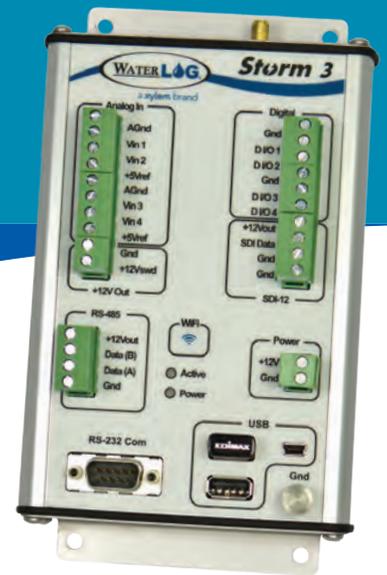




# Storm Central

GETTING STARTED GUIDE



a xylem brand

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This guide is a brief overview of the Storm Central site and its basic features. Storm Central is a cloud data collection service for a new era of data loggers and data collection platforms. This means that wherever your data loggers are located, their real-time data can be accessed 24/7/365. Please refer to [waterlog.com/storm](http://waterlog.com/storm) or contact your sales representative for more information. Updated manuals, new firmware updates, brochures, technical notes, and supporting software are available.

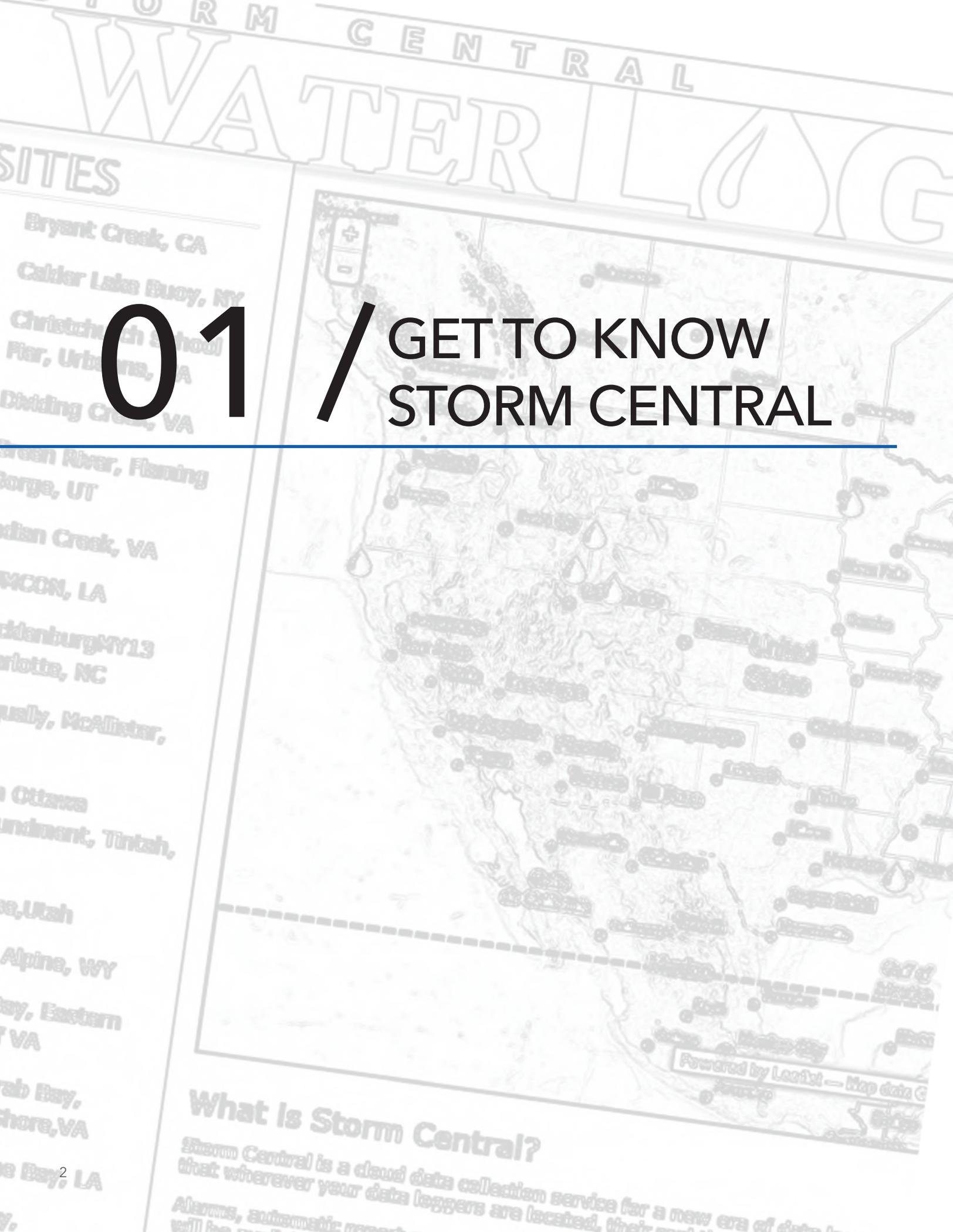
For additional assistance, please contact us at +1.435.753.2212 or [sales@waterlog.com](mailto:sales@waterlog.com)



a xylem brand

## CONTENTS

Get to Know Storm Central.....	2
Obtain Access to Storm Central.....	4
Collect Data with Storm Central (Cell Modem).....	6
Collect Data with Storm Central (GOES).....	10
Review and Download Data.....	14
Set up Alarms.....	14



# 01 / GET TO KNOW STORM CENTRAL

- Bryant Creek, CA
- Caldor Lake Buoy, NY
- Christchurch School
- Fior, Urbana, VA
- Dividing Creek, VA
- Green River, Flaming
- Jorge, UT
- Indian Creek, VA
- MCON, LA
- Manburg NY13
- Charlotte, NC
- usly, McAllister,
- Ottawa
- undment, Tintah,
- se, Utah
- Alpina, WY
- ay, Eastern
- VA
- rab Bay,
- shore, VA
- e Bay, LA
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## What is Storm Central?

Storm Central is a cloud data collection service for a new era of data that wherever your data loggers are located, their data will be automatically reported to Storm Central.

## Get to Know Storm Central

Storm Central is a cloud data collection service for a new era of data loggers and data collection platforms. This means that wherever your data loggers are located, their real-time data can be accessed 24/7/365. Frequent field visits to your site will become a thing of the past!

Storm Central was originally built for the WaterLOG Storm data logger, allowing data from a remote Storm to be pushed to the Storm Central server, using a GSM or CDMA cellular modem, in near real-time. Additional WaterLOG and non-WaterLOG data loggers and controllers are now also capable of pushing data into Storm Central using a cellular modem with minimal effort.



