

# Skyus Watcher

## User Guide

For Use with Skyus Modems

The screenshot displays the Skyus Watcher web interface, which is divided into two main sections: Status and Configure.

**Status Panel:**

- 24 Hr Disconnects: 3
- Connection: Up
- Signal Strength (dBm): -69 | 4G
- Ping Check: Good
- Signal Quality (dB): -8
- IMEI/ESN: 359225050540152
- PTN: 14582054899
- SIM ID: 89014103277188507037
- Modem FW Rev: 9903211 05.07
- Carrier: Carrier, Inc.
- Status Notes

**Configure Panel:**

- Minimum Signal Strength 3G | 4G: -110 | -120 (Reset)
- Ping Interval (minutes): 15
- Ping URL: [www.feeneywireless.com](http://www.feeneywireless.com) (Test)
- Alternate Ping URL: [www.yahoo.com](http://www.yahoo.com) (Test)
- Ping Retries: 5
- Ping Retry Interval (Seconds): 5
- Email Address
- CR Reporting URL: [xrd1001.feeneywireless.com:39757](http://xrd1001.feeneywireless.com:39757)
- CR Reporting Interval (seconds): 120
- Name (User Defined): FWW2
- Receive Bytes/Transmit Bytes: 58898 / 110176
- Daily MByte Limit: 0

P/N: SW50101

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## Preface

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Use this product only for the purpose it was designed for; refer to the datasheet and user documentation. For the latest product information, visit us online at [www.inseego.com](http://www.inseego.com).

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## Overview

Skyus Watcher is a connection watchdog utility designed to manage the Skyus , monitor the connection status with ping check and signal strength monitoring logic, and reestablish the connection to the carrier if it is lost. Skyus Watcher is designed to provide connection management generically for Skyus customers at a level sufficient to ensure reliable connectivity in unattended IoT applications. Skyus Watcher also provides integration with Crossroads, the application enablement platform that gives you visibility and control over your entire IoT network.

Installation of the Skyus Watcher into a Windows based system requires at a minimum two high level software applications, the **installation executable** and the proper Microsoft **.NET framework**.

### Intended Audience

This document is intended for users responsible for the initial set-up and configuration of the Skyus Watcher and assumes the installer possesses a basic working knowledge of computer networking, wireless routing, and network administration.

### Scope

This document describes the latest release of Skyus Watcher, which may include different or enhanced features from previous versions. It is provided as a supplement to work in conjunction with the applicable quick start guides associated with your Skyus cellular modem. Please contact your FW Sales Representative for further information on supported devices.

## Installation Steps

1. Complete the "Installation of Sierra Wireless Driver" section of the appropriate Skyus Quick Start Guide.
2. Install the Skyus Watcher utility.
3. If prompted, install the Microsoft .NET 4 Framework.
4. Restart the system.
5. Connect the Skyus modem.
6. Verify a connection to the internet.

## Operating Systems

The Skyus Watcher is designed for use with Windows 7 (Service Pack 1) or Windows 8.

### System Requirements

- Windows 7 or Windows 8
- 1.5 GHz processor
- 4 GB RAM
- 10 MB of free hard drive space
- Windows .NET 4

Some versions of Windows Embedded and Windows XP are also generally compatible. Due to the custom nature of Windows Embedded and the removal of support for Windows XP, compatibility cannot be assured.

If you are attempting to use the utility on another platform, please contact your sales representative or FW technical support.

## Installation of Skyus Watcher Utility

### Download the Installer File

To begin the installation process you will need to locate or download the utility's executable installer file, **FeeneyWatcher2Installer.msi**. If a copy has not been supplied to you, please download a version from the [Inseego Software Downloads page](#).

To download, click the Skyus Watcher **Download Files** button, complete the End User License Agreement (EULA) form, and click **Submit Form**. Choose one of the following options to complete the download:

1. If you are working on the device you intend to use the Skyus Watcher with, proceed with installation on the local drive.
2. If you are working on a device other than the one you intend to use the Skyus Watcher with, save the file to a portable media device which you will use to install the drivers on the separate device.

### Installation Procedure

Follow the steps below to install Skyus Watcher.

1. Double-click the installation file. The setup wizard will start.



Figure 1: Watcher Setup Wizard

2. Click **Next**.
3. Select the installation folder. By default, the setup wizard selects the location shown below. FW recommends that you use the default location.

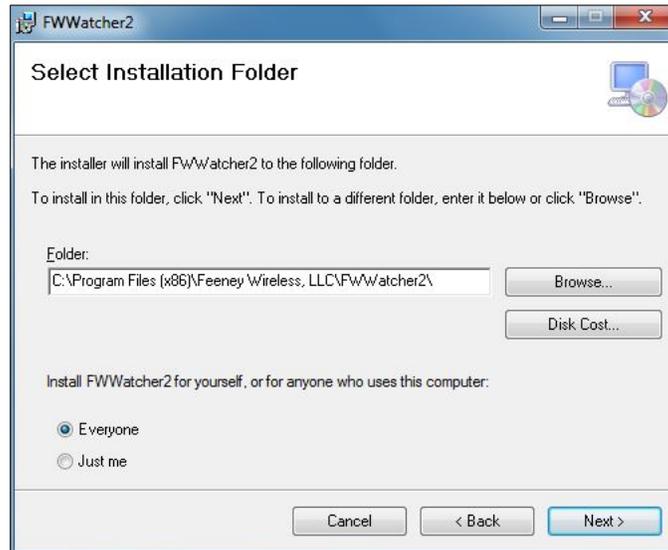


Figure 2: Watcher Installation Location

You can click the **Disk Cost** button to see how much space the installed program will use. You can also select which users have access to the program, all users or just you.

