check-In Monitor

Figure 4-10 Check-In Monitor Screen

The check-in monitor displays whether or not the RDL8500 data logger has heard from a meter or repeater since the time posted at the top of the screen. 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 RDL8500/receiver.

4.7.2.1 Timestamp

Displays the date and time when the last check in message was received.

4.7.2.2 Building/Repeater

Displays the building/repeater for the registered device.

4.7.2.3 Unit

Displays the unit for the registered device.

4.7.2.4 TX Count

Displays the total number of the transmitter's pulse counts.

4.7.2.5 TXID

Displays the unique identification number of the repeater or transmitter that sent the message.

4.7.2.6 TX Model

Click to choose the model of the Inovonics transmitter from a dropdown menu.

4.7.2.7 Util Type

Displays the type of utility for which the transmitter is providing the read.

4.7.2.8 Meter Model

Click to choose the model of the meter in the unit from a dropdown menu.

4.7.2.9 IMC

Displays the initial meter count when the meter was installed or last serviced.

4.7.2.10 Status

Displays the status of the transmitter that sent the message.

- OK - indicates the transmitter is operating as it should be.
- B - indicates a low battery.
- I - indicates the transmitter is inactive.
- T - indicates the transmitter has been tampered with.
- R - indicates the transmitter has been reset.

4.7.2.11 Sgl Level

Displays the signal level of the message as measured by the RDL8500.

4.7.2.12 Sgl Margin

Displays the signal margin of the message as measured by the RDL8500.

4.7.2.13 Synchronize Data with the Data Logger

Data synchronized includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.
2. Synchronization progress will display in the status bar.

4.7.2.14 Export Reads

Navigate to File > Export > Check-In Monitor to export a file containing all check-in monitor information for the selected property.
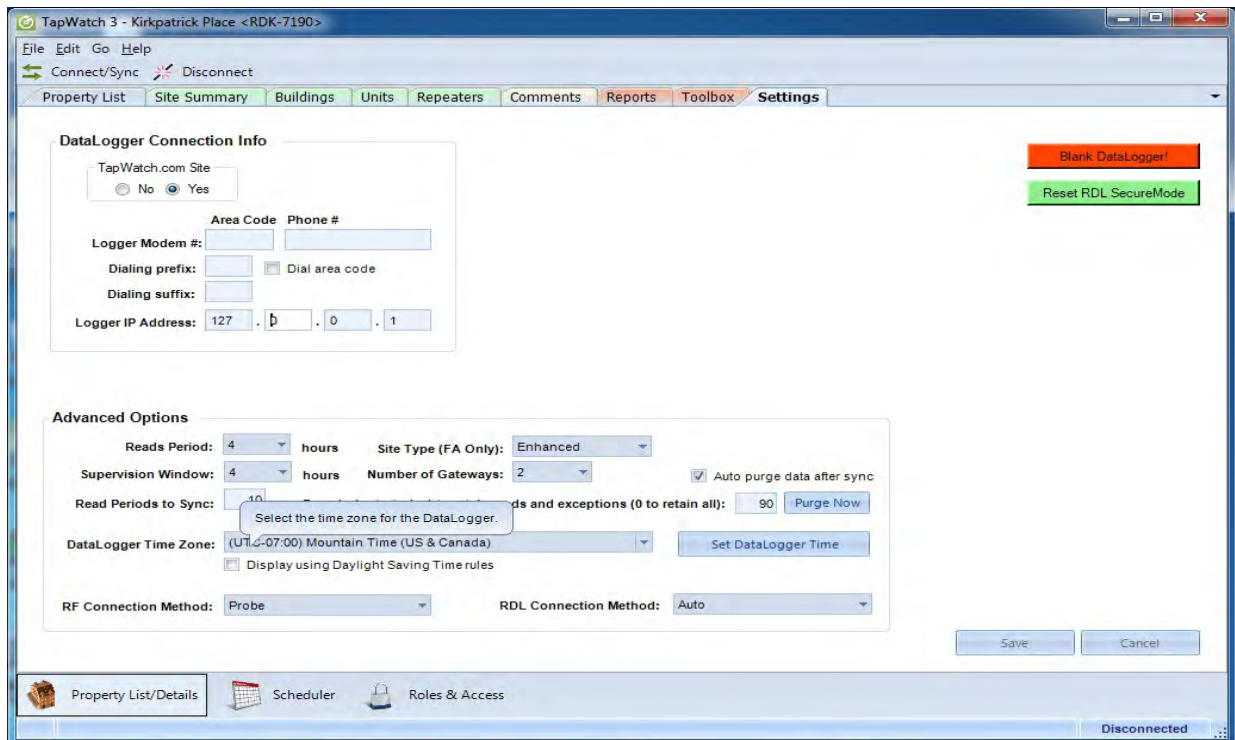
4.7.3 Settings

Figure 4-11 Settings Screen

The settings screen is used to maintain communication settings.