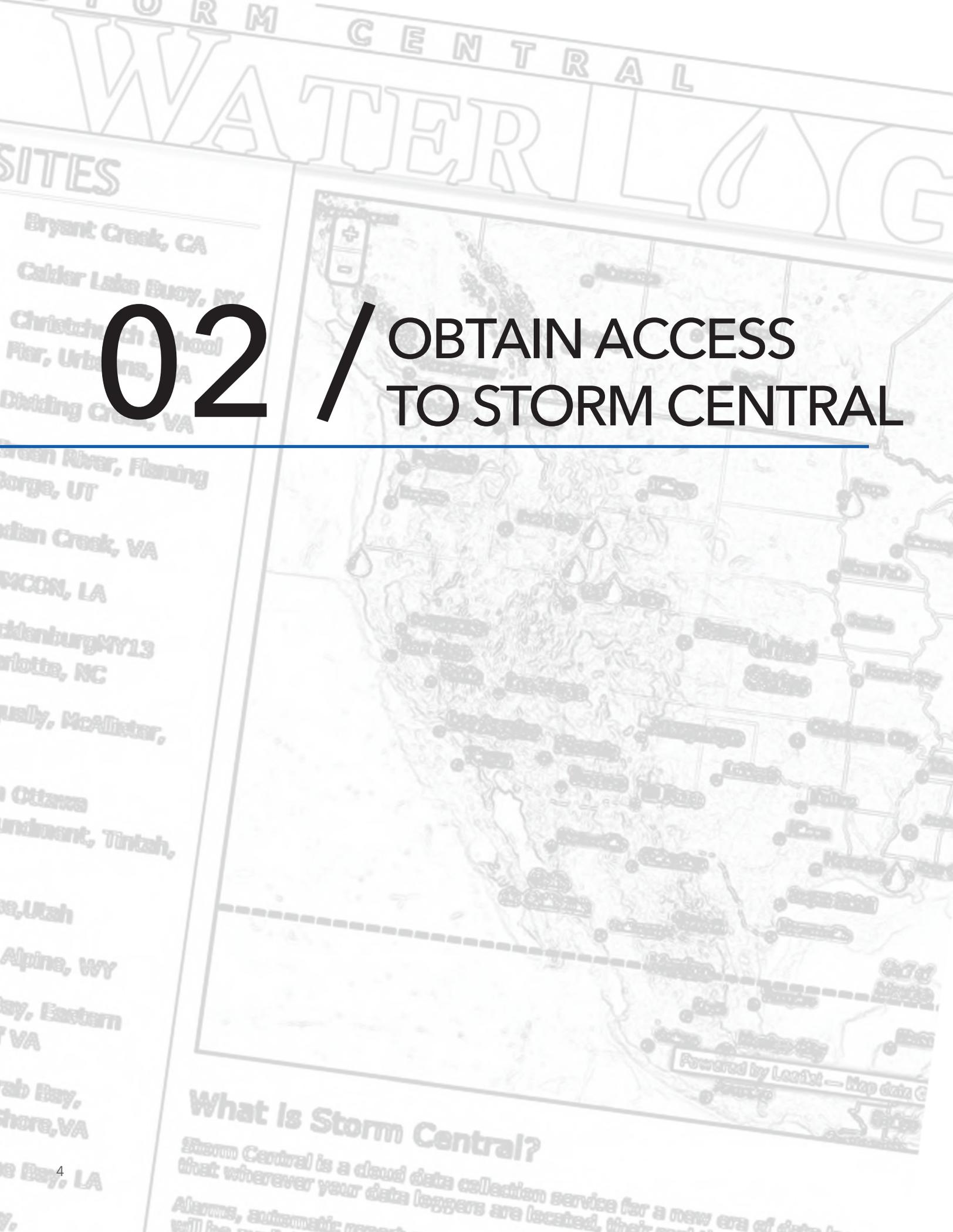
Sites using GOES to transmit their data can also be set up within Storm Central to have their data retrieved, decoded, and made easily accessible. Both WaterLOG ASCII (SHEF) and Pseudo-Binary formats are fully supported.

Once data has been collected and stored in Storm Central, it is immediately visible within the simple and intuitive Storm Central interface. Data is presented graphically as well as tabularly on the same page. Downloading data is also just a button-click away.

Recently added to Storm Central is the ability to generate simple-to-complex Alarm conditions based on the data collected. Icons on your map can change colors and notifications via e-mail or SMS (text message) can be sent, alerting you of an alarm condition.

Storm Central was built with you in mind. From automatic data collection, to notifications about alarm conditions, Storm Central can save you time and prevent costly visits to your site while simplifying your job at the same time.

In addition to existing features, Storm Central comes with WaterLOG's commitment to improvement and sustainability. You can expect additional features to be added regularly to Storm Central based on customer requests and your input. Let us know how we can improve Storm Central and we'll help you make it yours.



# SITES

- Bryant Creek, CA
- Caldor Lake Buoy, NY
- Christchurch School
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- Dividing Creek, VA
- Green River, Flaming
- Jorge, UT
- Indian Creek, VA
- MON, LA
- Manburg NY13
- Charlotte, NC
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- se, Utah
- Alpina, WY
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- rab Bay,
- shore, VA
- e Bay, LA
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# 02

# / OBTAIN ACCESS TO STORM CENTRAL

## What is Storm Central?

Storm Central is a cloud data collection service for a new era of data that wherever your data loggers are located, their data will be automatically reported to the cloud.

## Contact WaterLOG

Obtaining access to Storm Central couldn't be easier. Simply contact your WaterLOG Sales Representative or WaterLOG technical support and they'll provide you the information you need to get started with a Hosting Plan.

WaterLOG contact information can be found in the box to the right.

### WaterLOG Sales / Technical Support

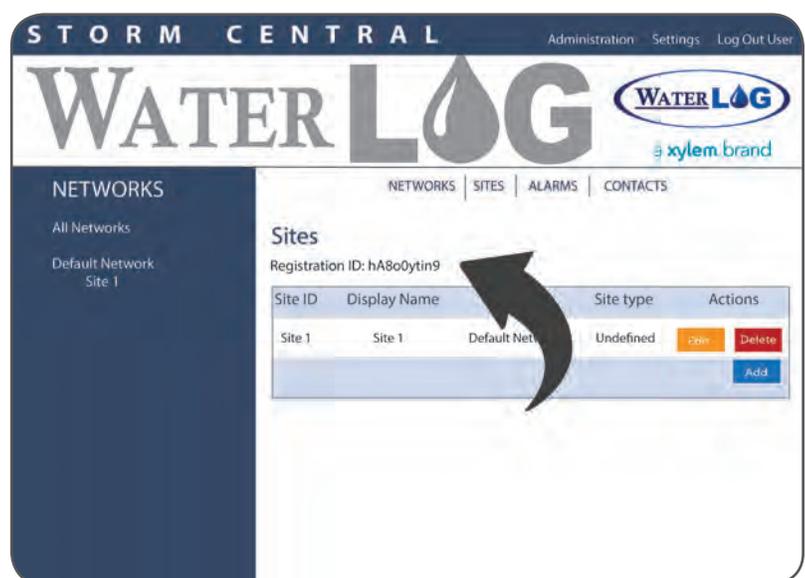
95 West 100 South  
Suite 150  
Logan, UT 84321USA

