ADS® RainAlert III™
Q*start*™*XML* Quick Reference Guide

ADS ENVIRONMENTAL SERVICES®

Support

This Quick Reference Guide is intended to provide instructions for the configuration and activation of the ADS **RainAlert III** rainfall monitor. _Note that all fields will not be described in this document._ For further information, please consult **Q**_start_^_XML_'s online help, the _**ADS® RainAlert III** Installation, Operation, and Maintenance Manual_ at https://www.adsenv.com/ads-product-manuals/ or contact Customer Support at:

Email: adssupportcenter@idexcorp.com
Telephone: 1-877-237-9585 (U.S. Customers), 256-430-6234 (customers outside the U.S.)

Initial Setup

Perform the steps to the **Initial Setup** first and then progress to the **Configuration and Activation** section.

Initial Setup includes:

- **Activate SIM Card**
- **Download and Install Q*start*^{XML} Software**
- **Download and Install Direct Connect Communication Cable Driver**

Activate SIM Card

RainAlert III monitors include a pre-installed SIM card which must be activated to allow for wireless communication. Request the activation **within 48 hours** of monitor installation and **before** proceeding to the field to install the **RainAlert III**.

1. Request activation of the SIM card by emailing ADSEODIP@idexcorp.com. Include the serial number of the specific **RainAlert III** monitor and the last four digits of the SIM card number (the 20 digit number found on the attached SIM punch-out card) as well as the name of the municipality or company requesting the activation. ADS employees should also include the project name and job number as part of the request.

AT&T (top) and Verizon LTE-M (bottom) Punch-out card highlighting last 4 Digits of SIM number

2. Wait for a return email from ADS. The email will contain the IP address of the SIM card and its associated phone number. If text messaging commands capability is desired, be sure to note the phone number associated with the IP address.

3. Wait at least 15 minutes from the receipt of email before serially activating the monitor and attempting wireless communications. See *Verifying Wireless Communication* for details on initializing and verifying remote wireless communications.

Download and Install the Q*start*^*XML* Software

The **RainAlert III** monitor requires the use of the ADS **Q**start*XML* software.

Download the **Q**start*XML* software and **Q**start*XML* **Installation Guide** from the ADS website at: https://www.adsenv.com/resources/. Install **Q**start*XML* by following the instructions in the **Q**start*XML* **Installation Guide**.

> **Note: Q**start*XML* can only be installed on a Microsoft Windows computer with a Windows 10 or higher operating system.

Download and Install the Direct Connect Cable Driver

The **RainAlert III** monitor requires use of a **Direct Connect Cable** (ADS p/n 9000-0028) for initial monitor activation.

Download the **Direct Connect Cable** driver in the following way:

1. Go to *www.ftdichip.com*.

2. Click on **Drivers > VCP Drivers**.

3. Click on the **setup executable** link under the **Comments** column in the table corresponding to a **Windows** operating system.

4. Click Run

Configuration and Activation

The following section details the steps for configuring and activating the **RainAlert III** monitor and includes:

- o **Create and Configure the Monitor Location**
- o **Activate the Monitor**

Perform these steps after performing the steps to the **Initial Setup**. Once this section is complete, proceed to **Final Verification Steps**.
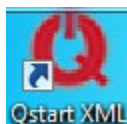
Create and Configure the Monitor Location

This section includes instructions for creating a monitor location in **Q***start*^{XML} as well as selecting and editing devices.

> **Note:** Initial activation for a new **RainAlert III** monitor must be done using the Direct Connect Cable (ADS p/n (9000-00028). Make sure you have this cable before proceeding.

Launch the Qstart^{XML} Software

Launch the **Q***start*^{XML} software by selecting **Start > ADS LLC > Q***start*^{XML} from the **Microsoft® Windows®** start menu or double-clicking on the **Q***start*^{XML} icon on the **Windows** desktop.


Q*start*^{XML} Icon on Desktop

If **Q***start*^{XML} settings have already been configured, proceed to **Create a Monitor Location.**

Set Up the Qstart^{XML} Parameters

Q*start*^{XML} stores and displays data, directs configuration, and performs communication based on certain parameters designated through the **Q***start*^{XML} settings. This **Settings** dialog containing these parameters is available the first time you run the **Q***start*^{XML} software following installation and through the main screen by clicking on the **Settings** button.

> **Note:** Insert the **Direct Connect Cable** before opening **Q***start*^{XML} so the **Serial Port** will automatically update.
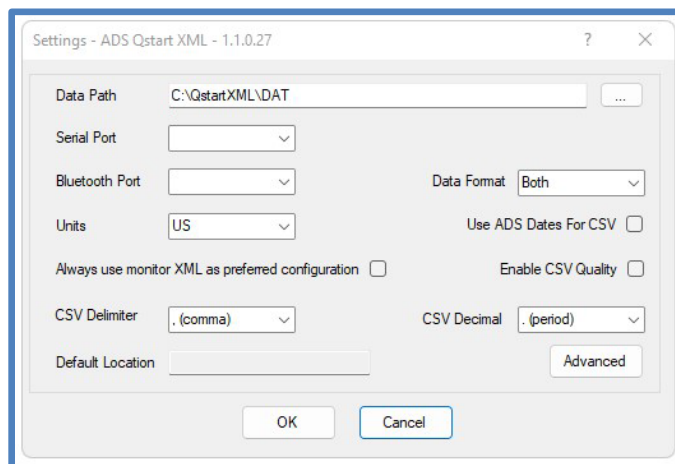
Settings Dialog

1. Enter the path or browse to the directory to which you want to save the XML files and collected flow data in the **Data Path** field.