4.7.4 Data Logger Contact Info

4.7.4.1 TapWatch.com Site

Select radio button for Yes or No to choose whether this is a TapWatch.com site.

4.7.4.2 Logger Modem #:

Enter or edit the modem number for your data logger.

4.7.4.3 Dialing prefix:

Enter or edit any numbers to be dialed before the modem number.

4.7.4.4 Dialing suffix:

Enter or edit any numbers to be dialed after the modem number.

Note: By default, the RDL8500 will answer on the first incoming ring. This can be updated on the RDL.

4.7.4.5 Dial area code:

Check the box if the area code is to be dialed with the modem number.

4.7.4.6 Logger IP Address:

Enter or edit the IP address for your data logger.

4.7.5 Advanced Options

4.7.5.1 Reads Period

How often reads are stored, in hours.

4.7.5.2 Site Type (FA Only)

If the site includes an FA network, choose whether the site is conventional or enhanced.

4.7.5.3 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 mesh network. When devices fail to check in, the data logger generates a fault or trouble signal. Inovonics recommends a 24-hour supervision window.

4.7.5.4 Number of Gateways

Use the dropdown menu to select the number of gateways being used at this site.

4.7.5.5 Read Periods to Sync

Select the number of days for which data will be collected when reads are synchronized.

4.7.5.6 Auto purge data after sync

Property reads, the property exception log, and the scheduler event history can be set to purge automatically, keeping the database smaller and faster. If this checkbox is checked, the scheduler will purge the database automatically.

4.7.5.7 Days (prior to today) to retain reads and exceptions (0 to retain all)

Enter the number of days for which you want to retain data. Anything older than the number of days you select will be purged automatically by the scheduler if the database is set to purge automatically. If zero is entered, no data will be purged.

4.7.5.8 Purge Now

Click to purge data up to the number selected of days selected (0 to retain all).

4.7.5.9 Data Logger Time Zone:

Choose the time zone for your data logger.

4.7.5.10 Set Data Logger Time

Enter date and time for the location of the data logger.

4.7.5.11 Display using Daylight Saving Time rules

Check this box to apply daylight saving time rules to the site. In some sites, this can cause confusion when checked.

4.7.5.12 RF Connection Method

Use the pull down menu to choose whether you want to connect to the RF gateway through the RDL or through a COM port, or by using the software to probe for the RF gateway.

4.7.5.13 RDL Connection Method

Use the pull down menu to select whether to connect to the RDL directly, via IP address, or using a local modem.

4.7.6 Synchronize Data with the Data Logger

Synchronized data includes meter reads, site configuration, and exceptions. Newer data always overwrites older data, so be sure you are not overwriting changes made on the other end of the synchronization. The easiest way to

make sure of this is to perform a synchronization before making any changes, ensuring that you start with the newest data in your software and data logger.

- If you are performing a synchronization where there are site configuration updates in either TapWatch 3 or the data logger, TapWatch 3 will recommend whether to click Publish or Retrieve. In most cases, the recommended action is the correct one.

- If you are performing a synchronization where there are site configuration updates in both TapWatch 3 and the data logger, TapWatch 3 will ask you which updates to keep. Forced Retrieve will keep the updates from the data logger; Forced Publish will keep the updates from TapWatch 3. In most cases it is recommended to click Forced Retrieve.

- If you try to synchronize data with a site that is not registered to TapWatch.com but which has been selected as a TapWatch.com site on the Settings screen, a window with a list of blank data loggers will display. Highlight the appropriate data logger and click Publish.

- If you are publishing to a blank data logger, you will be prompted that TapWatch 3 detects a site configuration change. The recommended action is to click Publish.

To synchronize data with the data logger:

1. Navigate to File > Connect > Sync; or, click on the Connect/Sync button.

2. Synchronization progress will display in the status bar.

Chapter 5

Scheduler

5.1 Overview

The scheduler screens are used for the automatic importing of meter reads, exceptions, and site configuration changes to the TapWatch 3 software from the data logger. The database is also purged of old data during scheduler runs.

There are five scheduler screens: calendar, to do list, event history, groups, and settings. The scheduler screens are not available to users with field technician access.

5.2 Calendar

The calendar screen is used to view meter reads as scheduled by group events. To use the calendar, you must first create a group containing at least one property. This is done on the groups screen.