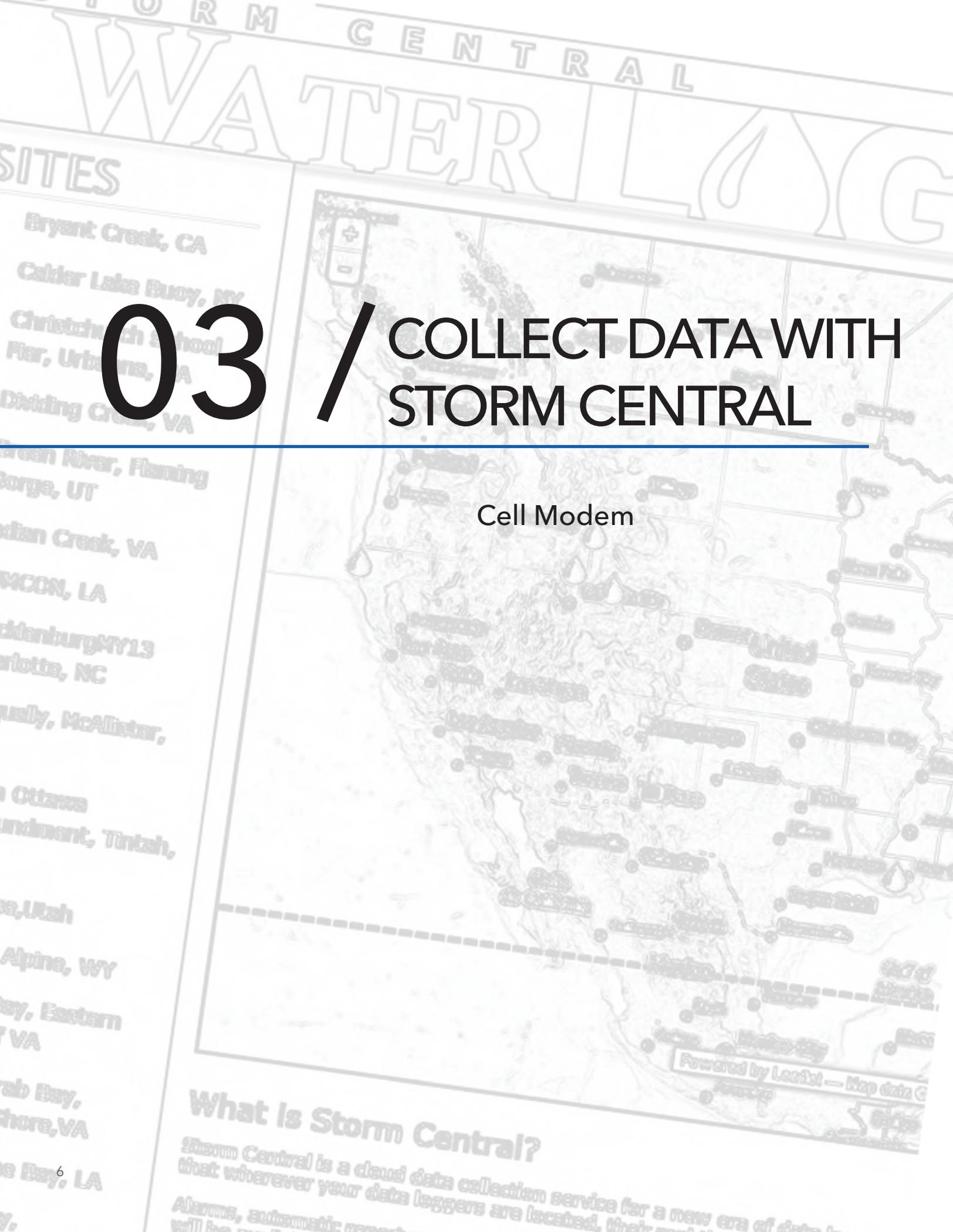
Phone: +1.435.227.1767  
E-mail: sales@waterlog.com  
Web: www.waterlog.com

## Registration ID

If you plan to send data using a Storm data logger, a Registration ID will be required to connect the Storm to Storm Central. Log in to Storm Central and navigate to Sites through the Administration link. The location of the Registration ID is highlighted in the screen below. It is required for a Storm data logger to communicate with Storm Central.

Each Registration ID is unique to each account on Storm Central. Make note of this ID as it will be used later when setting up your Storm data logger.





# SITES

- Bryant Creek, CA
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- Christchurch School
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- Green River, Flaming
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- Indian Creek, VA
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# 03

## / COLLECT DATA WITH STORM CENTRAL

Cell Modem

### What is Storm Central?

Storm Central is a cloud data collection service for a new era of data that wherever your data loggers are located, their data will be automatically reported to the cloud.

## Collect Data with Storm Central

Storm Central was created specifically for communicating with the Storm data logger. As such, the following section focuses on connecting a Storm data logger to Storm Central using a cellular modem. Other data loggers can also send their data to Storm Central, though their implementation will not be covered below. Please contact WaterLog Sales about your data logger for further options on connecting it to Storm Central.

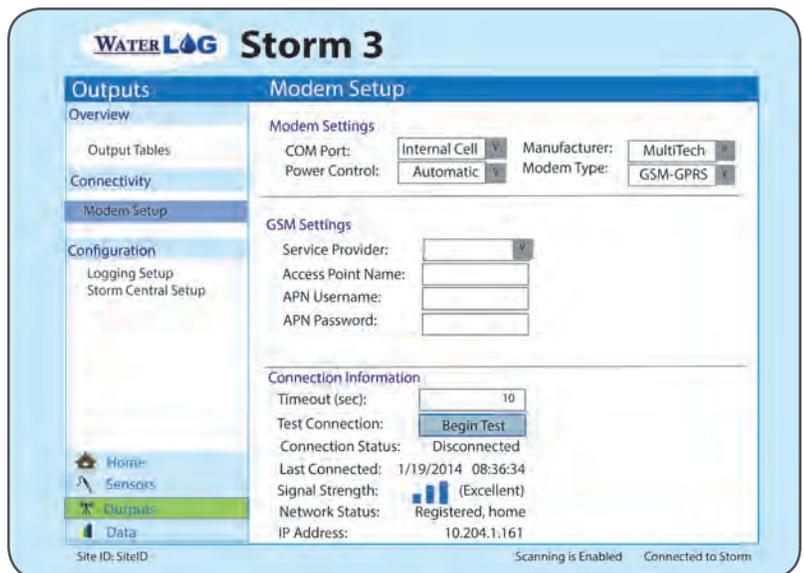
Connecting a Storm data logger to Storm Central is as easy as pressing a button—literally. However, prior to pressing that button, the modem and cellular service need to first be configured and verified by following these steps:



## Configure and Verify

First, the modem should be configured and tested. This can be done within the Modem Setup page of the Storm data logger.

Both GSM modems (GPRS, 3G, 4G, etc) and CDMA modems (1x), require Modem Settings to be specified. GSM modems also require the Service Provider, Access Point Name (APN), and possible APN Username and APN Password, provided by the cellular Service Provider.



# COLLECT DATA

## CELL MODEM

### Activate Modem

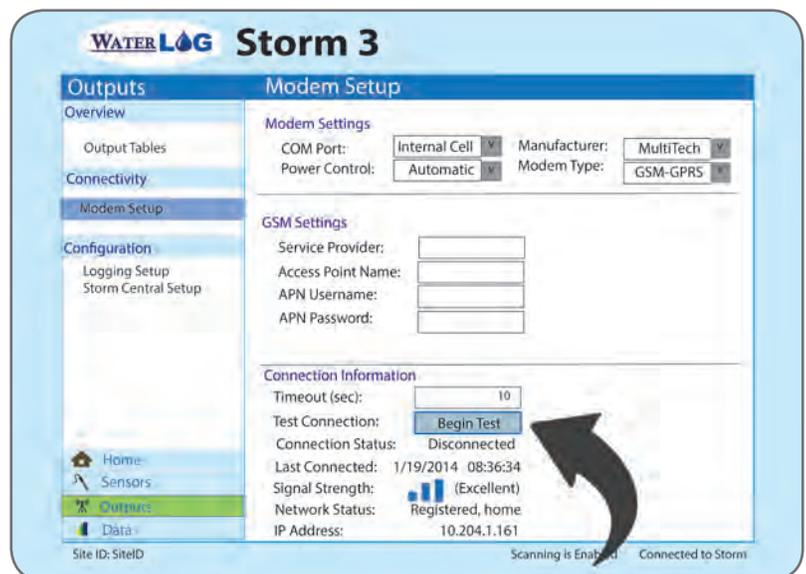
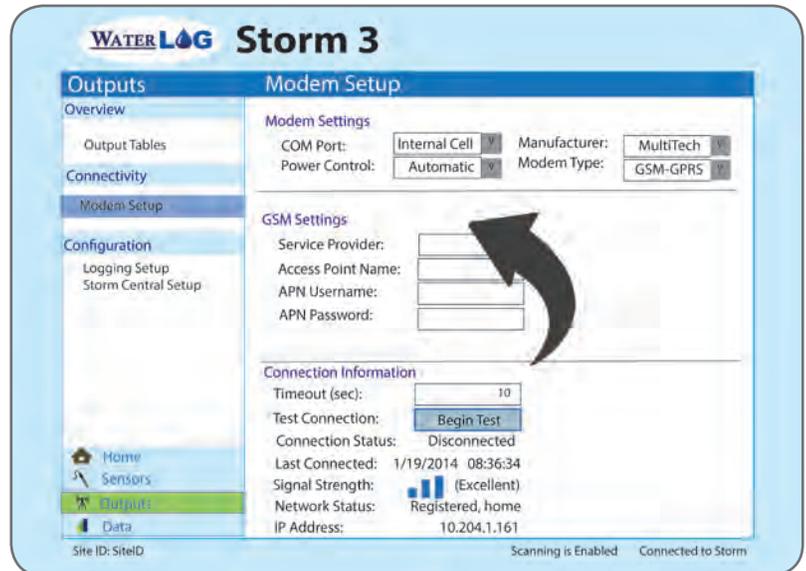
For a modem to successfully communicate, it must first be activated. Modems supplied by WaterLOG are deactivated prior to shipping to prevent unwanted charges to your account. If the cellular service was purchased through WaterLOG Sales, contact your WaterLOG Sales Representative via one of the methods mentioned above and request activation of your modem. Activation takes just a few minutes.