2. The **Serial Port,** which the **Direct Connect Cable** uses, automatically updates to the correct port designation if the **Direct Connect Cable** has been inserted into the USB port prior to opening **Q**start*XML*. No user entry should be required. If there is any question as to whether the correct Serial Port is displayed, go to the **Control Panel > Device Manager > Ports** and verify the correct port for the USB Serial Port and enter this port into the **Q**start*XML* **Settings** page.

3. Select the desired units of measurement (**US** or **Metric**) to be used throughout **Q**start*XML* to represent the data when entering values, saving data, and displaying data from the **Units** drop-down list. The **US** units report rainfall depth in inches (in), rainfall intensity in inches per hour (in/hr), and temperatures in Fahrenheit (F°). The **Metric** units report rainfall depth in millimeters (mm), rainfall intensity in millimeters per hour (mm/hr), and temperature in Celsius (C°).

4. Refer to **Q**start*XML*'s online help for further descriptions of the settings.

5. Click on the **OK** button to save the settings from this dialog to the designated local directory or network.

   Note: Access the data path, CSV file configuration, and communication settings at any time by clicking on the **Settings** button on the **Q**start*XML* main screen.

After the settings are configured, the **Q**start*XML* main screen will display on each subsequent opening of the software.

Create a Monitor Location

1. Select the **New** button at the bottom of the main **Q**start*XML* screen.
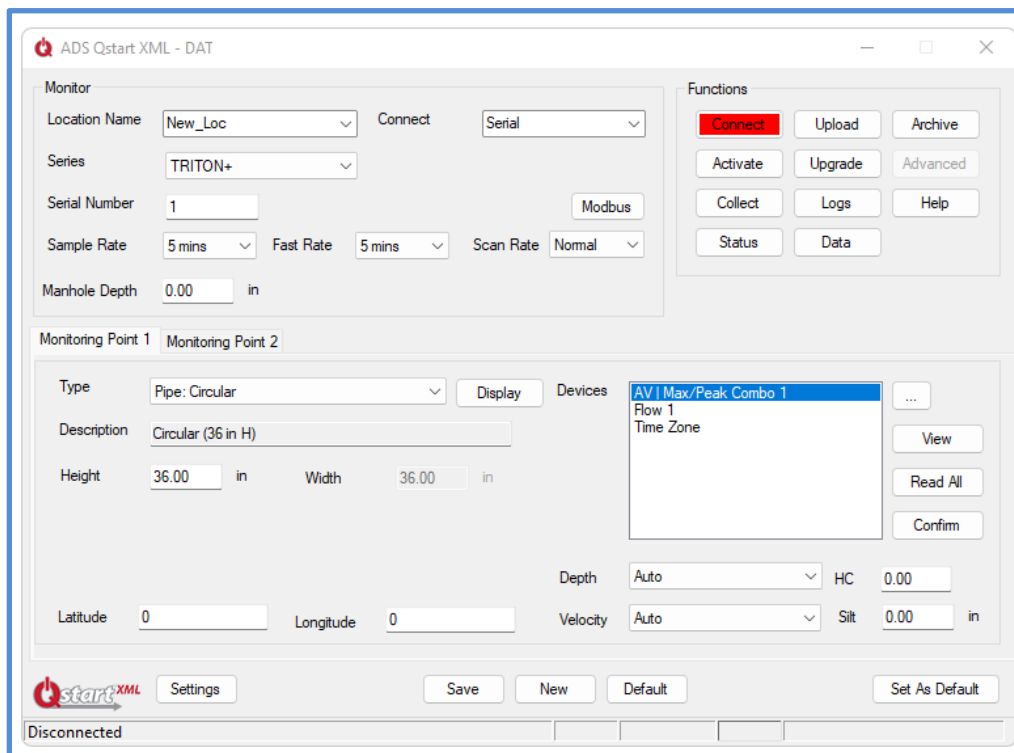
Qstart*XML* main screen showing the New default location

2. Enter a name for the new location in the **Location Name** field. This associated drop-down list contains all the locations available in the **Data Path** designated previously on the **Settings** dialog. A location name may be up to 19 alphanumeric characters in length. *No spaces are allowed in the Location Name*.

3. Select **RainAlert III** from the **Series** drop-down list. The screen will update to show the configuration parameters associated with a **RainAlert III** monitor.


4. Enter the serial number corresponding to the specific monitor in the **Serial Number** field.

5. Verify or select the desired interval at which the monitor will record data from the **Sample Rate** drop-down list.

6. Select **Wireless** from the **Connect** drop-down list and enter the monitor's **IP Address**.

   Note: Do not include leading zeroes in the IP address. For example, enter IP address of 166.219.008.063 as 166.219.8.63.