If there are more than four groups on a single date, an arrow will appear below the listed groups. Click the arrow to display all groups scheduled for that day.
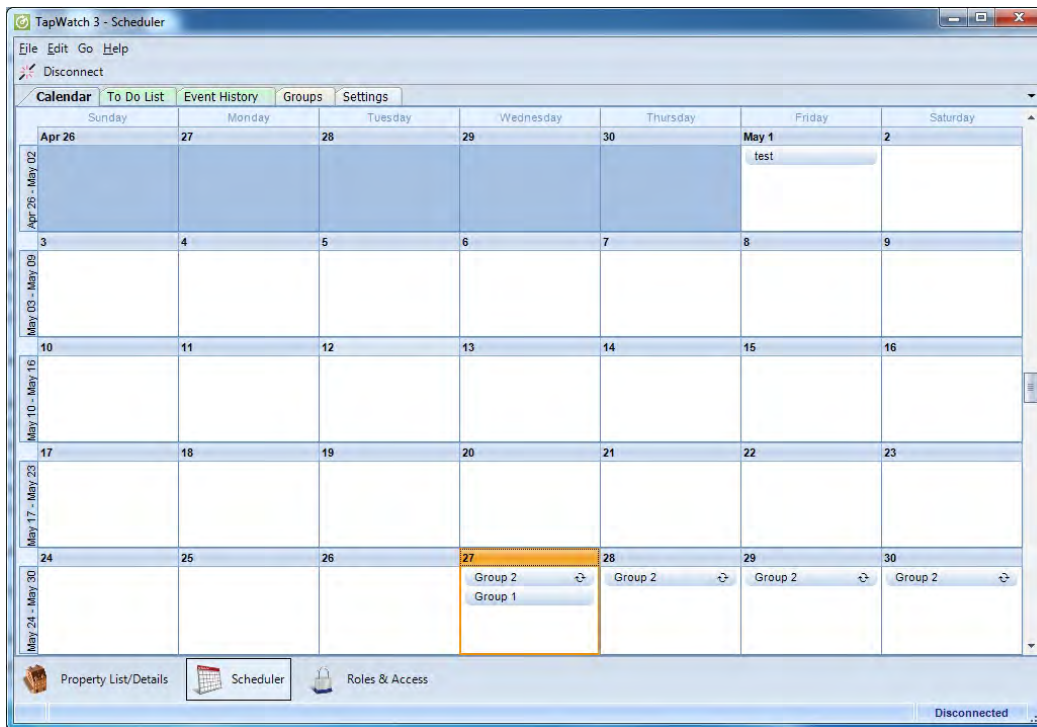

Figure 5-1 Calendar Screen

5.2.1 Add a New Event

To schedule the TapWatch 3 software to synchronize site configuration, reads, and exceptions with the data loggers at a group of properties.

To add a new event:

1. Navigate to File > New > Event; or, rightclick on any date on the calendar and select New > Event.

2. Select a start time.

3. Select the group.

4. If you want the synchronization to occur at a recurring interval, click Recurrence and set the interval.

5. Click Save and Close.

5.2.2 Delete an Event

Scheduled synchronizations can be deleted on the calendar screen. To delete a synchronization:

1. Right click on any event on the calendar and select Delete Event; or, navigate to Group > Delete Event.

2. Click Yes to confirm deletion.

5.3 To Do List

The To Do List screen displays all upcoming events scheduled by a group. By default they are listed in order of their calendar date, but the events can be moved to the top of the queue by using the run event next command.
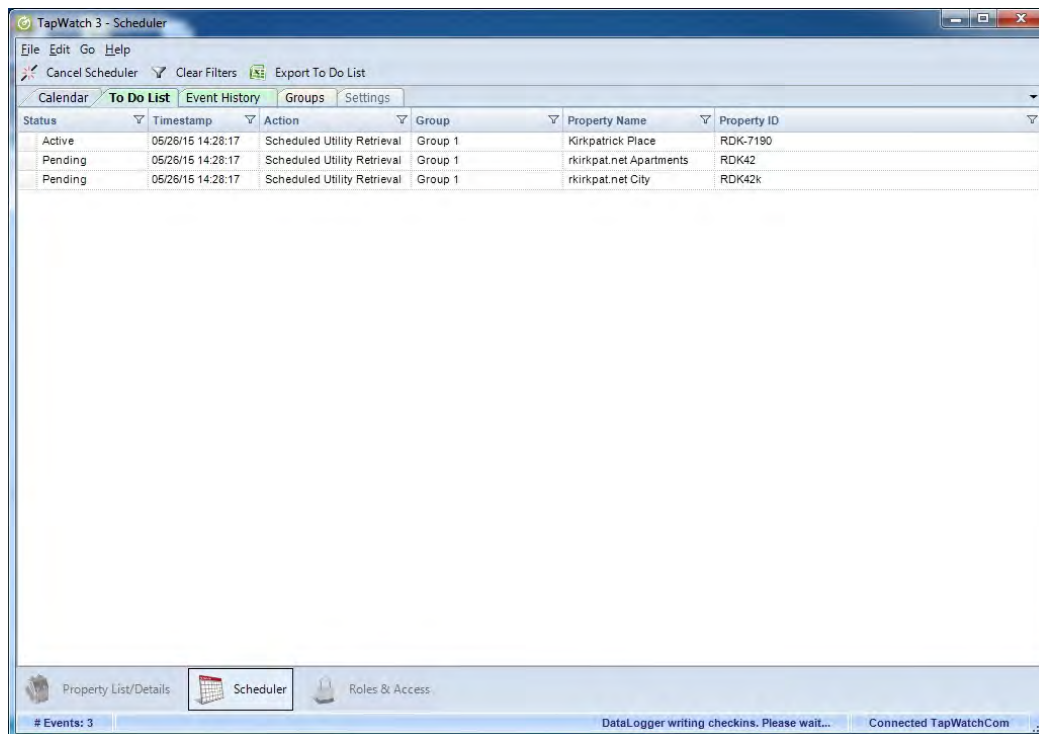
Figure 5-2 To Do List Screen