4. Click **Next**. The setup wizard prompts you to confirm the installation. Click **Next** again.

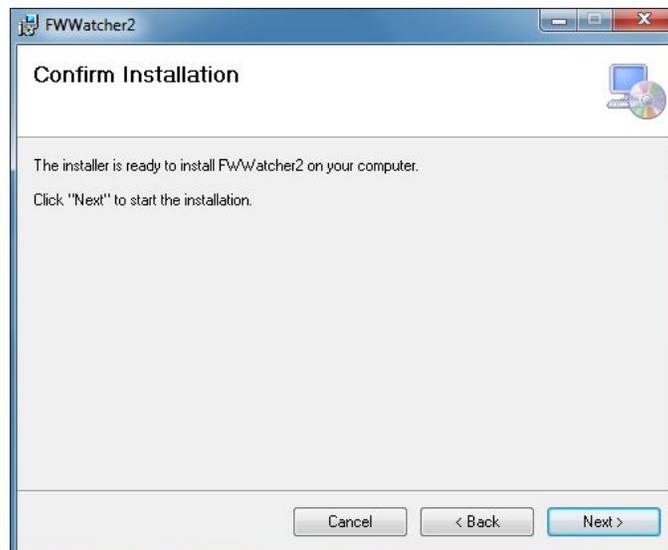


Figure 3: Confirm Watcher Installation

As the installation progresses, a progress bar is displayed.

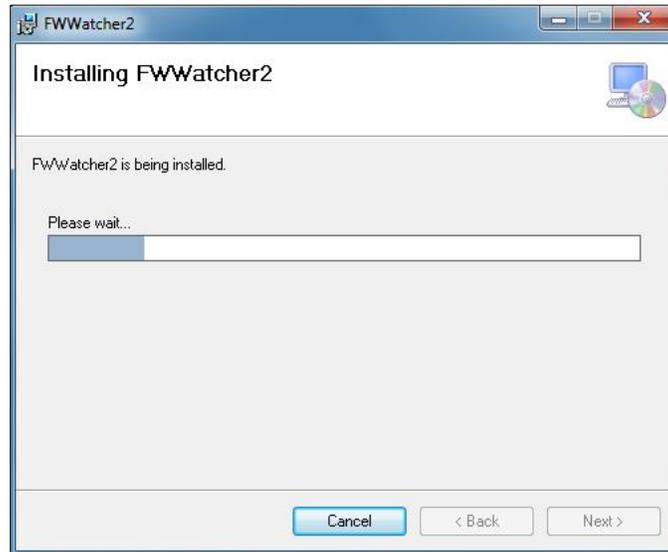


Figure 4: Watcher Installing

5. When the installation is complete, click **Next**, then **Close**.
6. The wizard will prompt you to perform a restart to finalize the installation. You can choose to restart later, but the installation will not be complete until you do.

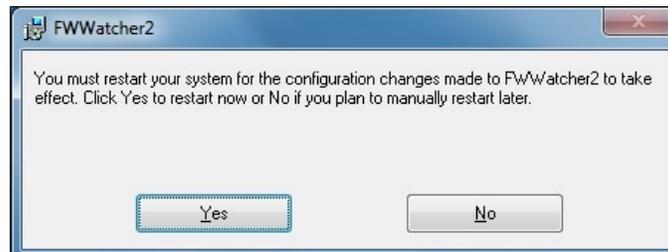


Figure 5: System Restart

## Configuring the Windows Event Log

To ensure that the Skyus Watcher application can properly log event information (such as RSSI issues and ping check failures), you may need to modify a property setting in the **Computer Management** console.

Follow these steps to configure the settings on a **Windows 7** machine:

1. Click the Windows **Start** button and enter “computer management” in the search box.

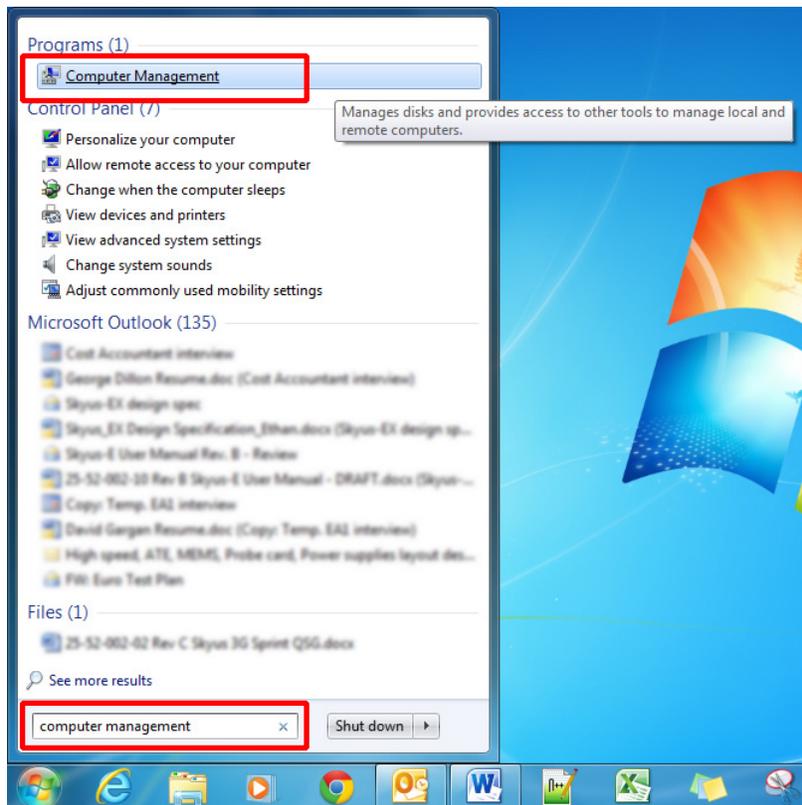


Figure 6: Start Menu Search for Computer Management

2. In the search results, select the **Computer Management** program. The **Computer Management** console opens.
3. On the left side of the console, expand **Event Viewer** and **Applications and Service Logs**. The **FWW2Log** will be listed.