7. From the **Connect** drop-down list, select **Serial**.

8. Enter the **Latitude** and **Longitude** of the **RainAlert III** installation location, if known.

Select and Edit Devices

Select and edit the devices corresponding to the new monitor location to log the desired data. The default devices for the **RainAlert III** are **Rain** and **Time Zone**. Editing the devices involves setting specific parameters to ensure the monitor and **Qstart**^{XML} properly obtain and process the data.

1. In the **Location Name** field, select the desired location to assign and edit devices.

The **Devices** dialog displays the devices selected by default (i.e. based on **Qstart**^{XML}'s or the user's designated default configuration) for the **RainAlert III** monitor series.
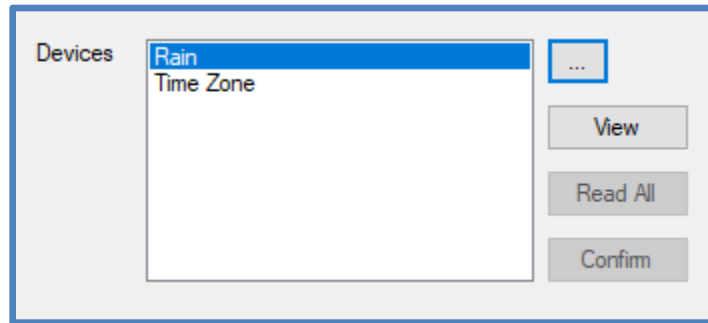
Devices Section

2. To edit the parameters associated with a device, select the desired device to view or modify from the **Devices** list and click the **View** button. The **Location Name** and **Device Name** are displayed at the top of the dialog. Edit or modify the device parameters as necessary, and then click on the **OK** button when complete. Refer to the following sections for details concerning the parameters for each specific device.

3. Repeat Step 2 for each additional device that requires modification of the parameters, and then click the **Save** button to save the devices with any parameter modifications to the local directory or network.

Edit the Rain Device
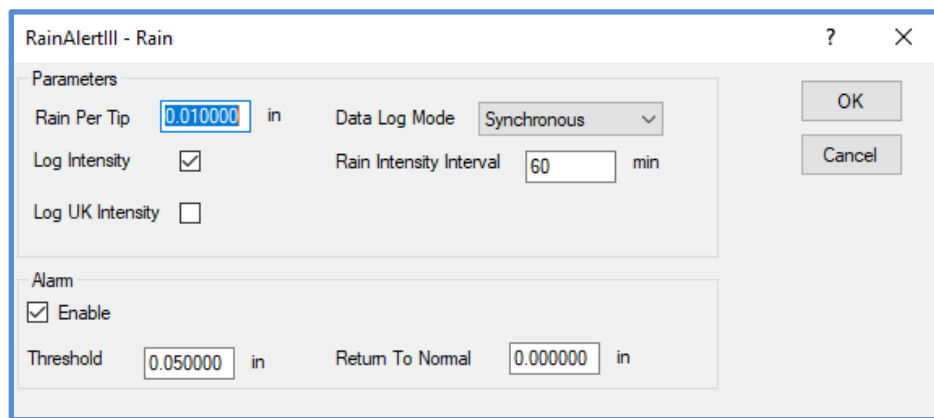
[location name] - Rain dialog

1. **Rain Per Tip** Enter the amount of rain that must accumulate in the tipping bucket to initiate one tip of the tipping mechanism. *The default setting is **0.01** inches per tip.*

2. **Data Log Mode** Select the method by which the monitor records the rain data.

    a. **Synchronous** Choose this option to ensure the monitor records data based on the sample rate designated on the **Q*start^{XML}*** main screen.

    b. **Asynchronous** Choose this option to ensure the monitor records data each time a tip occurs.

3. **Log Intensity** Select this checkbox to ensure the monitor logs the amount of rainfall that occurs with the amount of time designated as the **Rain Intensity Interval**.

4. **Rain Intensity Interval** Enter the amount of time within which the amount of rain specified as the **Threshold** must fall to initiate a *rain alarm*.

5. **Log UK Intensity** Select this checkbox to log the amount of rainfall that occurs over a specified time period based on the standards identified in the United Kingdom.

6. **Enable** Select this checkbox to activate the options to edit parameters and to ensure **Q*start^{XML}*** configures the monitor to initiate and terminate an alarm under the rain conditions designated in the **Alarm** section.

7. **Threshold** Enter the amount of rainfall that must occur within the amount of time designated as the **Rain Intensity Interval** to initiate an alarm and contact **PRISM™**, an email recipient, and/or a cellular telephone that receives text messages.