5.3.1 Export To Do List

The To Do List can be exported as a spreadsheet. To export the To Do List:

1. Navigate to File > Export > To Do List.

2. To use the default backup location, click Save; to back up elsewhere, navigate to a new location.

5.3.2 Run Event(s) Next

The Run Event(s) Next command is used to force the selected event to the top of the queue:

1. Navigate to File > Run Event(s) Next.

2. The selected event will be moved to the top of the queue.

5.3.3 Status

Displays whether the event is active or pending.

5.3.4 Timestamp

Displays the time when the meter read upload will start.

5.3.5 Action

Displays the type of action.

5.3.6 Group

Displays the group to which the property belongs.

5.3.7 Property Name

Displays the name of the property.

5.3.8 Property ID

Displays the ID of the property.

5.3.9 Cancel Scheduler

There are times you may wish to cancel a scheduler run once it has begun. To cancel scheduler during a run:

1. Click the Cancel Scheduler button in the upper-left portion of the screen.

Note: If connection to a datalogger has been established, the data synchronization process will run to completion before canceling all other scheduler To Do List items. This does not affect future scheduled calendar events.

Note: Canceling a scheduler run will not affect future events on the scheduler calendar.

5.4 Event History

The event history screen displays the results of events that were on the to do list.

Figure 5-3 Event History Screen

5.4.1 Export Event History

The event history can be exported as a spreadsheet. To export the event history:

1. Navigate to File > Export > Event History.

2. To use the default backup location, click Save; to back up elsewhere, navigate to a new location.

5.4.2 Status

Displays whether the event is completed or failed.

5.4.3 Timestamp

Displays the time when the meter read upload will start.

5.4.4 Action

Displays the type of action.

5.4.5 Group

Displays the group to which the property belongs.

5.4.6 Property Name

Displays the name of the property.

5.4.7 Property ID

Displays the ID of the property.

5.5 Groups

There are two groups screens: group view and property view.

5.5.1 Group View

The group view screen is used to create and edit group information. All properties associated with a specific group are displayed.
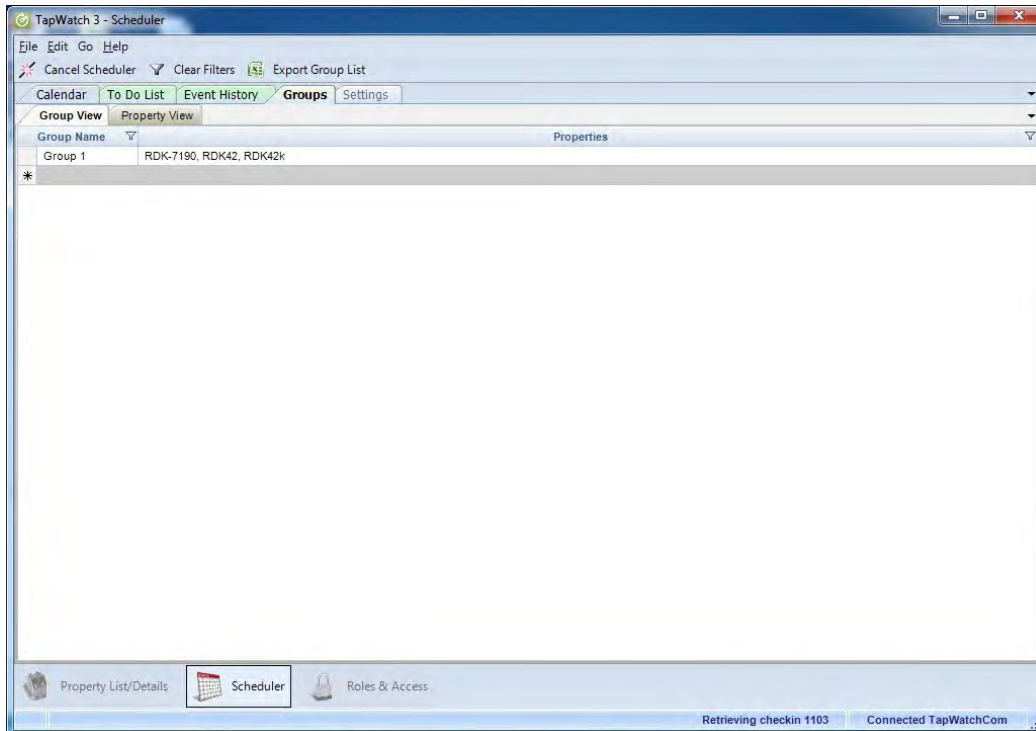

