

A Cloud Based Management System



# Explorer

Software Manual

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# Section 1

# INTRODUCTION

## 1.1 OVERVIEW

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The purpose of this Explorer Manual is to provide users with guidance on how to use the features of Explorer.

**Key features include:**

- Sensor data delivery to user
- Sensor alarm notifications
- Two-way communication between user and sensors
- User controlled sensor and gateway configuration

This introductory section will instruct users on how to register, log in/out, and basic navigation of the website.

The “Using Explorer” section will cover the main features of Explorer and show step-by-step instructions on how to use them.

If a user is having trouble or receiving error messages, the “Troubleshooting & Support” section will instruct users on how to best resolve their issues.

## 1.2 REGISTRATION


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To use Explorer a user must be registered. To get to the Registration page, click on the “Sign Up” icon in the top right of the Login page.



*Sign Up Icon*

Fill in the requested information and click the “Sign Up” button.

A dark registration form with rounded corners. At the top left is a circular placeholder for a profile picture. Below it are five input fields, each with a label to its left: "Username", "First Name", "Last Name", "Email", and "Password". At the bottom left is a "Sign Up" button.

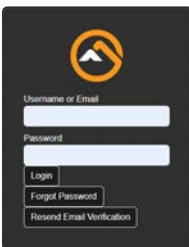
*Registration*

A verification email will be sent to the provided email address, and once verification has been completed the user will be registered.

## 1.3 LOG IN

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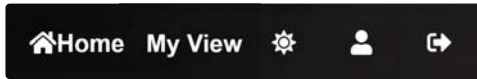
Users will need to input their username and password to log into Explorer.

A dark login form with rounded corners. At the top center is the Explorer logo (a mountain peak inside a circle). Below it are two input fields: "Username or Email" and "Password". At the bottom are three buttons: "Login", "Forgot Password", and "Resend Email Verification".

*Log In*

If a user has forgotten their password, they can click the “Forgot Password” button to create a new password.

## 1.4 ORGANIZATION & NAVIGATION



Basic Navigation Icons

From left to right:

- “Home”
- My View
- Dark/Light Mode Toggle
- Profile
- Log Out

### 1.4.1 HOME PAGE

The Home Page dashboard is divided into three main sections:

- My Bookmarked Sensors:** A table listing sensors with their names, models, gateway names, last readings, and last communication times.
- Communication status for May 2024:** A table showing uplink and downlink counts for specific gateway IDs.
- My Map with active gateways:** A map of the United States and parts of Mexico showing the locations of active gateways.

Sensor Name	Sensor Model	Gateway Name	Last Reading	Last Communication
Temperature Sensor	TSS_44	F-0x0200 - The Umbrella one	15.56 °C	May 21st 24, 2:25:00 pm
Soil Sensor	SES	F-0x0200 - VersalMount_1	5.6	May 21st 24, 4:52:00 am
Wind Sensor	LWM	F-0x0200 - VersalMount_1	1.98 km/h	May 21st 24, 4:52:00 am
Snow	MPX_X3	F-0x0200 - The Umbrella one	0.163 in	May 21st 24, 2:25:00 pm
read0x1	undefined	F-0x0200 - VersalMount_1	No Data	Invalid date

Name	Uplink Count	Downlink Count
F-0x0200	0	471
F-0x02006	0	483
F-0x02017	2	487

Home Page

The “Home” page has three displays: most recent communications, monthly communications, and a map of active gateways. It is designed to give users a brief overview of their gateways.

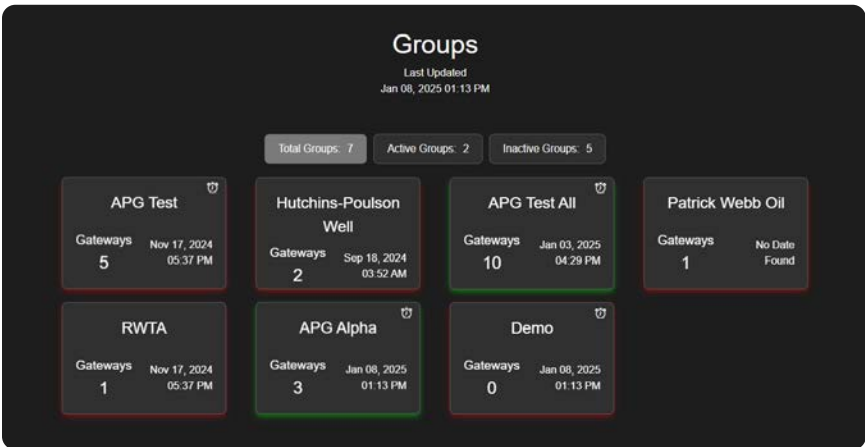
- The most recent communications displays the five most recent communications from the current gateways.
- The monthly communications display keeps track of uplink and downlink communications for the current months for each of the current user’s gateways.
- The gateways shows where the gateways are located based on telemetry data. This will only show if the current user has access to the gateway’s GPS telemetry.