8. **Return to Normal** Enter the amount of rainfall that cannot be exceeded over the amount of time designated as the **Rain Intensity Interval** to discontinue an existing rain alarm. Under this scenario, the monitor also contacts **PRISM**, an email recipient, and/or a cellular telephone that receives text messages to indicate that conditions have *returned to normal*

Edit the Time Zone Device
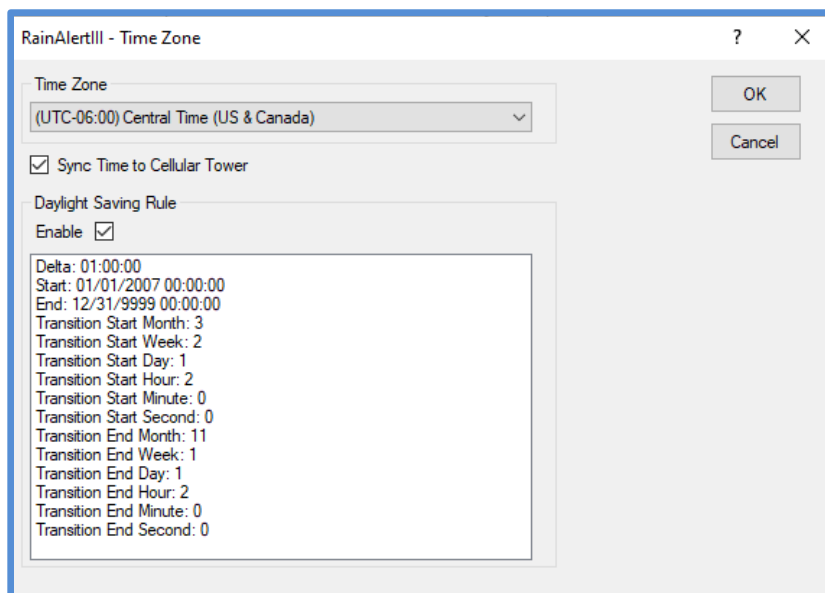
Time Zone device dialog

1. **Time Zone** – Select the time zone in which the selected **RainAlert III** monitor is located. **Time Zone** is a required device and must be configured before monitor activation.

2. **Sync Time to Cellular Tower** – When enabled, the monitor will sync its time with the time provided by the cellular network. Uncheck the box if this feature is not desired or the cellular system does not support the synchronization.

3. **Daylight Saving Rule** – Uncheck the **Enable** checkbox to disable the **Daylight Saving Rule**, if Daylight Saving is not applicable to the region where the **RainAlert III** will be installed. Note that the content of the text box is not editable.

Your **RainAlert III** device is now configured with the two default devices and ready for **Activation**. The two sections below include descriptions of how to configure the other available devices: **Data Delivery** and **Advanced**, should you need these features.

Select and Edit the Data Delivery and Advanced Device (as needed)

1. To select the **Data Delivery** or **Advanced** devices, select the three dots to the right of the devices list. The **Available Devices** screen will display.
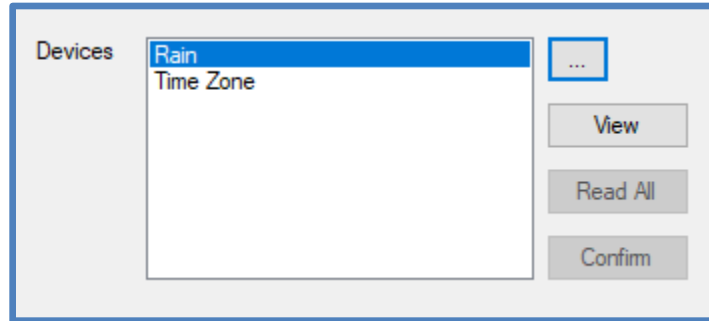
Devices Section
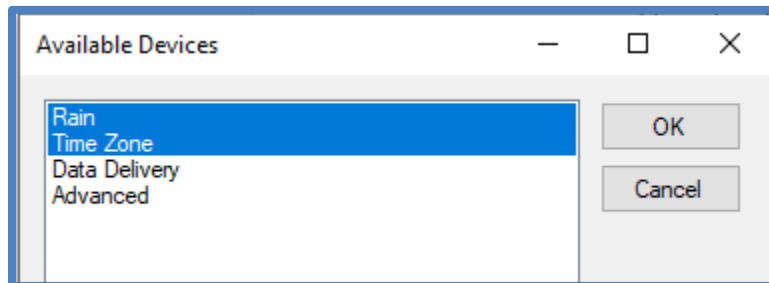
Available Devices

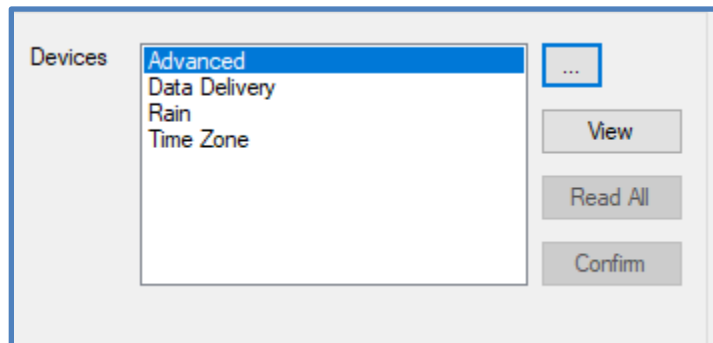2.   Select **Data Delivery** and/or **Advanced** and **OK**.
3.   The **Data Delivery** and **Advanced** devices are now available to configure using the View option.