Figure 5-4 Group View Screen

5.5.1.1 Export Group List

The group view screen can be exported as a spreadsheet. To export the group view screen:

1. Navigate to File > Export > Group List; or right click anywhere on the group view screen and select Export Group List.

2. To use the default backup location, click Save; to backup elsewhere, navigate to a new location.

5.5.1.2 Create a New Group

To create a new group:

1. Navigate to File > New > Group.

2. The new group will display on the group view screen. Enter a group name.

5.5.1.3 Manage Groups

The manage groups function is used to assign and remove properties to and from groups. To manage groups:

1. Either click on a group to select it and navigate to File > Manage Group; or, right click on a group and select Manage Groups; or, double click the Properties field of a group.

2. Select the properties you want to add to the group, or deselect the properties you want to remove from the group.

3. Click Save.

5.5.1.4 Delete a Group

Groups can be deleted on the group view screen. To delete a group:

1. Right click on any group and select Delete Group; or, navigate to Edit > Delete Group.

2. Click Yes to confirm deletion.

5.5.1.5 Group Name

The group name field displays the group name. To edit the group name:

1. Click anywhere in the group name field.

2. Enter a new group name.

5.5.1.6 Properties

The properties field displays the properties associated with the group. To edit the properties:

1. Either click on a group to select it and navigate to File > Manage Groups; or, right click on a group and select Manage Groups; or, double-click the Properties field of a group.

2. Select the properties you want to add to the group, or deselect the properties you want to remove from the group.

3. Click Save.

5.5.2 Property View

The property view screen displays detailed information about individual properties, and can be used to assign properties to groups.
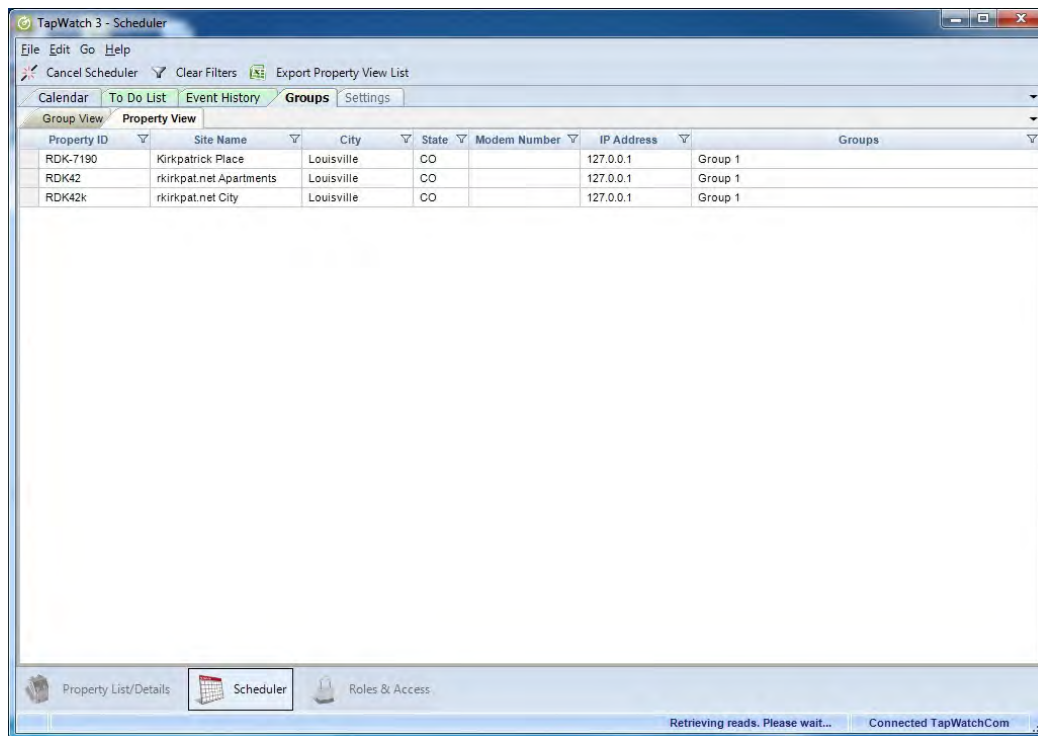

Figure 5-5 Property View Screen

5.5.2.1 Export Group List

The property view screen can be exported as a spreadsheet. To export the group view screen:

1. Navigate to File > Export > Group List; or right click anywhere on the group view screen and select Export Group List.