## 1.4.2 MY VIEW

The “My View” page is the principle page for navigating and interacting with your gateways and sensors. This page allows users to drill down to specific information while also providing overview information at every level.

There are four different levels of information: Group, Gateway, Sensor, and Register. The Group and Gateway levels show detailed information and configuration settings of their respective level.

- “My Sensors”** One of the navigation controls that shows your current position in different levels. Each indented group is a different level, starting at the Group level and ending at the Sensor level.
- Root Level** At the root level you will see all the groups you have access to as cards. These group cards show the group name, the number of gateways in that group, a timestamp of the most recent communication for all those gateways, and aggregated informational icons (see section 1.4.3).
- Group level** At the group level you will see all the gateways that are members of the currently selected group. The gateway cards show the gateway name, the number of sensors in the gateway, a timestamp of the most recent communication for all the sensors, and aggregated informational icons (see section 1.4.3).



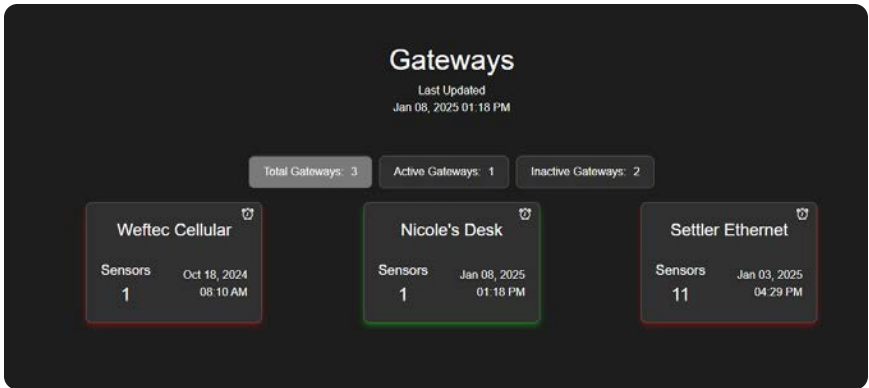
The screenshot shows a dashboard titled "Groups" with a "Last Updated" timestamp of "Jan 08, 2025 01:13 PM". At the top, there are three summary buttons: "Total Groups: 7", "Active Groups: 2", and "Inactive Groups: 5". Below these are seven group cards arranged in two rows. Each card displays the group name, the number of gateways, and the most recent communication timestamp. The "APG Test All" card is highlighted with a green border.

Group Name	Gateways	Last Update
APG Test	5	Nov 17, 2024 05:37 PM
Hutchins-Poulson Well	2	Sep 18, 2024 03:52 AM
APG Test All	10	Jan 03, 2025 04:29 PM
Patrick Webb Oil	1	No Date Found
RWTA	1	Nov 17, 2024 05:37 PM
APG Alpha	3	Jan 08, 2025 01:13 PM
Demo	0	Jan 08, 2025 01:13 PM

Group Cards



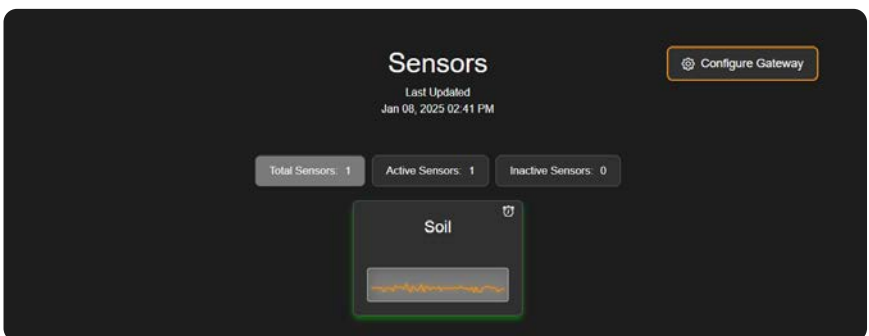
- Gateway Cards** The gateway level shows each sensor that is attached to the currently selected gateway. These sensor cards display the sensor name, a sparkline of the last 30 readings of the sensor, and informational icons (see section 1.4.3).