Edit the Data Delivery Device (as needed)

By default, the **RainAlert III**'s modem is in the *Always Off* mode to conserve battery power. Therefore, configure the **Data Delivery** device to upload data stored in the monitor memory to **PRISM** and/or an FTP server at a designated interval. To upload data to **PRISM** and/or an FTP server, you must know the IP address or DNS of the server. FTP servers also require the username and password the monitor must use to access the server, and when applicable, the name of the folder on the server in which the monitor is to place the data.

Data Delivery device dialog

- **PRISM**

  This section allows you to configure the monitor to deliver data and/or alarms to ADS' web-based software **PRISM**.

  o **Server** –Enter the **PRISM** server IP address of 13.82.147.226. This is where the monitor will deliver data and alarm events.

  o **Normal** – Select the interval which you want the monitor to deliver data under normal conditions.

  o **Fast** – Select the increased interval which you want the monitor to deliver data under alarm conditions. This feature can also be set to **Off**.

- **FTP Setup 1**

  This section must only be completed if FTP file delivery is required.

  o **Mode** – Select the appropriate port assignment (**Active** or **Passive**) for the FTP server. **Passive** is the recommended **Mode** for file transfers.

  o **Normal** – Select the interval which you want the monitor to deliver data under normal conditions.

  o **Fast** – Select the increased interval which you want the monitor to deliver data to the FTP server under alarm conditions. This field can be set to **Off**.

  o **Server** – Enter the numeric IP address for the FTP server to which the monitor will deliver data. The ADS FTP server numeric IP address is 64.14.232.6. This FTP server is for internal ADS use only.

  o **Folder (optional)** – Enter the name of the folder on the FTP site in which the monitor will upload the data.

  Note: **Q**start*XML* will not create a folder on the FTP server automatically. Therefore, if it is desired that the monitor deliver data to a specific folder, create the folder through the FTP server manually before the monitor begins uploading data to the server. If a specific folder is not designated, the monitor will upload data to the FTP server's root directory.

  o **Username** – Enter the username the monitor must use to access the FTP server.

o   **Password** – Enter the password associated with the username the monitor must use to access the FTP server.

o   **CSV Format** – Select the option corresponding to the type and format of the data the monitor will upload to the FTP server.

  –   **ADS** – Choose this option to deliver all the entity data from the monitor to the designated FTP server.

  –   **GE** – Choose this option to deliver the data in GE CSV format, which will group readings and their corresponding quality values in rows rather than displaying all stored values in column format.

- **FTP Setup 2** – Refer to the instructions for the **FTP Setup 1** parameters to set up an additional FTP server to which the monitor can deliver data.

Edit the Advanced Device (as needed)

The **Advanced** device includes three tabs representing parameters related to diagnostic information, modem setup, and alarm notification. No changes should be necessary on the **Diagnostics** tab.
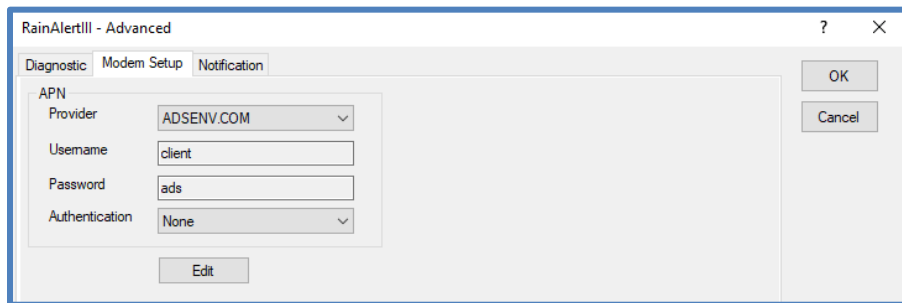
Modem Setup Tab

The **Modem Setup** feature is used to set the APN (Access Point Name) that the cellular modem will use when connecting to the network.

> **Note 1:** The **9000-RAIII-4VZ** and the **9000-RAIII-4WW** contain an LTE-M modem and will receive the APN from the network if the APN is set to *ADSENV.COM* or set to a blank entry.

> **Note 2:** The **9000-RAIII** contains a 2G/3G modem that requires the APN to be set as follows:
>
>   -   **ADS public static SIM:** APN = ADSENV.COM
>   -   **AT&T VPN (ADS):** APN = 12375.mcs
>   -   **Customer Network (APN):** Supplied by customer mobile carrier

Modem Setup Tab of **Advanced** Device Dialog

- **Provider** – Select the APN corresponding to the SIM card in the modem. The **Username** and **Password** fields should automatically populate with the information associated with the selected APN. However, if the APN associated with the carrier's SIM card is not available on the list, or the username and password require modification, click on the **Edit** button and complete the **Edit Wireless Parameters** dialog.
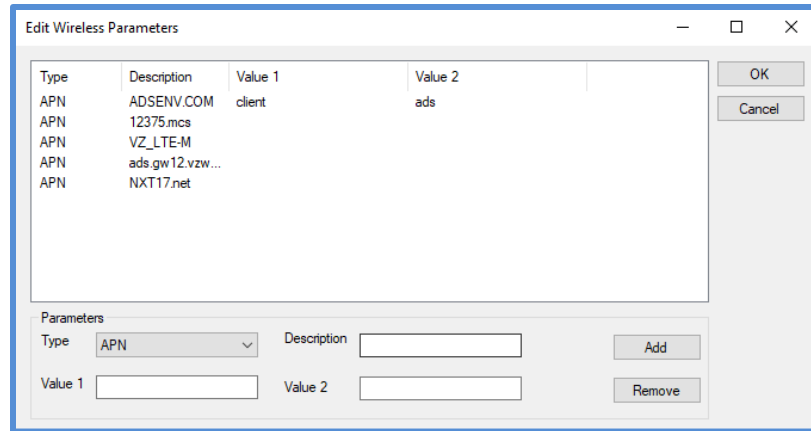
Edit Wireless Parameters Dialog