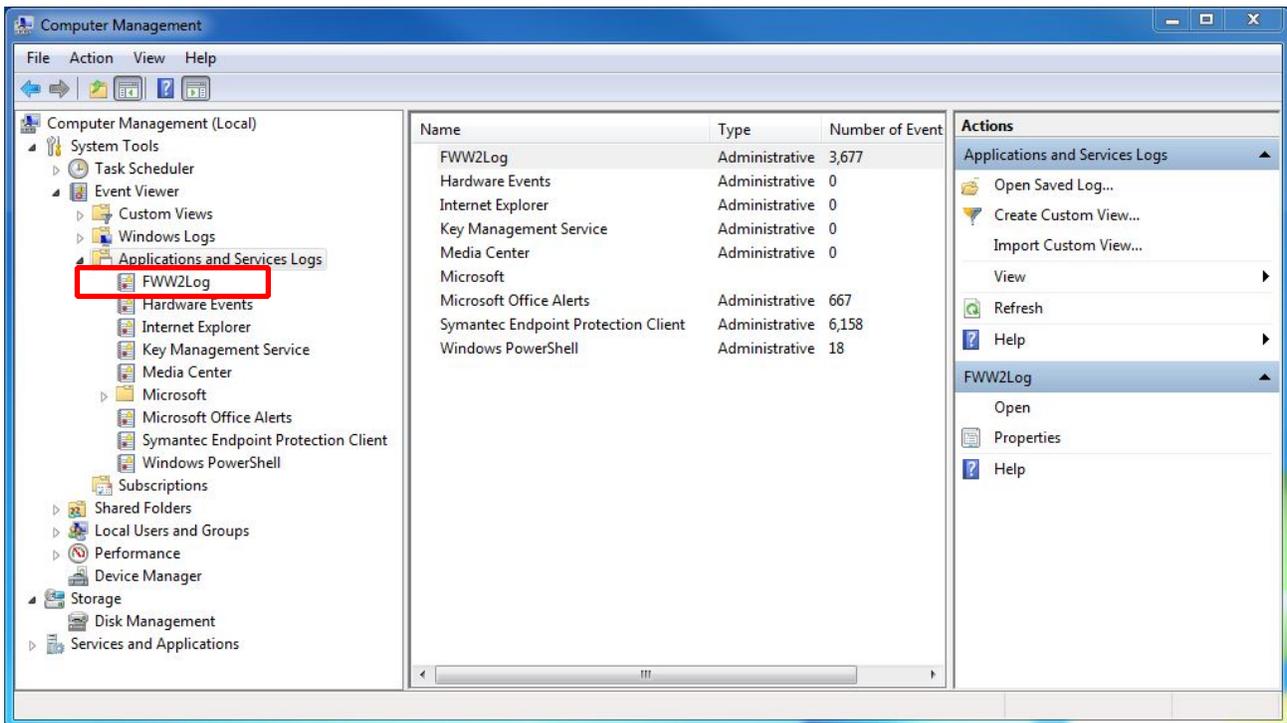


Figure 7: Computer Management Console

4. Right-click **FWW2Log** and select **Properties**. The properties dialog opens.

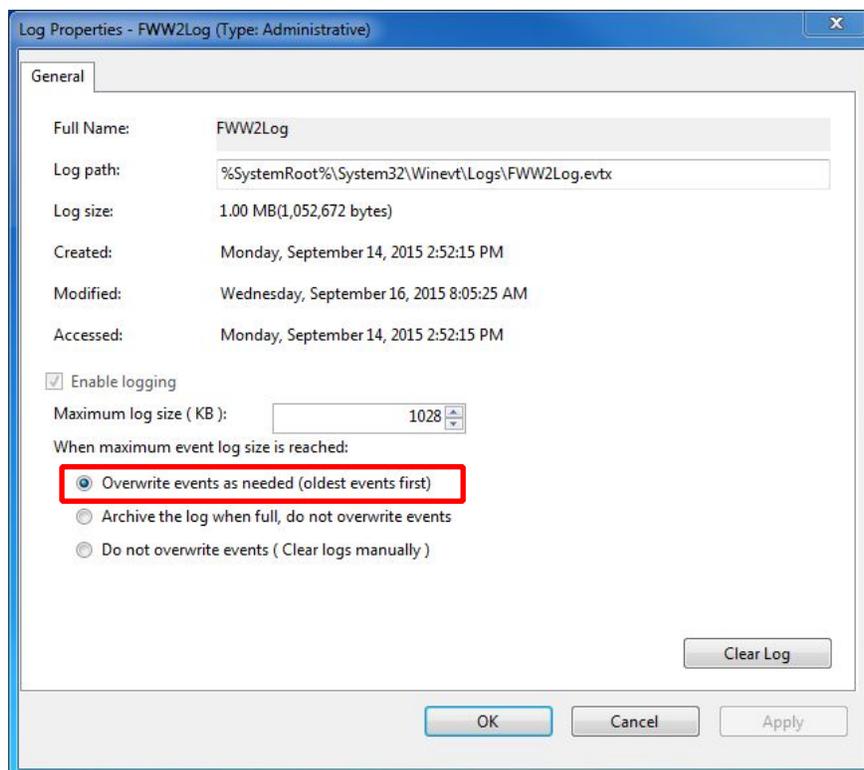


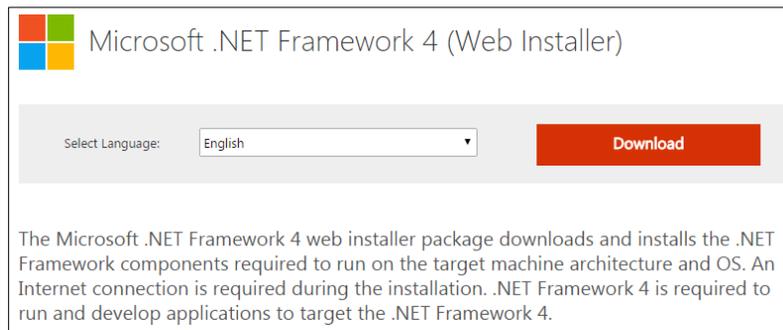
Figure 8: FFW2Log Properties

5. Verify that the overwrite option is selected, and click **OK**.

## Microsoft .NET Framework

The Skyus Watcher is designed to be used with Microsoft's .NET Framework Version 4 and above. To obtain, or update, your .NET framework, follow the link below and proceed with the instructions for downloading and installing this software.

<http://www.microsoft.com/en-us/download/details.aspx?id=17851>



*Figure 9: NET Framework Download Page*

**NOTE:** It is critical that you use the **full** version of .NET4 (**dotNETFx40\_Full\_setup.exe**).

## Finishing the Installation

A system restart is required after installing Skyus driver files, installing the Skyus Watcher utility, and ensuring that the Skyus is operating.

## Skyus Watcher as a Service

Skyus Watcher will run as a background service with the default settings from FW. In order to verify that the service is running, launch the Windows **Task Manager** and navigate to the **Services** tab. Scroll down the list of services until you find "FeeneyWatcher2." The status of the service should be "Running." The figure below has been edited to show only the Skyus Watcher service. Many more services will actually be listed.

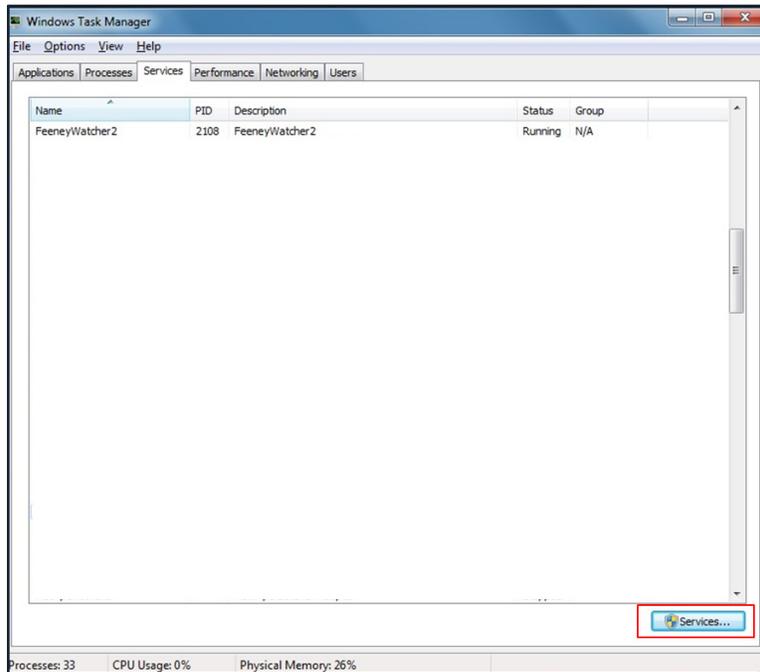


Figure 10: Windows Task Manager Services

You can launch the **Services** window for Skyus Watcher by selecting FeeneyWatcher2 and clicking the **Services** button. On the **Services** window, you can stop, pause, or restart the service.