Gateway Cards

- Sensor Level & Register Level** **Overview:** Displays gateway and sensor specific information, as well as the register selection (see section 2.4.3).

**Tabbed Layout:** Detailed information and configurations for the currently selected sensor and register. Section 3 of this manual covers each tab.



Sensor Cards

## 1.4.3 CARD ICONS

The card icons appear throughout the Groups, Gateways, and Sensors views.

Displayed from left to right:

- **Blinking Red Alarm Clock** Indicates an active alarm.
- **Alarm Clock (White/Black)** Indicates that alarms have been set (color depends on the selected theme).
- **Orange Envelope** Signifies that there are pending messages that need to be sent to the gateways.
- **Yellow Triangle with Exclamation Point** Represents errors or timeouts encountered when a gateway attempts to communicate with a sensor (e.g., protocol errors or timeouts).
- **Hover Functionality** Hovering over any icon displays count information:
  - “3 Alarms Set”
  - “1 Alarm Triggered”
  - “6 pending Messages”
  - “4 Errors/Timeouts”



## 1.5 LOG OUT

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Log Out

Clicking on the Log Out icon will immediately log out the current user and direct the current user to the Log In page.

## Section 2

# USING EXPLORER

The following sub-sections provide detailed, step-by-step instructions on how to use the various functions or features of Explorer.

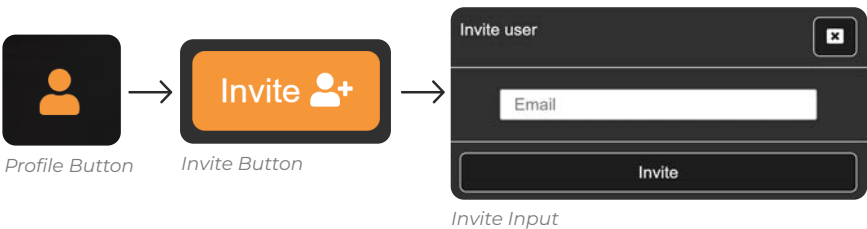
## 2.1 INVITATIONS & PHANTOM USERS

Invitations can be sent to email addresses from the Profile page.

Once an invitation has been sent, a “Phantom” user is created with the inviter’s current configuration and access attributes. These Phantom users can then be added to groups and have access attributes modified. When the invitee registers, the Phantom user becomes a regular user.

### 2.1.1 HOW TO INVITE OTHER USERS

- **Step 1** Click the Profile Button in the upper right-hand corner.
- **Step 2** Click the Invite Button.
- **Step 3** Input the invitee’s email address, click “Invite”.



## 2.2 GATEWAYS

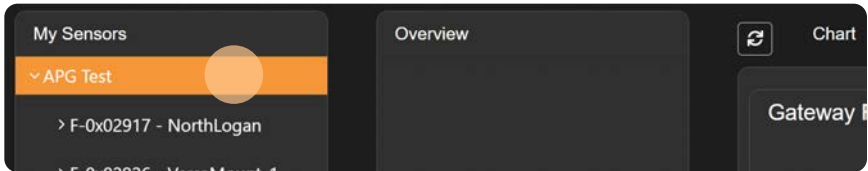
Gateways are a piece of the gateway system that communicates between the sensors and the website. All users can control the communication frequencies as well as the request register readings from the “Gateway Control” tab:

**Step 1** Click “My View”.



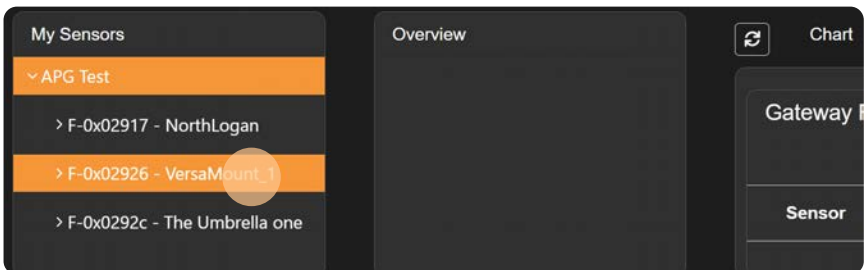
My View Button

**Step 2** Select the group the gateway is a member of.



Gateway Group

**Step 3** Select the gateway.



Gateway

## 2.2.1 GATEWAY READING CONTROL (GRC)

Gateway Reading Control allows the user to determine how a gateway device communicates with its sensors.

- **Sensors** Previously define sensor selection.
- **Modbus Sensors**
  - Register Address:** The Modbus register address to read
  - Register Quantity:** The number of registers to read starting at "Register Address" value.

Sensor	Register Address	Register Quantity	Function	Function Description
Soil	0	1	3	Modbus read holding register (MD F3)

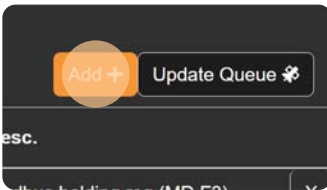
- **4-20mA Sensors**
  - Power Line:** Which power line communicates with the 4-20mA sensor.

Sensor	Power Line	Function	Function Description
4-20mA4, MPX 2	1	30	Request to read 4-20mA input

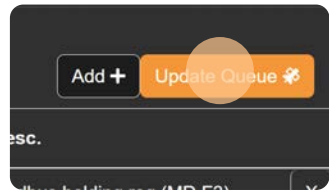
- **Function** The type of read (protocol dependent).

## 2.2.2 HOW TO CREATE A NEW GATEWAY READING CONTROL

- **Step 1** Click "Add".
- **Step 2** Adjust row as needed.
- **Step 3** Click "Update Queue".



GRC Add Button



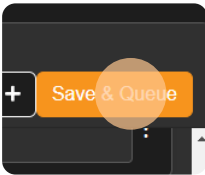
GRC Update Queue Button

## 2.2.3 HOW TO DELETE A GATEWAY READING CONTROL



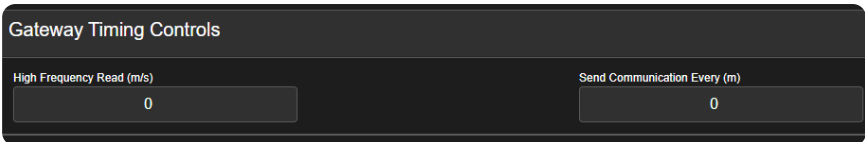
GRC Delete Button

- **Step 1** Click the 3 vertical dots to see the menu.
- **Step 2** Click “Delete”.
- **Step 3** Click “Save & Queue”.



GRC Save & Queue Button

## 2.2.4 GATEWAY COMMUNICATION SETTINGS



Gateway Timing Controls

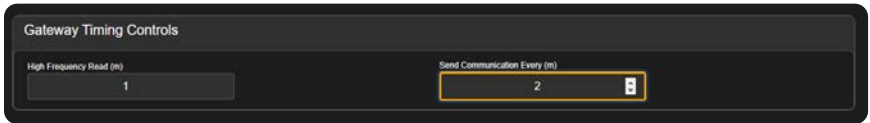
Users can adjust gateway sensor reading and communication settings according to their need. See Section 2.2.1 for a description of the configuration settings.

**Step 1** Click “Gateway Control”.



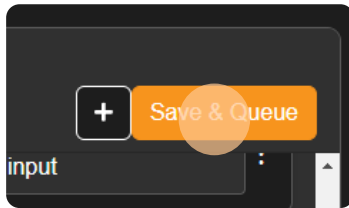
Gateway Control Menu Options

**Step 2** Adjust communications settings.



*Communication Settings Adjustment*

**Step 3** Click “Save & Queue” to confirm changes.



*Gateway Control Update Queue*

**Table 1. Gateway Configuration**

Setting	Description	Default
High Frequency Read (minutes)	How often the gateway will read sensor values without sending (used for alarm detection).	10
Send Comm. Every (minutes)	How often the gateway will read and send sensor values.	60

## 2.2.5 GATEWAY LOCATION

If a user has access to GPS data, then they will see a “Gateway Location” tab in My View that shows the gateway’s recorded location.