Note: If you have your own cellular service, be sure to have it activated. If using a GSM service provider, also have your SIM card installed, and GSM Settings specified.

The Timeout (sec) field allows the various timeouts within the modem initialization scripts to be altered. Generally, a 10 second timeout is enough for areas with good signal strength. However, it may be necessary to increase the timeout period (perhaps to 15 or 20 seconds) in order to allow the modem more time to initialize and find a signal. It may be wise to test the connection a couple of times with various timeouts to determine the best setting for your particular area.

### Press Test Button

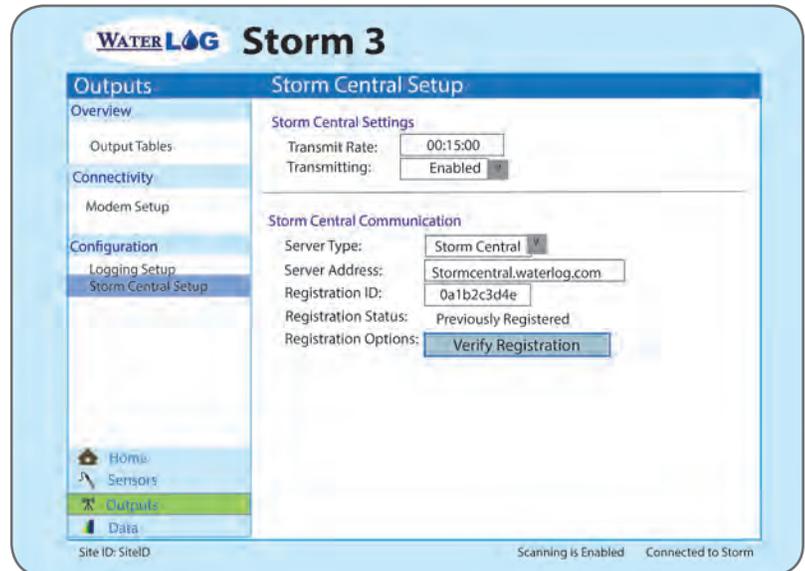
Once the modem has been configured, press the 'Begin Test' button under the Connection Information section to test the modem settings. The modem will power up and initialize. It will then check its activation status by testing its Signal Strength, retrieving its Network Status, and looking for an IP Address. The Connection Status will update as it performs its tests. If all settings are correct and the connection was successful, the IP address field will be filled in (e.g. 10.204.1.161). An IP address indicates the modem setup is complete.



## Setup Page

To complete the connection setup with Storm Central, navigate to the Storm Central Setup page on the Storm data logger.

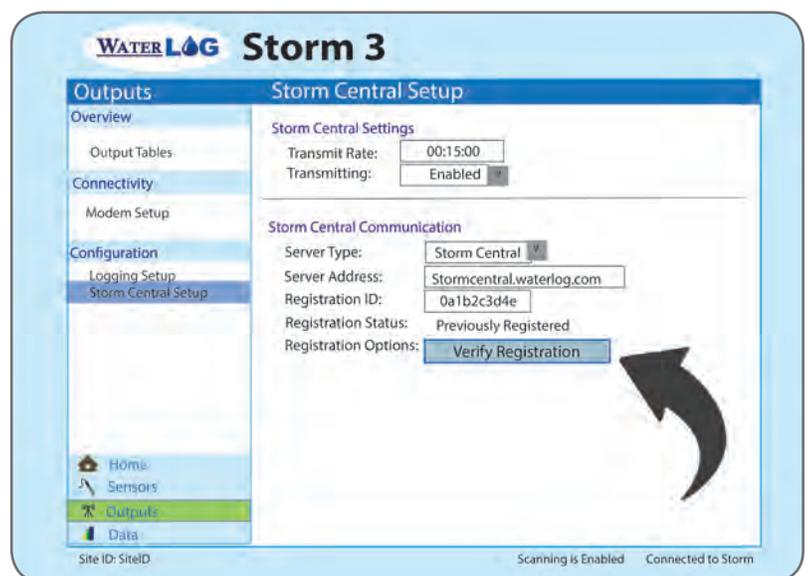
The Transmit Rate determines the rate at which your Storm data is transmitted to Storm Central. This rate should not be faster than any Scan Rate on the Storm data logger. If the Transmit Rate is slower than Sensor Scan Rates, any data collected since the last transmission will be transmitted to Storm Central on its next connection.