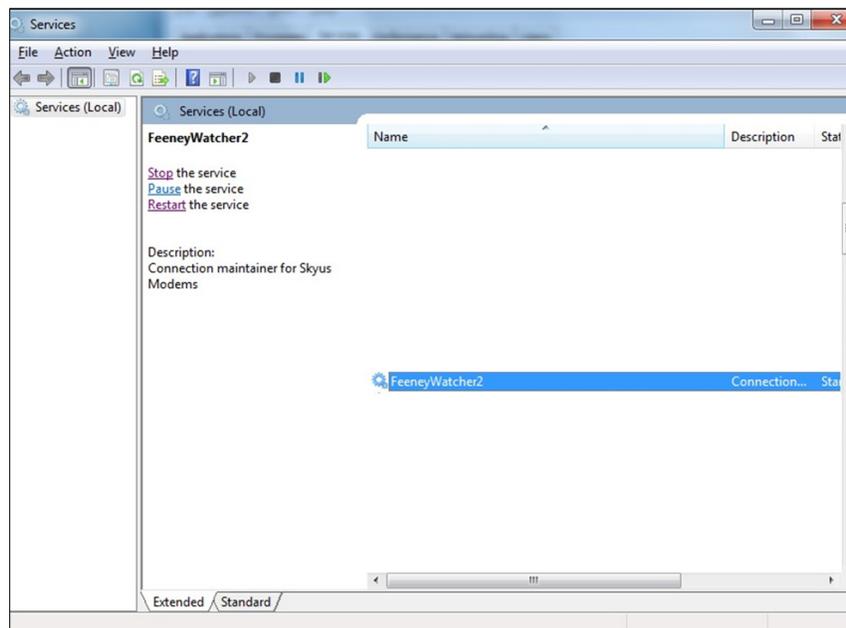


Figure 11: Services - FeeneyWatcher2

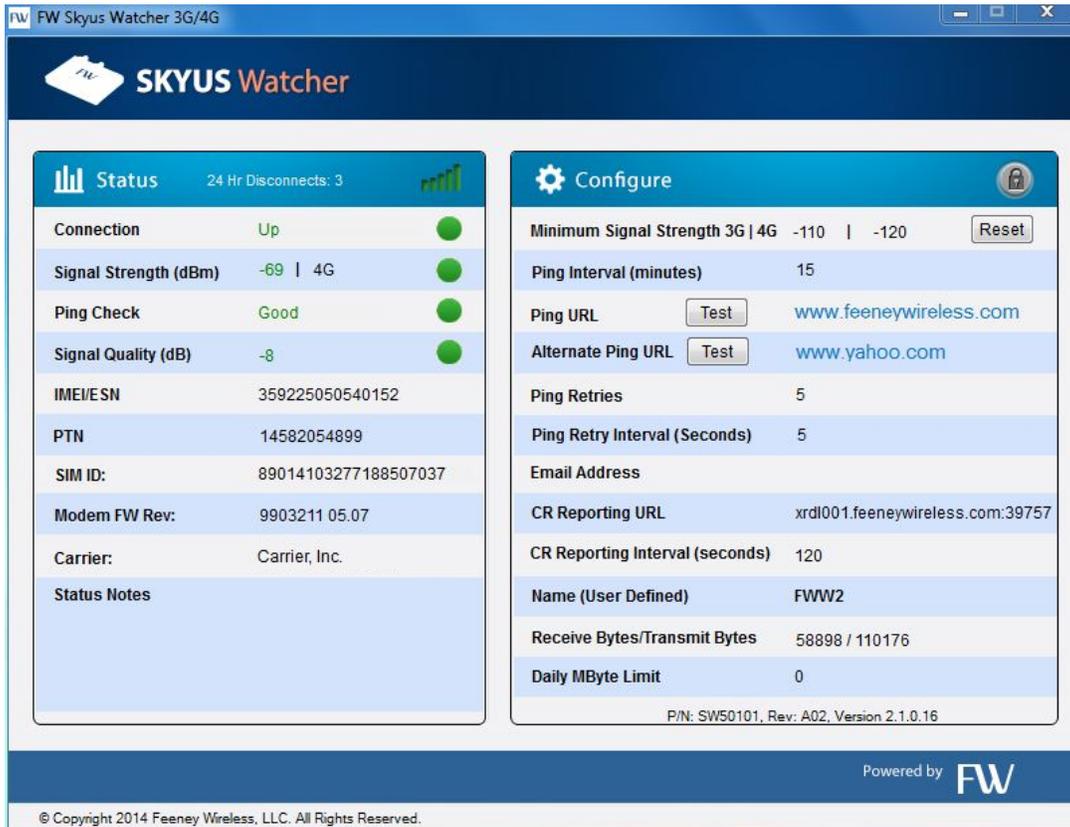
The FeeneyWatcher2 service will function as your connection manager without any need to launch the user interface. To adjust Skyus Watcher settings, launch the Skyus Watcher application as described in the following sections.

## Skyus Watcher as an Application

You can run Skyus Watcher as an application to monitor the Skyus connection or configure settings. Select the application from the Windows Start menu or navigate to the folder where you installed the program and double-click the executable file, either **FeeneyWirelessWatchdogUI.exe** or **FeeneyWirelessWatchdogUIWS.exe**, depending on the version installed.

**IMPORTANT:** If you are using a Skyus Watcher version earlier than 2.1.0.0, it is necessary to run the program as an administrator in order to successfully launch the utility. To do this, right-click the **Inseego Corp. Watcher** shortcut in the Start menu and select **Properties**. On the **Compatibility** tab, select “Run this program as an administrator.” If this option is grayed out, you may need to log into your system with a user account that supports sufficient privileges.

The user interface will look similar to the screen shown below. The values of the parameters vary by device and connection status.