This feature requires gateway telemetry data that may not always be available.

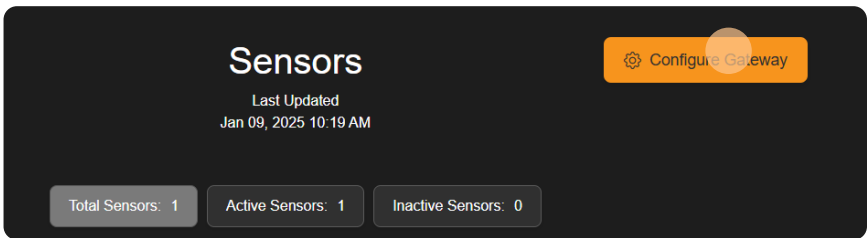
\*Note that Ethernet-connected gateways will not have GPS data, but they will be able to set the GPS location themselves.



Gateway Location

## 2.2.6 GATEWAY CONFIGURATION WIZARD

On the Sensors page in My View, you can use the gateway configuration wizard by clicking on the “Configure Gateway” button.



Configure Gateway Button



**Wizard Step 1** Name the gateway. The name will save when you click “Next”.

**Gateway Configuration**

**Step 1: Gateway Name**

Welcome to the Gateway Configuration wizard. Let's start by setting the Gateway's name:

Gateway Name

Click **Next** to continue.

Back Next

**Wizard Step 2** Add sensor configurations to the gateway. The sensors will save when you click “Next”.

GCRs (see 2.2.1) will be created and saved automatically from these definitions.

**New Modbus Sensor** Hide Details 🗑️

Sensor Model

Sensor Name

Modbus ID

Reading Registers

Starting Address	Register Quantity	Function Code	🗑️
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="299"/>	<input type="text" value="1"/>	<input type="text" value="03"/>	<input type="text"/>
<input type="text" value="300"/>	<input type="text" value="1"/>	<input type="text" value="04"/>	<input type="text"/>

Default Register

Once you have finished adding sensors, click **Next** to configure the Gateway timings.

### New 4-20mA Sensor

Hide Details 🗑️

Sensor Model	Other - 4-20mA
Sensor Name	New 4-20mA Sensor
Power Line	2

### Gateway Configuration

×

#### Step 2: Add Sensors

Define your sensors for this Gateway.

+ Add Sensor

#### Soil

Hide Details 🗑️

Sensor Model	SES - Modbus
Sensor Name	Soil
Modbus ID	1
Reading Registers	8 addresses selected
Default Register	0

#### Adding APG Modbus sensor:

- Select the corresponding APG sensor model from the Sensor Model Dropdown.
- Name the sensor.
- Set the Modbus ID
- Select which registers you'd like to track with the Reading Registers dropdown.  
\*Note: These registers are pre-configured based on the APG Model selected.
- Select the default register from the Reading Registers you selected above. This can be changed later, see Section 2.4.3

### Adding Generic Modbus sensor:

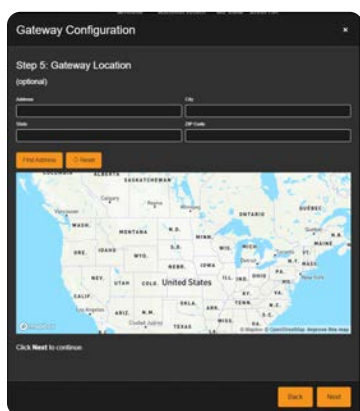
- Select the “Other—Modbus” model from the Sensor Model.
- Name the sensor.
- Set the Modbus ID.
- Click on the plus sign to add a register definition.
  - Define the starting register, the number of registers to read, and the Modbus function code.
  - Repeat until you have added all the registers you wish to read from.
- Select the default registers from the Reading Registers you added. This can be changed later, see Section 2.4.3.