2. To use the default backup location, click Save; to back up elsewhere, navigate to a new location.

5.5.2.2 Manage Groups

The manage groups function is used to assign and remove groups to and from properties.

1. Either click on a group to select it and navigate to File > Manage Groups; or, right click on a group and select Manage Groups; or, double click anywhere on a property.

2. Select the groups to which you want to add the property, or deselect the groups you want to remove from the property.

3. Click Save.

5.5.2.3 Properties ID

Displays the ID of the property.

5.5.2.4 Site Name

Displays the name of the site where the property is located.

5.5.2.5 City

Displays the name of the city where the property is located.

5.5.2.6 State

Displays the state where the property is located.

5.5.2.7 Modem Number

Displays the modem number used to reach the property's data logger.

5.5.2.8 IP Address

Displays the IP address of the property's data logger.

5.5.2.9 Groups

Displays the groups to which the property is assigned.

5.6 Settings

Figure 5-6 Scheduler Settings Screen
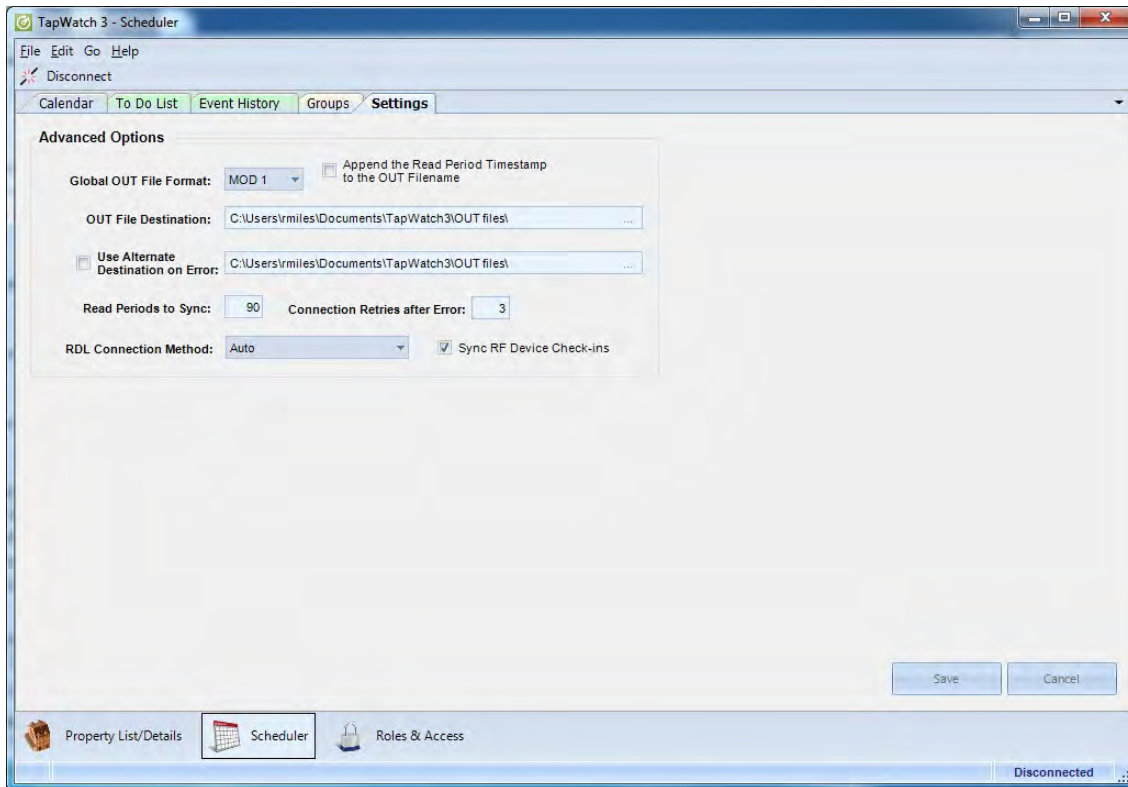
5.6.1 Advanced Options

5.6.1.1 Global OUT File Format:

Select the format in which .OUT files will be created.

Note: For more information about .OUT file formats, see section 4.6.1, ".OUT Files On-Demand" on page 41.

5.6.1.2 Append the Read Period Timestamp in the OUT Filename

Select to add a timestamp to the .OUT file's filename indicating the read period.

5.6.1.3 OUT File Destination:

Enter a destination for the .OUT files.