The screenshot displays the Skyus Watcher application window. The interface is divided into two main sections: Status and Configure.

**Status Panel:** Shows connection details and signal metrics. The connection is 'Up'. Signal strength is -69 dBm (4G). Ping check is 'Good'. Signal quality is -8 dB. Other details include IMEI/ESN, PTN, SIM ID, Modem FW Rev, and Carrier.

**Configure Panel:** Allows for setting various parameters. The 'Reset' button is visible. Parameters include Minimum Signal Strength (3G | 4G), Ping Interval (15 minutes), Ping URL (www.feeneywireless.com), Alternate Ping URL (www.yahoo.com), Ping Retries (5), Ping Retry Interval (5 seconds), Email Address, CR Reporting URL (xrdl001.feeneywireless.com:39757), CR Reporting Interval (120 seconds), Name (User Defined) (FWW2), Receive Bytes/Transmit Bytes (58898 / 110176), and Daily MByte Limit (0).

At the bottom of the interface, it is noted: P/N: SW50101, Rev: A02, Version 2.1.0.16. The application is powered by Feeney Wireless (FW).

Figure 12: Skyus Watcher User Interface

## Skyus Watcher Interface and Configuration

The following sections describe the functions of Skyus Watcher and provide instructions for configuring the application.

### Status Panel

The **Status** panel provides a dashboard of the connection status.



Figure 13: Status Panel

### Connection

This parameter indicates the connection status as either “Up” or “Down.” Connection status is based on whether the Skyus Watcher has successfully pinged either the first or alternate ping URL.

**Note:** Many cellular carriers will disconnect data sessions that have been idle for more than 60 seconds. Some carriers will disconnect a session daily, independent of usage. Whether running as a service or an application, Skyus Watcher will detect these disconnections and attempt to reestablish the connection.

### Signal Strength

Signal Strength is the perceived signal strength (RSSI) in dBm. This value is updated every fifteen seconds.

When the level is at or above the minimum strength set on the **Configure** panel, the value appears in green. When the level is below the minimum, the value is shown in red (see Figure 14).

**Note:** This value is expressed as a negative number, so a value of -80, for example, would be higher than the 4G minimum of -120.

The network type (4G/3G/2G) is displayed to the right of the signal strength value.



Figure 14: Signal Strength Comparison

### Ping Check

Ping Check shows the results of the last attempted ping check. If the primary ping check is successful, the Ping Check value will be "Good." If the primary ping check is unsuccessful but the secondary ping is successful, the Ping Check value will be "Alt Good" and the status indicator will be half green and half red, as shown below. If both primary and alternate ping checks fail, the Ping Check value will be "Timed Out," the status indicator will be red, and the Connection value will change to "Down."



Figure 15: Ping Check Comparison

### Signal Quality

Signal Quality is a measurement of the perceived signal quality in dB. This parameter is updated every fifteen seconds. The minimum acceptable level of -9 or greater is determined by the system and is not user configurable. Values of -9 or greater are displayed in green. Values of -10 or lower are displayed in red.

**Note:** This value is expressed as a negative number, so a value of -5, for example, would be higher than the minimum of -9.



Figure 16: Signal Quality Comparison

### Modem Identification

The remaining parameters on the **Status** panel show the identifying ESN and PTN of the Skyus modem being monitored by Skyus Watcher.

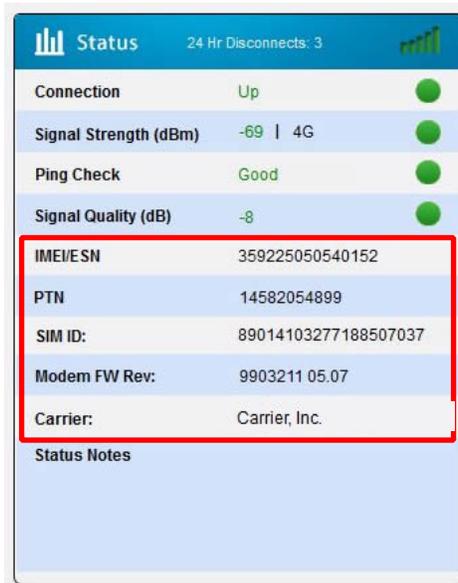
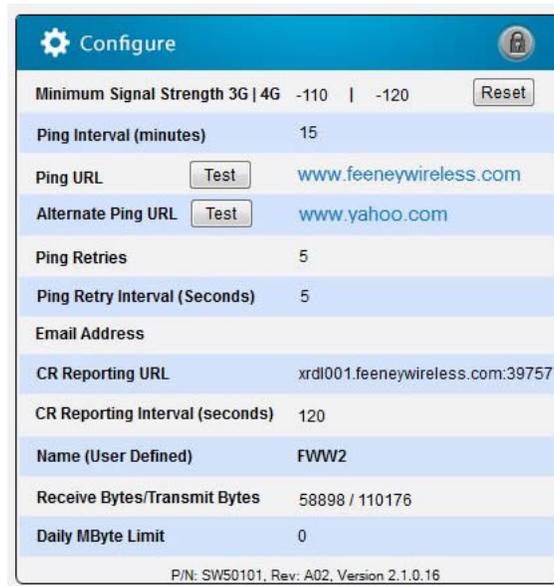


Figure 17: Modem Identifier Information

## Configure Panel

The **Configure** panel provides access to settings that control the operation of Skyus Watcher. The default values of these settings are shown below. All values are saved in register settings.