o Select **APN** from the **Type** drop-down list. If an existing APN requires modification, select the appropriate APN from the **Type** column in the table of available APNs and providers.

o Enter the proper APN for the carrier or edit the existing APN as necessary.

o Enter or edit the username corresponding to the APN in the **Value 1** field.

o Enter or edit the password corresponding to the APN in the **Value 2** field.

o Click the **Add** button to add the APN or modifications to the table, and then click on the **OK** button. The new APN should be available for selection from the **Provider** drop-down list on the **Modem Setup** tab or the modified information should display in the **Username** and/or **Password** fields once the corresponding provider/APN is selected.

- **Username** – This read-only field displays the username associated with the selected provider (APN).

- **Password** – This read-only field displays the password associated with the selected provider (APN).

  Authentication – Select **PAP** (Password Authentication Protocol) in which the **Username** and **Password** are used for communication authentication. Select **CHAP** (Challenge Handshake Authentication Protocol) in which a challenge string is used for authentication. Select **None** in cases where the authentication protocol is unknown or not required. This information will be provided by the wireless SIM provider. The default selection, **None**, should be enough in most cases.

Activate the Monitor

The **RainAlert III** configuration file is now complete, and the **RainAlert III** is ready for activation. The initial monitor activation occurs in **Qstart**^{XML} using a *Serial* connection.

1. Ensure the **Direct Connect Cable** is inserted into a computer USB port.

2. Open the **RainAlert III** enclosure and insert the other end of the **Direct Connect Cable** into the upper port on the processor board as shown below.
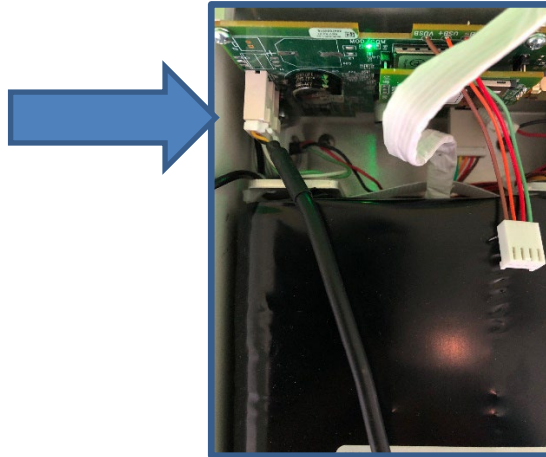
Connecting **Direct Connect Cable** to **RainAlert III** Processor Board

3. In **Q**start*XML*, select the desired **Location**, verify the configuration parameters are correct, and select *Serial* for the **Connect** type.

4. Click on the **Activate** button in the **Functions** section. **Q**start*XML* initiates and establishes communication with the monitor and then downloads the appropriate information and files. Once the activation is complete, the status bar displays an **Activate Successful** message. **Q**start*XML* generates an activation log that is available for viewing through the log viewer within **Q**start*XML*.

5. **Do not hang-up**. Continue to the next section to set the **Modem Power** parameters.
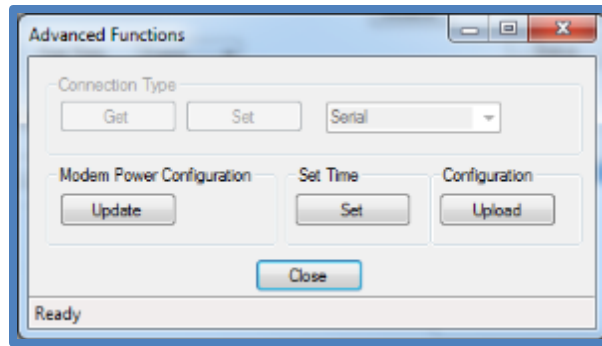
Configure the Modem Power Parameters

Qstart*XML* enables the user to configure the monitor for uninterrupted modem communications or for modem downtime during specific periods throughout each day of the week. Powering down the wireless modem during specific hours of the day conserves battery power. Use the **Modem Power** option in **Q**start*XML* to configure the monitor to conserve battery power. The monitor automatically powers up the wireless modem each day between 11AM and 12PM to receive incoming calls.

> **Note:** In order to maximize battery life, **Modem Power** is set to *Always Off* at the factory and the **RainAlert III** should be configured to deliver data to **PRISM** or an FTP at the desired interval. Data delivery files and alarm notifications will still be delivered to **PRISM** and/or an FTP server when the modem is in the *Always Off* configuration.