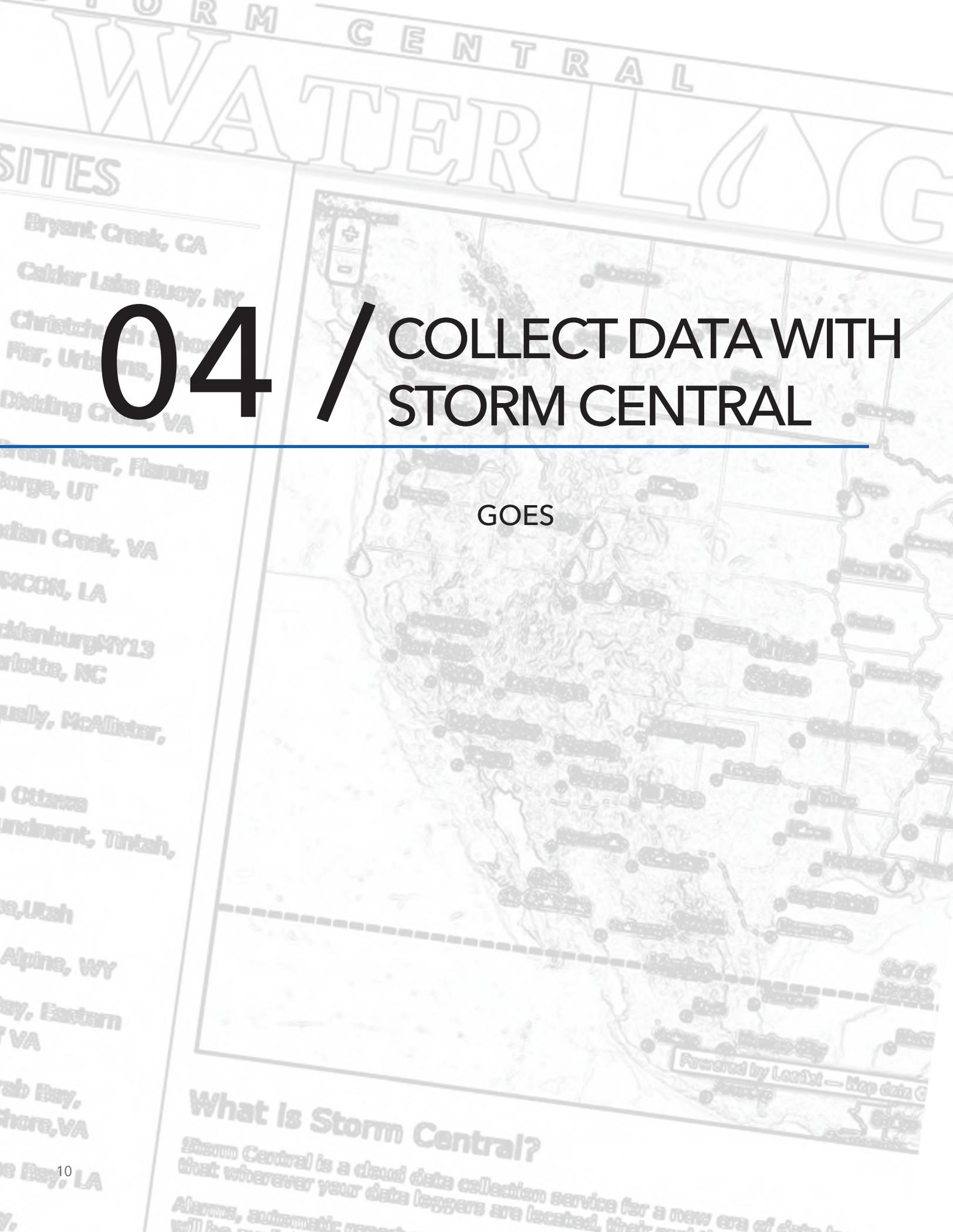


Select Storm Central from the Server Type field and enter the Registration ID retrieved from Storm Central as detailed in step three. The Registration ID is case-sensitive, be sure to enter it exactly as shown on Storm Central.

## Verify Registration

The final step is to press the Verify Registration button to have the modem communicate with Storm Central. When the Registration ID is verified, Storm Central links and sets up the Storm data logger on your account. Next time you log in to Storm Central, the Site will be available. All future updates to the Storm data logger will be replicated on Storm Central and data will begin flowing in at the next transmission. Your Storm Central setup is now complete.





# SITES

- Bryant Creek, CA
- Caldor Lake Buoy, NY
- Christchurch & ...
- Fior, Urbana, IA
- Dividing Creek, VA
- Green River, Flaming
- Large, UT
- Indian Creek, VA
- MON, LA
- Menburg NY13
- Charlotte, NC
- usly, McAllister,
- Ottawa
- undant, Tintah,
- se, Utah
- Alpina, WY
- ay, Eastern
- VA
- rab Bay,
- shore, VA
- e Bay, LA
- y.

# 04

# COLLECT DATA WITH STORM CENTRAL

GOES

## What is Storm Central?

Storm Central is a cloud data collection service for a new era of data that wherever your data loggers are located, their data will be automatically reported to the cloud.

Alarms, automatic reports...

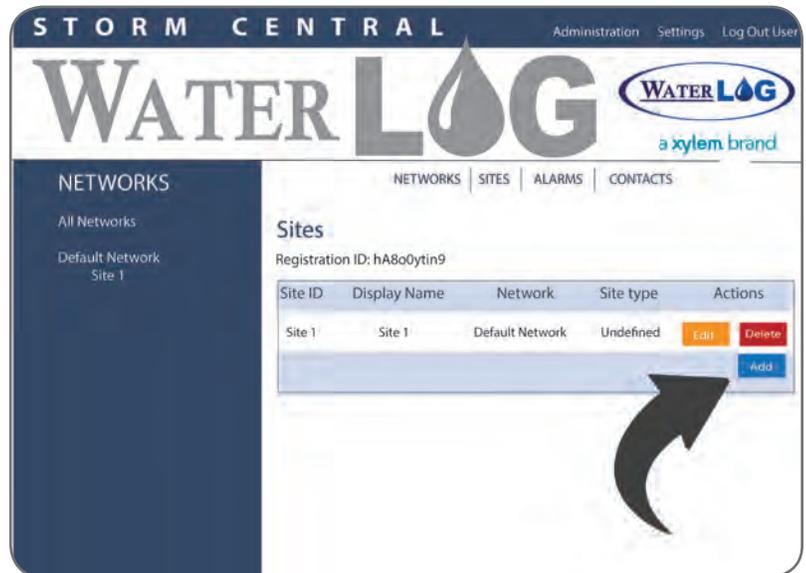
## Collect Data with Storm Central

Storm Central can also retrieve and display data from GOES Sites using WaterLog's GOES data formats. Decoding of both Psuedo-Binary and ASCII (SHEF) formats is fully supported. Setting up a GOES Site is a simple process.

### Add a GOES Site

Log in to Storm Central and navigate to Sites through the Administration link. Press the 'Add' button at the bottom of the Sites table to add a new Site. Under the Site Setup screen for that Site, select GOES as the Site Type.

Note: In order for Storm Central to accurately retrieve and decode GOES data, all aspects of the GOES transmission needs to be configured. The settings must match the data being retrieved or the data decoding will fail. In addition to the transmission settings, the number of Data Columns must match the number of sensors being retrieved.



### Validate Entered Information

Once the settings have been configured, press the 'Get Last Tx' button to validate the entered information. Storm Central will attempt to retrieve the last GOES transmission and decode the data according settings. Data that is successfully decoded will be displayed in the Processed Data section further down on the page. It will appear in a tabular format identical to how it will display on the Site Details page.

Note: Be sure to review this data carefully to verify it is decoded correctly. If the data in the Processed Data window is not correct, pressing the Delete Last Tx button will remove the displayed information from your Site's data storage.



# COLLECT DATA

## GOES

### Continue Retrieval

When the Processed Data appears correct, your GOES Site setup is complete. GOES Data will continue to be retrieved based on the Transmit Rate and Transmit Offset intervals specified for the Site.

GOES data generally does not include any type of date or time associated to the data values. Storm Central timestamps each piece of data according to the time the transmission arrived, which is based on Universal Coordinated Time (UTC).

The screenshot shows the 'STORM CENTRAL WATER LOG' interface. The 'SITES' tab is active, displaying 'Site Data Setup' for a GOES site with address 177EB1A0. Below this, the 'Self-Timed Settings' are listed in a table format. A large black arrow points to the 'Channel' field, which is set to 105.

Setting	Value
Channel:	105
Transmit Rate:	01:00:00
Transmit Offset:	00:11:24
Transmit Window:	15
Data Centered In Window:	Yes
Baud Rate:	300
Data Format:	Binary
Data Order:	Channel
Data Sent First:	Newest
SHEF Headers:	No
Appended Battery:	No
Redundant Data Sets:	0
Timestamp offset:	00:00:00

### Test Timestamp Effects

In most cases, the data logger's time zone is not UTC. As such, a Timestamp Offset field is available to shift the timestamps of the data being collected back to resemble that of the data logger. The effects of the Timestamp Offset field can be easily tested by pressing the Get Last Tx button to see its effects on the timestamps associated with the data.

This screenshot shows the 'Self-Timed Settings' and 'Data Setup' sections of the interface. A large black arrow points to the 'Get Last Tx' button. Below the settings, a table shows the 'Data Setup' for four columns. At the bottom, the 'Raw Tx' field displays a long alphanumeric string.