5.6.1.4 Use Alternate Destination on Error:

Enter an alternate destination for .OUT files. This is usually a local drive destination to save .OUT files in case of an error accessing an initial network drive destination.

5.6.1.5 Read Periods to Sync:

Enter the number of days for which data will be collected when reads are synchronized.

5.6.1.6 Connection Retries after Error:

Enter a value of 0-10, indicating the number of times to attempt a connection before moving to the next site.

Chapter 6

Roles & Access

6.1 Overview

The roles and access screens provide an integral part of the communication between the TapWatch software and each RDL8500 data logger. In order to maintain the integrity of the site configuration and the TapWatch submetering systems at each site, the roles and access screen is used to control who can access and who can change data in the RDL8500.

There are three access roles: View Only, Field Technician and Network Administrator.

6.1.1 View Only

Users with view only roles cannot change any data in the data logger or create user keys. They have access to all other TapWatch 3 functions.

6.1.2 Field Technician

Users with field technician roles cannot access the scheduler or create user keys. They have access to all other TapWatch 3 functions.

6.1.3 Network Administrator

Users with network administrator roles have all the rights of users with field technician and view only roles, as well as the ability to create keys, change data, and access the scheduler.

6.2 My Keys

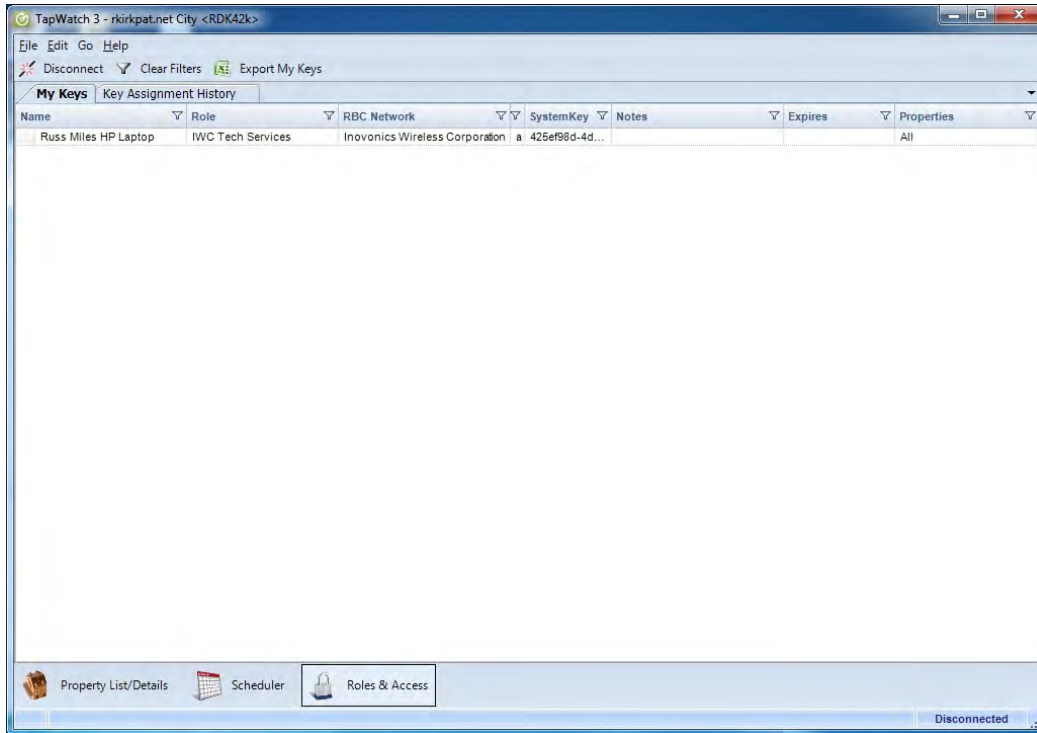The My Keys screen is used to view your key or keys.

Figure 6-1 My Keys Screen

6.2.1 My Keys

These fields are for review only; they cannot be edited.

Name The name of person to whom the key is assigned.

Role The role of the person to whom the key is assigned: View Only, Field Technician, or RBC Administrator.

RBC Network The network to which the key provides access.

Expires The expiration date of the key, if applicable.

Properties The properties to which the key provides access.

6.2.2 Export My Keys

A list of your keys can be exported as a spreadsheet. To export keys:

1. Navigate to File > Export > My Keys.

2. To use the default backup location, click Save; to back up elsewhere, navigate to a new location.

6.2.3 Request a Key

To request a key:

1. Navigate to File > Key Management > Request a Key.

2. Enter your name in the Your Full Name field.

3. Optionally, enter any notes in the Notes field for the network administrator who will be creating the key from the key request file.

4. Click Save and choose a directory for the key request file.

5. Email the key request file to someone with RBC administrator access to your system.

6.2.4 Create a Key

Note: Keys can only be created by the RBC administrator.