> **Note:** ADS recommends initially setting the **Modem Power** with a **Span On** setting which encompasses business hours, Monday – Friday. With the modem on during business hours you will be able to verify wireless communications during initial activation and conduct on-demand communications to troubleshoot as necessary. After several weeks the **Modem Power** can be set to *Always Off*, knowing that you will still be able to communicate between 11AM and 12PM daily.

Setting up the power savings option occurs through the **Advanced** function while communicating with the monitor.

1. While still online with the **RainAlert III** (if not online, reinitialize *Serial* communication and connect again), click on the **Advanced** button in the **Functions** section. This will display the **Advanced Functions** dialog.

Advanced Functions dialog

2. Click on the **Update** button. The **Modem Power Configuration** dialog displays the current power savings parameters in the monitor configuration.
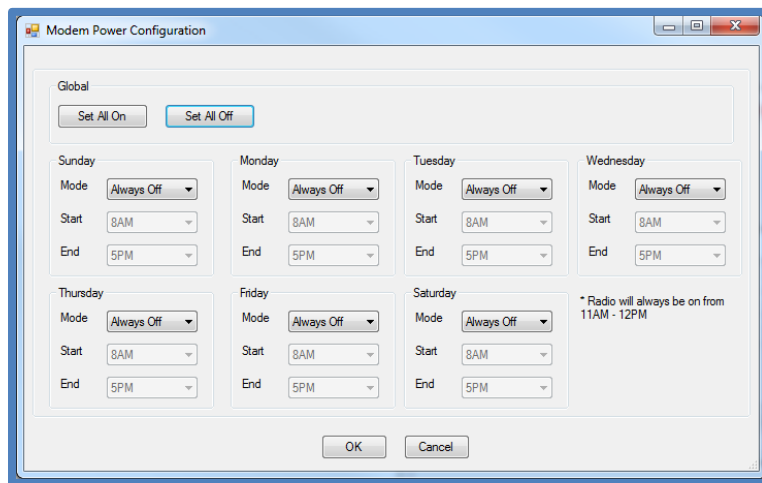
Modem Power Configuration dialog

3. Click on one of the following buttons in order to apply power savings settings for all seven days of the week:

   o **Set All On** – Choose this button to configure the monitor to provide uninterrupted power to the modem 24 hours a day, 7 days a week. Choosing this setting will cause the **Always On** option to display for the **Mode** on all 7 days, resulting in no power savings to the monitor.

   o **Set All Off –** Choose this button to configure the monitor to provide power to the modem only from 11AM to 12PM each day of the week. The monitor will withhold power from the modem at all other times. This option offers the greatest power savings to the monitor. Choosing this setting will cause the **Always Off** option to display for the **Mode** on all 7 days.

4. Select one of the following methods to apply power savings settings for each individual day of the week from the **Mode** drop-down list. This step must be completed for each day of the week. Some modes may require designating a corresponding time range.

   o **Always On** – Choose this option to configure the monitor to provide uninterrupted power to the monitor for the entire day, resulting in no designated power savings to the monitor on that day.

   o **Always Off** – Choose this option to configure the monitor to provide power to the modem only from 11AM to 12PM on that day, offering the most significant power savings available within that day.

   o **Span On** – Choose this option to configure the monitor to provide uninterrupted power to the modem for the time period designated in the **Start** and **End** fields. Select the time at which the monitor will begin powering on the modem on the corresponding day from the **Start** drop-down list. Then select

the time at which the monitor will discontinue powering the modem on that day from the **End** drop-down list.

o **Span Off** – Choose this option to configure the monitor to withhold power from the modem for the time period designated in the associated **Start** and **End** fields. Select the time at which the monitor will discontinue powering the modem on the corresponding day from the **Start** drop-down list. Then select the time at which the monitor will resume powering the modem on that day.

5. Click the **OK** button to save the power savings parameters to the monitor. This will again cause the **Advanced Functions** dialog to display.

6. Click on the **Close** button to exit the **Advanced Functions** dialog.

7. Click on the **Hangup** button in the **Functions** section on the **Q***start^{XML}* main screen.

8. Leave the **RainAlert III** enclosure open to complete the **Final Verification Steps**.

Final Verification Steps

This section includes the procedures for **Verifying Wireless Communication** and verifying the **RainAlert III** detects each tip of the tipping bucket mechanism.

Verifying Wireless Communication

It is recommended that wireless communication be verified upon installation of the monitor.

1. Change the connection type to *Wireless* and verify the IP address is correct.

2. Verify in the **Modem Power** log that the modem has been configured to be *On* while attempting this test. Verify by selecting **Logs** > **Modem Power** and review settings. If it is not configured to be on at the time of the test, follow steps in the **Modem Power Configuration** section to turn on the modem.

3. With the **RainAlert III** enclosure open, once wireless communications have been established, the LED in the center of the RainAlert III processor board will begin to slowly flash green. Once the LED is flashing green, proceed to Step 4 below.