Setting	Value
Channel:	105
Transmit Rate:	01:00:00
Transmit Offset:	00:11:24
Transmit Window:	15
Data Centered In Window:	Yes
Baud Rate:	300
Data Format:	Binary
Data Order:	Channel
Data Sent First:	Newest
SHEF Headers:	No
Appended Battery:	No
Redundant Data Sets:	0
Timestamp offset:	00:00:00

Column	1	2	3	4
Name:	Column1	Column2	Column3	Column4
Scan Rate:	00:07:30	00:07:30	00:07:30	00:30:00
Bytes:	3	3	3	3
Digits:	2	2	2	2
Sign Mode:	Signed	Signed	Signed	Signed
Actions:	Remove	Remove	Remove	Remove

Raw Tx: 177EB1A012324201124G45+dNN105EUPD0083'BCT@@F@@G@@G@@H@@

## Example

An example GOES Binary Site setup is detailed below. The options listed should be familiar as they follow the same layout and format as presented on a WaterLog data logger.

SITES
NETWORKS
SITES
ALARMS
CONTACTS

### Site Data Setup

Site Type: GOES  
GOES Address: 177EB1A0

#### Self-Timed Settings

Channel:	105
Transmit Rate:	01:00:00
Transmit Offset:	00:11:24
Transmit Window:	15
Data Centered In Window:	Yes
Baud Rate:	300
Data Format:	Binary
Data Order:	Channel
Data Sent First:	Newest
SHEF Headers:	No
Appended Battery:	No
Redundant Data Sets:	0
Timestamp offset:	00:00:00

Data Setup:

Column:	1	2	3	4
Name:	Column1	Column2	Column3	Column4
Scan Rate:	00:07:30	00:07:30	00:07:30	00:30:00
Bytes:	3	3	3	3
Digits:	2	2	2	2
Sign Mode:	Signed	Signed	Signed	Signed
Actions:	Remove	Remove	Remove	Remove

Validate Setup: Get Last Tx

Raw Tx:  
177EB1Ao12324201124G45+dNN105EUPD0083 BCT@@F@@G@@H@@H@

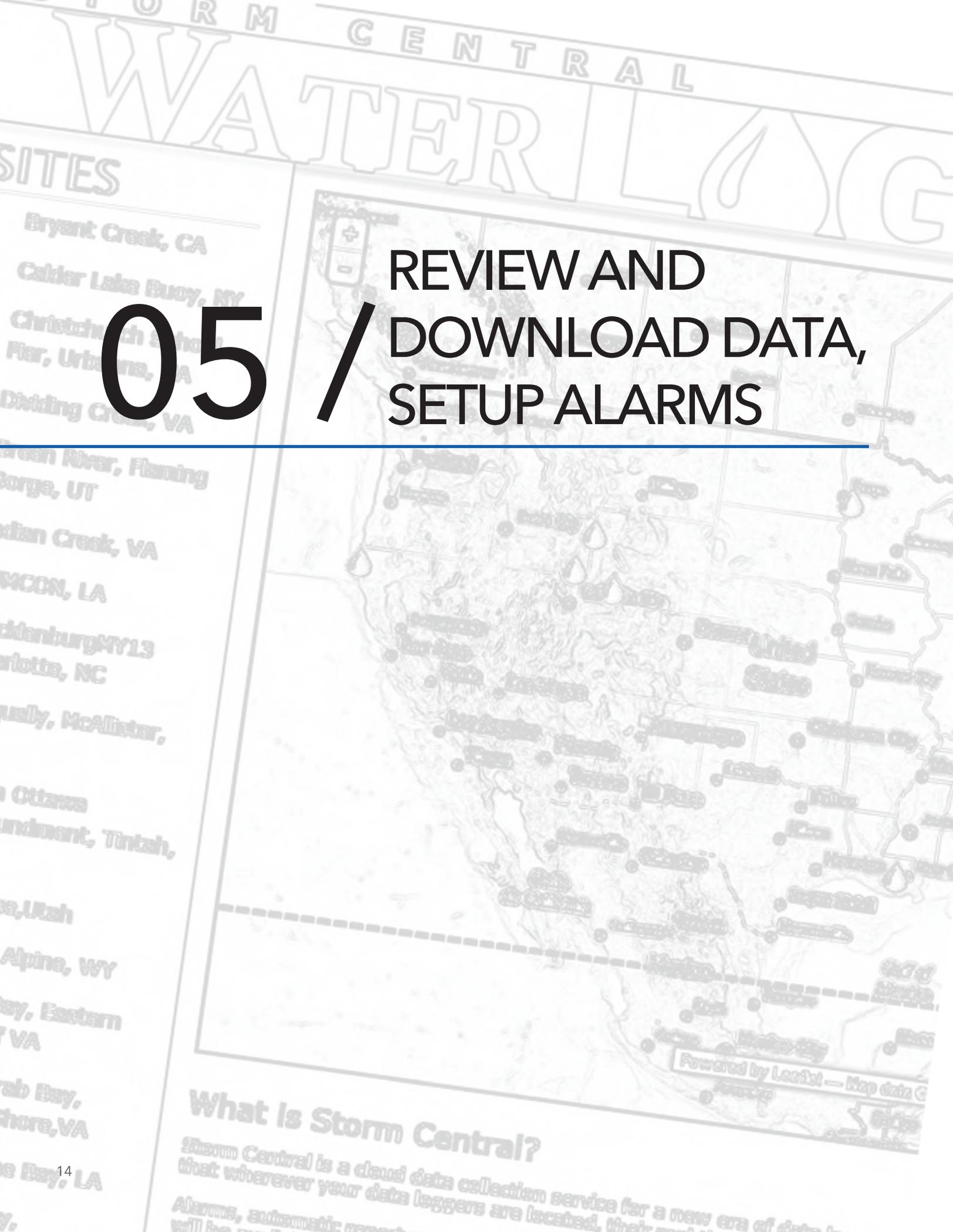
Processed Header Info:

GOES Address:	177EB1A0	Frequency Offset:	+0 Hz	Satellite:	East
Transmit Start:	1/19/2014 20:11:24	Modulation Index:	Normal	Uplink Status:	Up
Transmit Quality:	Good	Data Quality:	Normal	Data Length:	00083
Signal Strength:	45	Channel Number:	105	Sync Byte:	Binary, no sync

Processed Data:

Date	Time	Column1	Column2	Column3	Column4
1/19/2014	20:07:30	0.06	1.14	12.60	
1/19/2014	20:00:00	0.07	1.14	12.60	14.25
1/19/2014	19:52:30	0.07	1.14	12.70	
1/19/2014	19:45:00	0.07	1.14	12.70	
1/19/2014	19:37:30	0.08	1.14	12.60	
1/19/2014	19:30:00	0.08	1.14	12.80	14.25