Configure	
Minimum Signal Strength 3G   4G	-110   -120 <span>Reset</span>
Ping Interval (minutes)	15
Ping URL <span>Test</span>	www.feeneywireless.com
Alternate Ping URL <span>Test</span>	www.yahoo.com
Ping Retries	5
Ping Retry Interval (Seconds)	5
Email Address	
CR Reporting URL	xrdl001.feeneywireless.com:39757
CR Reporting Interval (seconds)	120
Name (User Defined)	FWW2
Receive Bytes/Transmit Bytes	58898 / 110176
Daily MByte Limit	0
P/N: SW50101, Rev: A02, Version 2.1.0.16	

Figure 18: Configure Panel

## Unlocking the Configure Panel

The Configure panel must be unlocked before you can change settings. Follow the steps below to do this.

1. Click the **Lock** icon in the top right corner of the panel. You are prompted to enter a password.



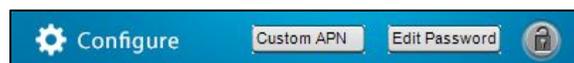
FW Enter Password

Password

OK Cancel

Figure 19: Password Prompt

The default password is **150509**. FW recommends that you change the password after unlocking the panel for the first time. The password can be a PIN or a passphrase. After entering the correct password, the panel title bar changes as shown below.



Configure Custom APN Edit Password Lock

Figure 20: Unlocked Configure Panel

2. To modify the password, click **Edit Password**. The **Edit Password** dialog box opens.



Figure 21: Edit Password

3. Enter the new password in both fields and click **OK**.

You can re-lock the **Configure** panel by clicking the **Lock** icon again.

### Minimum Signal Strength 3G | 4G

The Minimum Signal Strength indicates the lowest acceptable signal value for both 3G and 4G networks. The default for 3G is -110 and for 4G -120. The perceived **Signal Strength** is displayed on the **Status** panel. If the signal strength remains below the minimum level continuously for 60 seconds, the Skyus modem will reset.

### Reset

Use the **Reset** button to manually reset the Skyus modem. After clicking the button, the modem will reinitialize and the connection will be temporarily lost.

### Ping Interval (Minutes)

The Ping Interval indicates the number of minutes between ping attempts. Connection status is determined by the success or failure of the primary and alternate ping checks. The default value is 15 minutes. To change the value, enter the number of minutes in the box and then click outside the box.

### Ping URL/Alternate Ping URL

The Ping URL and Alternate Ping URL are the sites used for periodic ping checks. If the primary URL is pinged successfully, the alternate URL is not pinged and the connection is registered as "Up." If both ping checks fail, the connection is registered as "Down."

The default primary ping URL is [www.feeneywireless.com](http://www.feeneywireless.com) and the secondary is [www.yahoo.com](http://www.yahoo.com). To change either value, enter the new URL in the box and then click outside the box to select the value.

### Ping Retries/Retry Interval (Seconds)

The Ping Retries and Ping Retry Interval settings determine the number and frequency of ping retries

- **Ping Retries** – This is the number of times Skyus Watcher will attempt to ping the primary and alternate ping sites if the ping fails. attempts the Skyus.
- **Ping Retry Interval** – This is the number of seconds Skyus Watcher will wait between ping attempts.

To adjust the the Ping Retries and Retry Interval settings, enter a value in the box and then click outside the box.

### Email Address

To receive notifications when system events occur, enter an email address in this field. Skyus Watcher can only email the specified address when the Skyus is actively connected. If the connection is down, the system will retain the last 50 events and forward them when the connection is reestablished.

You can set the email server properties by clicking the **Set Server** button, which opens the **Email Server Settings** dialog box. (The **Set Server** button only appears when the **Configure** panel is unlocked.)

Figure 22: Email Server Settings Dialog Box

- **URL/IP:** Enter the URL or IP address of the email server.
- **User Name:** Enter the user name of the account.
- **Password:** Enter the password for the account.
- **Email From:** Enter text that will appear in the “From” field of the emails sent from Skyus Watcher.
- **SSL:** Check this box for standard email security. Uncheck it for no security layer.

### CR Reporting URL and Interval

The CR Reporting URL is the Crossroads site to which Skyus data is reported. The CR Reporting Interval is the number of seconds between reports to Crossroads. For more information about the Crossroads application enablement platform contact your sales representative.

Configure	
Minimum Signal Strength 3G   4G	-110   -120 <span>Reset</span>
Ping Interval (minutes)	15
Ping URL <span>Test</span>	<a href="http://www.feeneywireless.com">www.feeneywireless.com</a>
Alternate Ping URL <span>Test</span>	<a href="http://www.yahoo.com">www.yahoo.com</a>
Ping Retries	5
Ping Retry Interval (Seconds)	5
Email Address	
<b>CR Reporting URL</b>	<b>xrdl001.feeneywireless.com:39757</b>
<b>CR Reporting Interval (seconds)</b>	<b>120</b>
Name (User Defined)	FWW2
Receive Bytes/Transmit Bytes	58898 / 110176
Daily MByte Limit	0
P/N: SW50101, Rev: A02, Version 2.1.0.16	

Figure 23: Crossroads Reporting Settings

### Name (User Defined)

The Name field allows you to assign a name to identify the Skyus modem. This name will be associated with all RSSI and Ping Failure resets reported in event logs and sent to the specified email address. Using unique identifiers helps differentiate between multiple devices.