4. Attempt communication with the monitor by clicking the **Status** button.

5. If the monitor status information is displayed, wireless communication has been verified.

```
Monitor Status: RA3_VZ_10004
Current Host Time: 7/11/2022 6:43:29 AM
Current Monitor Time: 7/11/2022 6:43:28 AM
Oldest Entry Time: 12/27/2020 11:45:00 PM
Newest Entry Time: 7/11/2022 6:40:00 AM
Monitor Scan Interval: 300
Monitor Temperature: 82.51 F
Firmware Version: V8.11
Multi-block Modem Attached: Yes
Model Number: X900
BASIC Code Program Status: OK
BASIC Code Fault: 0
Events Pending Status: 0
Abnormal Resets: 0
Battery Voltage: 7.4 V
TCP/IP Signal Strength: -45 dB
```

Monitor Status

6. Close the print preview of the status screen and click on the **Hangup** button in the **Functions** section on the **Qstart**^{XML} main screen.

Verifying Rain Tips

In this section you will verify that the tipping bucket has been properly wired and each tip of the bucket is recorded by the **RainAlert III**. Before proceeding with this section, you must complete the **RainAlert III** and **Tipping Bucket** installation as described in the **RainAlert III Installation Instructions** included in the **RainAlert III** shipping box. Once the **RainAlert III** is connected to the tipping bucket, follow the steps below for verification.

The ADS **Qstart**^{XML} software's diagnostics tool enables the user to verify the proper operation of the tipping bucket, obtain a current reading, adjust settings, and identify, diagnose, and troubleshoot potential problems with the tipping bucket. Run diagnostics on the *Rain* device in the following way:

1. Remove the cover of the tipping bucket such that the tipping bucket mechanism is exposed.

Tipping the tipping mechanism back and forth

2. Select the monitor for which you want to run diagnostics from the **Location Name** drop-down list in the **Monitor** section on the **Q***start*^{XML} main screen.

3. Select the **Connect** button in the **Functions** section to initiate communication with the monitor.

   *Q**start*^{XML} *initiates communication with the monitor and establishes a connection. The status bar displays* *Ready once a successful connection has been made.*

4. Select **Rain** from the **Devices** selection box, and then click on the **View** button.

   The [location name] - Rain dialog displays the current configuration parameters stored in the LIF for the rain device.

5. Tip the tipping bucket mechanism back and forth for a total of 10 tips.

6. Click on the **Read** button.

*The **Results** section displays the rainfall data. **Rain** represents the amount of rainfall that has occurred (based on the value designated for **Rain Per Tip**) during the time period between initially entering the current **Diagnostics** dialog and requesting rainfall data from the monitor (i.e., clicking the **Read** button). Any additional rain amounts measured through subsequent requests made without exiting the dialog is added to the existing amount and included in the updated total displayed for **Rain**.*
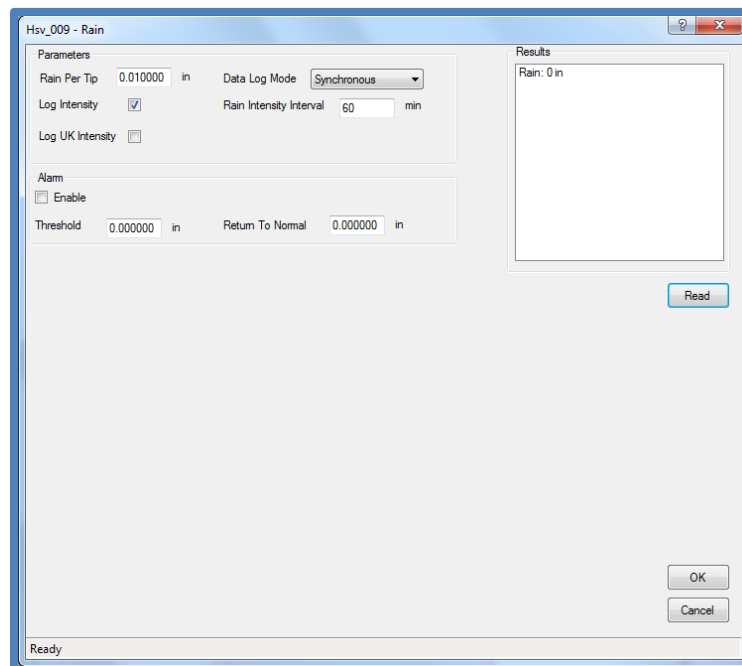
[*location name*] – Rain device diagnostics dialog with readings

7. View the results. The amount of **Rain** displayed in the **Results** section should equal the number of tips multiplied by the **Rain Per Tip** value.

   - If no tips are recorded, select **OK** and **Hangup** to discontinue communications.

   - Inspect the connections of the green and white tipping bucket wires. Adjust as necessary. Repeat the test until the number of manual tips equals the number of recorded tips.

8. Once the test is complete, click the **OK** button.

9. Select **Hangup** to discontinue communication with monitor.

10. Disconnect the **Direct Connect Cable**, ensure that the **RainAlert III** rubber gasket is free of debris, and close the **RainAlert III** top, being careful to not pinch the battery cable in the gasket.

11. Proceed to the final physical installation of the **RainAlert III**, tipping bucket and sunshield as described in installation literature included in the **RainAlert III** shipping box.