Remove above data from Storm Central database: Delete Last Tx

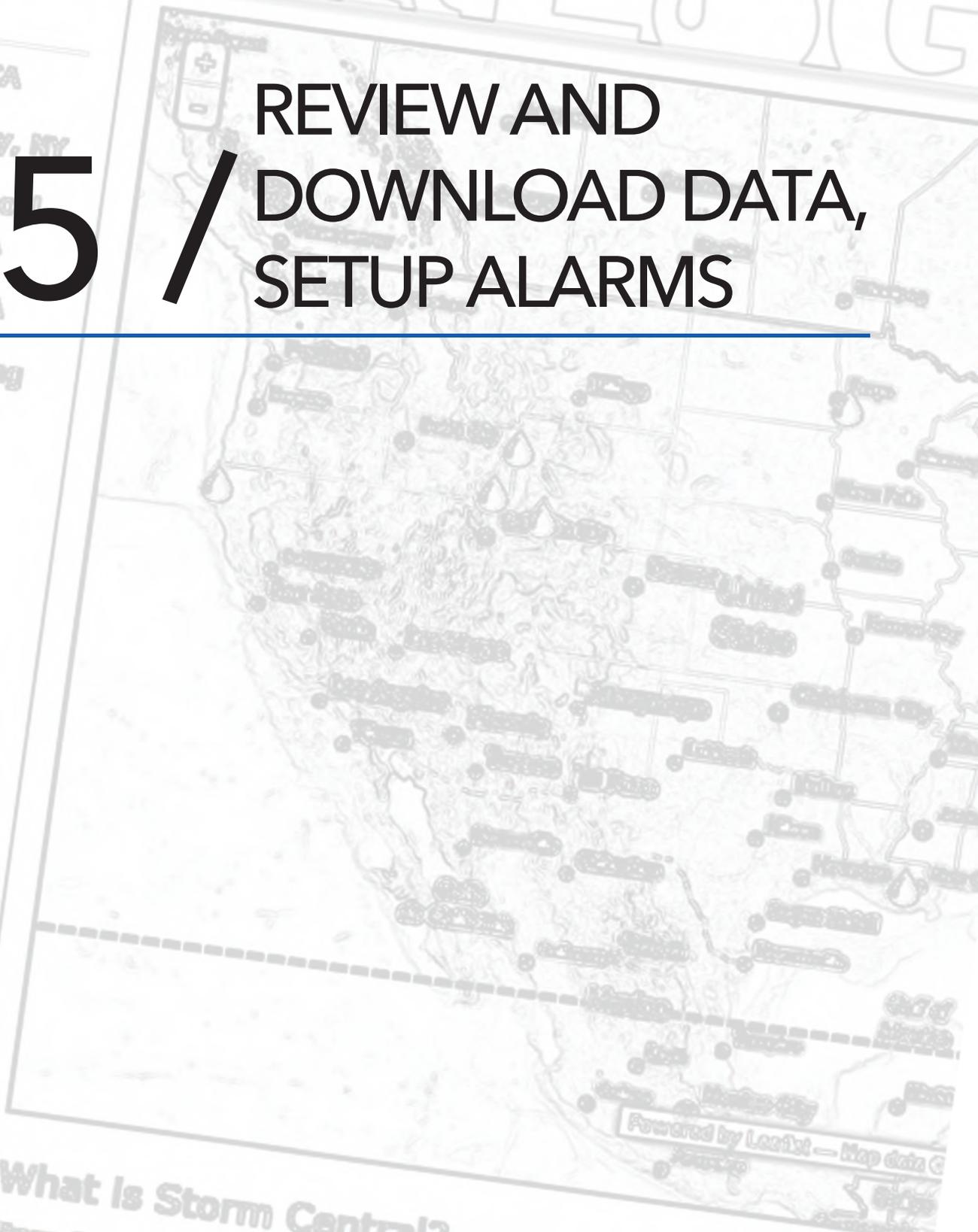


05 /

# REVIEW AND DOWNLOAD DATA, SETUP ALARMS

## SITES

- Bryant Creek, CA
- Caldor Lake Buoy, NY
- Christchurch School of the Holy Trinity, Urbana, VA
- Dividing Creek, VA
- Green River, Flamingo, UT
- Indian Creek, VA
- MON, LA
- Manburg NY13
- Charlotte, NC
- usly, McAllister,
- Ottawa
- undant, Tintah,
- Utah
- Alpina, WY
- ay, Eastern VA
- rab Bay,
- shore, VA
- e Bay, LA



## What is Storm Central?

Storm Central is a cloud data collection service for a new era of data that wherever your data loggers are located, their data will be...

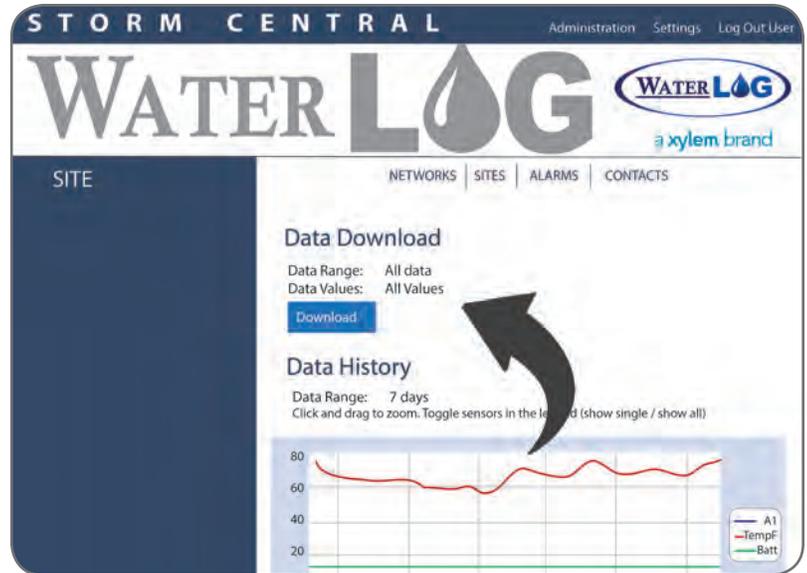
Alarms, automatic reports...

Review and Download Data

## Review and Download Data

Once data is being collected by Storm Central, the data can be reviewed and downloaded at any time using the Site Details screen. To access Site Details, simply click on the name of the site after logging into Storm Central. Data is presented in both graphical and tabular views that make it easy to see trends and view the raw data.

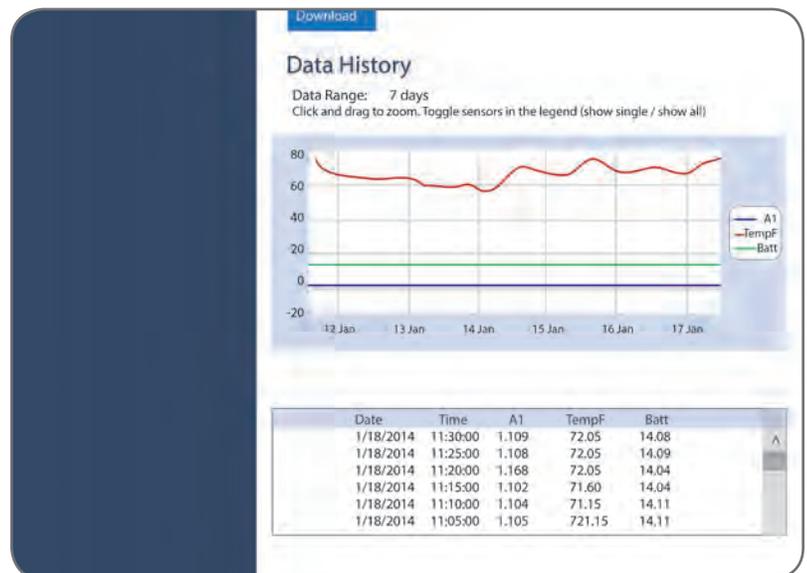
Downloading data can be done either by downloading the entire data set or by selecting a date from which to start the data download. Data files are presented in a spreadsheet-friendly comma-separated format (.csv).



## Setup Alarms

Alarms can be simple to set up and very useful for identifying potential problems. Whether managing a large Network or just a few small Sites, Storm Central can help collect, store, and organize your data. With the added functionality of Alarms, Storm Central can notify you when an issue arises before it becomes a major problem.

Data within Storm Central, regardless of how the data is collected, can be analyzed and evaluated. Based on those evaluations, an action or notification can occur, such as changing the color of an icon on your map or sending out an e-mail or SMS (text) message. These automatic evaluations and resulting actions are called Alarms.