To create a key:

1. Navigate to File > Key Management > Create a Key.

2. Use the Request File field to navigate to the key request file received from the RBC administrator.

3. Review the name of the key requestor and any notes.

4. Select the role to assign the requestor of this key in the Role field: View Only, Field Technician, or RBC Administrator.

5. Select the network to which you wish to assign the key in Network field.

6. If you are creating a temporary key, set an expiration date for the key in the Date/Time Expires field; otherwise leave blank.

7. If desired, restrict access in the Properties field.

8. Click Save and choose a directory for the key file.

9. Email the key file to the person who requested the key.

6.2.5 Import a Key

Keys can be imported so that all rights and information associated with the key are transferred to your TapWatch 3 software. To import a key:

1. Navigate to File > Key Mgmt > Import a Key.

2. Navigate to the key file you wish to import.

3. Review the information contained in the key fields.

4. Click Import to import the key.

6.2.6 Delete Access Key

To delete an access key:

1. Right click on the key which you wish to delete and select the Delete Access Key option; or, navigate to Edit > Delete Access Key.

2. Click on Yes when prompted whether or not you wish to delete the key.

6.3 Key Assignment History

The key assignment history screen is used to view the keys you have assigned. Only RBC administrators will see data here.
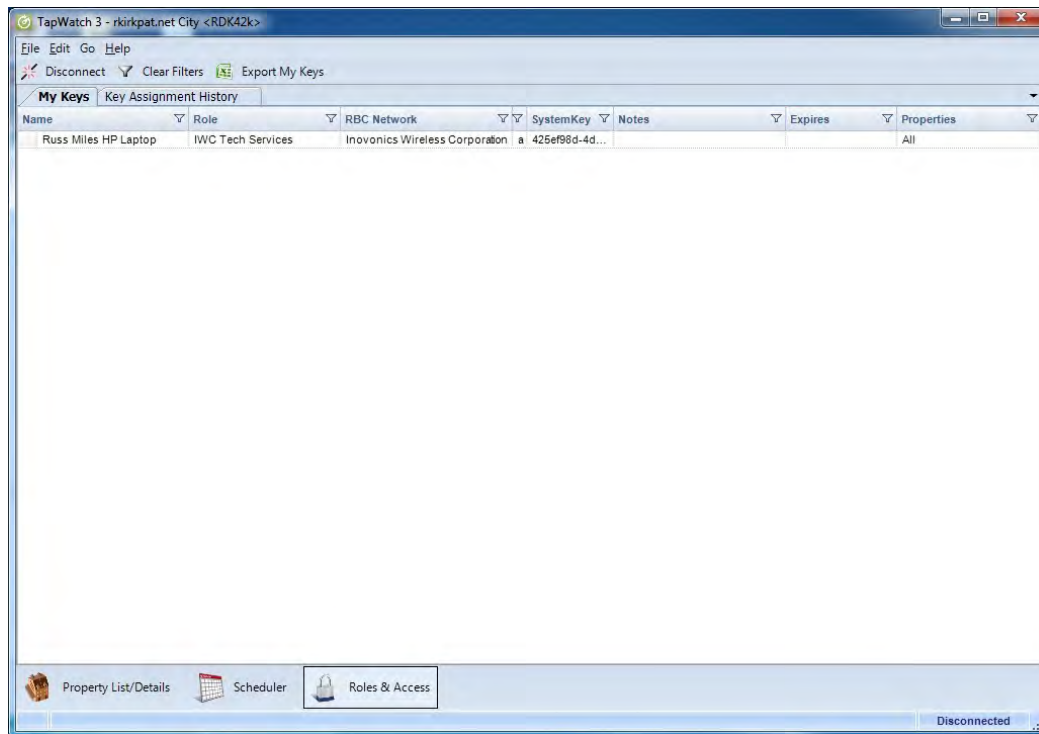

Figure 6-2 Key Assignment History Screen

6.3.1 Export Key History

The key history list can be exported as a spreadsheet. To export key history:

1. Navigate to File > Export > Key History.

2. To use the default backup location, click Save; to back up elsewhere, navigate to a new location.

6.3.2 Delete Key History Entry

To delete a key history entry:

1. Right click on the key which you wish to delete and select the Delete Key History Entry option; or, navigate to Edit > Delete Key History Entry.

2. Click on Yes when prompted whether or not you wish to delete the key.

6.3.3 Keys Assignment History

These fields are for review only; they cannot be edited.

Name The name of the person to whom the key is assigned.

Role The role of the person to whom the key is assigned: View Only, Field Technician, or RBC Administrator.

RBC Network The network to which the key provides access.

Expires The expiration date of the key, if applicable.

Properties The properties to which the key provides access.