To change the Name, enter a value in the box and then click outside the box.

### Receive Bytes/Transmit Bytes

This field shows the number of bytes received and transmitted since midnight. This field is not editable.

### Daily Mbyte Limit

Daily Mbyte Limit allows you to enter a data transfer threshold. When this limit is reached, Skyus Watcher will send a message to the specified email address. If no email address is entered, exceeding the limit will have no effect.

### Custom APN

The Custom APN button appears in the title bar when you unlock the **Configure** panel. Skyus Watcher has pre-defined APNs for each carrier. These APNs are installed by default. If you are using the Skyus in an application using what is typically termed “Private Networking” by the cellular carrier, you will likely need to enter a custom APN that you receive from the carrier.

To enter a custom APN, follow the steps below.

1. Click **Custom APN**. The Custom APN's dialog box opens.

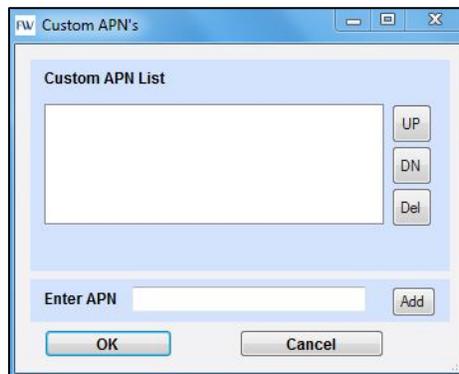


Figure 24: Custom APN Dialog Box

2. Type the APN in the **Enter APN** box and click **Add**. The new APN will appear in the **Custom APN List**.
3. Add additional APNs to the list as needed. Skyus Watcher will attempt to initialize using the APNs in the list starting with the first APN and working its way down.
4. To re-prioritize the APN list, select an APN and press the **UP** or **DN** buttons. To remove an APN, select it and click the **Del** button.
5. Click **OK** to save changes to the list or **Cancel** to discard the changes.

If Skyus Watcher cannot establish a connection using any custom APNs in the list, it will use the default APNs.

## Modem Reset Operation

A main function of Skyus Watcher is to maintain connectivity. In an effort to do this, the utility will attempt to correct specific connections issues by resetting the modem. There are three methods by which the utility will reset the modem, one manual and the other two automatic.

### 1. Manual Reset

You can initiate a reset of the modem by clicking the **Reset** option on the **Configure** panel.

### 2. Automatic Reset – Signal Strength

If the utility determines that the signal strength (RSSI) has registered outside an acceptable range for a total of no less than ten checks, it will issue a reset command to the modem in an attempt to correct the issue.

This functionality is designed to resolve issues where a Skyus may remain connected to a carrier at an extremely weak signal level and be bound to this connection due to high data utilization. This prevents the Skyus from scanning for a stronger signal to connect to. This functionality is useful in applications that demand the highest possible bandwidth.

If an email address is specified, and the utility is able to establish a connection after the reset, the user will receive an email that indicates a “Minimum RSSI Reset.”

Event logs will be created and can be viewed in your Computer Management application or Crossroads.

### 3. Automatic Reset – Ping Failure

If the utility has been unable to ping the URL/IP addresses specified on the **Configure** panel and has exhausted the values set by the user on the Ping Retries/Ping Retry Interval settings, the utility will issue a reset command to the modem in an attempt to correct the issue.

This functionality is designed to detect issues with IP connectivity or connection instability. In applications where data traffic is very infrequent, this functionality also helps to prevent cellular carriers from disconnecting a data session that has been idle for an extended period of time.

**Note:** Many cellular carriers will disconnect data sessions that have been idle for more than 60 seconds. FW strongly recommends that all users requiring high connection reliability define a set of pingable URLs or IP addresses.

If an email address is specified, and the utility is able to establish a connection after the reset, the user will receive an email that indicates a “Ping Failure Reset.”

Event logs will be created and can be viewed in your Computer Management application or Crossroads.

## Contacting Inseego

For help with installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided.

If you still have questions, contact us during business hours:

Monday through Friday, excluding holidays, between 8 a.m. and 5 p.m. Pacific Time.

### Telephone: 800.683.4818

When contacting technical support, please have the following information on-hand:

- Utility Build Number (shown below)
- Modem Identification information (shown below)
- Date the application was installed
- A brief description of the problem

The screenshot displays the SKYUS Watcher web interface. On the left, the 'Status' panel shows connection details: Connection (Up), Signal Strength (-69 | 4G), Ping Check (Good), and Signal Quality (-8). Below this, a table lists modem identification information, which is highlighted with a red box:

IMEI/ESN	359225050540152
PTN	14582054899
SIM ID:	89014103277188507037
Modem FW Rev:	9903211 05.07
Carrier:	Carrier, Inc.

On the right, the 'Configure' panel shows various settings. At the bottom of this panel, the 'PIN' field is highlighted with a red box, containing the text: 'PIN: SW50101, Rev: A02, Version 2.1.0.16'. This field is labeled 'Build Number'.

Modem Identification

Build Number

Figure 25: Modem and Utility Information

## Online Library

For other documentation, see our [online document library](#).