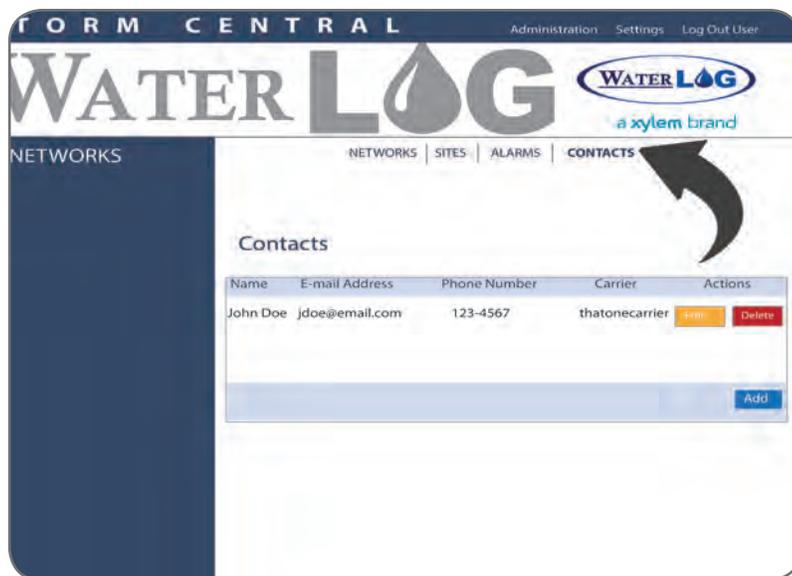


# SETUP ALARMS

## Add Contacts

Alarms are located under the Administration link after logging into Storm Central. In order to notify individuals about an Alarm condition using e-mail or SMS, Contacts will need to be added to your account. The Contacts link is next to Alarms under Administration. Contacts can be easily added or removed and only require a few pieces of information (name, phone number, e-mail address, etc).

Storm Central enables both Simple and Advanced Alarms to be created. Simple Alarms typically consist of a single sensor value compared to a given set point or range of values. Advanced Alarms allow multiple sensor values from potentially multiple sites to be compared and contrasted. When a Simple Alarm is created, its Advanced Alarm counterpart is also automatically generated, giving you access to the exact syntax required for an Advanced Alarm.



## Alarm Components

An Alarm consists of three main components: the Alarm Information, the Alarm Condition, and the Alarm Actions & Notifications. The Alarm Information simply provides information about the Alarm. The Alarm Condition allows the specific requirements of the Alarm to be determined. The Alarm Actions & Notifications specifies what will happen when the Alarm is triggered.

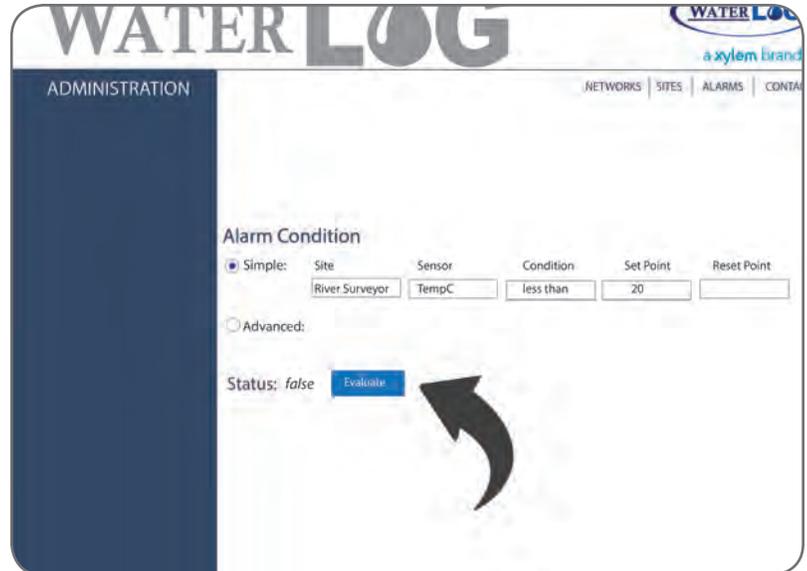
Alarms are evaluated every time new data is stored in your Storm Central account. As each Alarm is logically evaluated, its result must be either true or false. When an Alarm becomes to true, an Action and/or Notification can occur. Notifications such as E-mail and SMS Text Messages are Alarm-specific and can vary per Alarm.

The simplest of Alarms consist of comparing a Sensor's data value to a provided Set Point. For example, the following partial screenshot shows an Alarm Condition that will evaluate to true when the TempC data value of the River Surveyor Site is less than 20. The optional Reset Point allows the Alarm to only re-evaluate to true once the Reset Point has been reached. In other words, if a Reset Point of 25 was specified, the Alarm would only be true once the TempC data point became higher than 25, then dipped back below 20 again. Reset Points can be useful for data values that may hover around a certain threshold, but should not send a notification every time the threshold is crossed.

Setup Alarms

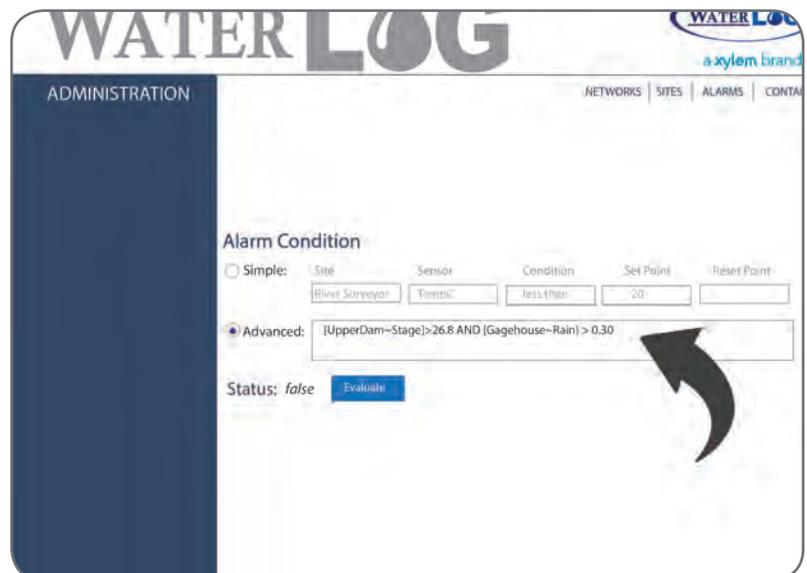
## Test an Alarm

Testing an Alarm is performed by pressing Evaluate button. If the result of the Condition is true and the Alarm has not been disabled, all Actions and Notifications will also be run. If an error is displayed, a syntax or typographical error was discovered when trying to evaluate the Alarm Condition. It will need to be corrected before the Condition can be properly evaluated.



## Complex Alarm

If a more complex Alarm is desired, the Advanced Alarm Condition can be used to describe nearly any combination of Sites, Sensors, and other functions. For example, the image on the right shows an Alarm Condition that will evaluate to true when Stage from the UpperDam Site is greater than 26.8 and Rain from the GageHouse Site is greater than 0.30.



Supported syntax: Retrieve the latest value of a Site's Sensor (case-sensitive): [SiteName~Sensor] Logical operators: OR, AND, ==, !=, >, <, >=, <= Built-in functions: RSUM, MIN, MAX where RSUM is the Reimann Sum. Syntax for these functions is Function(x,y) where x is a [SiteName~Sensor], and y is the number of previous samples from the most recent to include in the calculation. For example, MIN([Site1~Battery],5) would retrieve the minimum Battery value from the last five samples recorded for Site1. Retrieve the result of another Alarm (case-sensitive): {AlarmName}

Using another Alarm's result can help you set up differing levels of Alarms. For example, if you already had an UpperDamAlarm set up, you could rewrite the above Advanced Condition as {UpperDamAlarm} AND [GageHouse~Rain] > 0.30.

# What Can Xylem Do For You?

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're 12,900 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

**For more information on how Xylem can help you, go to [www.xyleminc.com](http://www.xyleminc.com)**



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Internet: [www.waterlog.com](http://www.waterlog.com)

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Item#360427 dqg#360427  
January 2014 Rev B