### Adding 4-20mA Sensors:

- Select the sensor model.
  - Select “Other—4-20mA” for non-APG sensors.
- Name the sensor.
- Set the 4-20mA power line

**Wizard Step 3** Gateway Timings. The timings will save when you click “Next”.

Set the gateway communication settings. See section 2.2.4



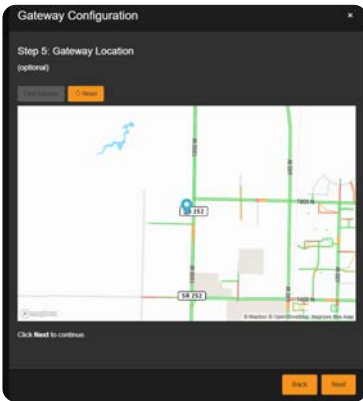
Unset Location

**Wizard Step 4** Gateway Alarms (optional). Any alarms you define will be saved and the Set Alarms command will be queued in the Message Center when you click “Next”.

Set gateway alarms. See Section 2.3

**Wizard Step 5** Gateway Location (optional). The location will be saved when you click “Next”.

This step shows a map of the current location of the gateway.



Set Location

If the location is already set, then you'll see a marker of the currently set location.

If the current location is wrong, or you've never set the location:

- Fill in the address with all fields.
- Click "Find Address".
- The map should zoom to the address provided, and place a marker on the map.

**Wizard Step 6** Clicking "Finish" will complete the wizard. Any pending commands in the message center will be sent.

## 2.3 SENSOR ALARMS

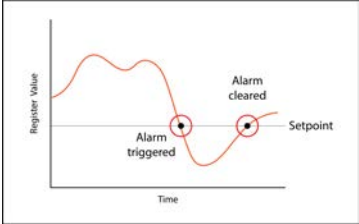
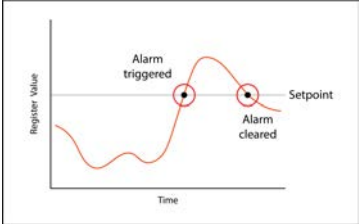
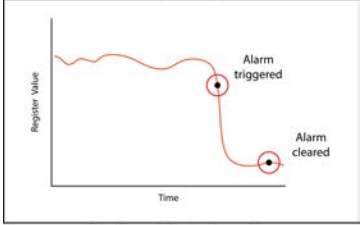
Alarms are handled at the gateway level but are defined at the sensor level. When a user selects the Alarm tab in My View they will see all sensors' set alarms and alarm history for the gateway.

Sensor	Status	Alarm Value	Sensor Value	Triggered On	Receive	Acknowledged By
Temperature Sensor	Inactive	10	9.21			
Temperature Sensor	Inactive	10	9.25			
Temperature Sensor	Inactive	10	11.04	May 1st 24, 6:35:00 pm	May 2nd 24, 11:47:17 pm	Apr 24th 24, 4:16:00 am
Temperature Sensor	Inactive	10	10.56	May 1st 24, 5:15:00 pm	May 2nd 24, 11:47:11 pm	May 1st 24, 7:15:00 pm
Temperature Sensor	Inactive	10	10.36	Apr 30th 24, 11:35:00 am	Apr 30th 24, 11:45:27 pm	May 1st 24, 5:35:00 pm
Temperature Sensor	Inactive	10	10.59	Apr 30th 24, 10:15:00 am	May 1st 24, 4:42:08 am	Apr 30th 24, 11:55:00 am
Temperature Sensor	Inactive	10	12.33	Apr 29th 24, 8:35:00 am	Apr 29th 24, 12:27:44 pm	Apr 29th 24, 8:15:00 pm
Temperature Sensor	Inactive	10	10.77	Apr 28th 24, 10:35:00 am	Apr 28th 24, 4:59:02 pm	Apr 29th 24, 7:44:43 am
Temperature Sensor	Inactive	10	10.07	Apr 27th 24, 12:35:00 pm	Apr 28th 24, 7:04:26 am	Apr 27th 24, 12:55:00 pm
Temperature Sensor	Inactive	10	10.2	Apr 27th 24, 11:15:00 am	Apr 28th 24, 6:41:48 am	Apr 27th 24, 11:35:00 am
Temperature Sensor	Inactive	10	10.16	Apr 26th 24, 12:16:00 pm	Apr 27th 24, 2:05:52 am	Apr 29th 24, 7:44:44 am

Sensor Alarms

## 2.3.1 ALARM TYPES

Table 2. Gateway Configuration

Type	Alarm Triggers
Under	<p>Sensor reading goes below the set value.</p> <p style="text-align: center;"><b>Under a Setpoint</b></p> 
Over	<p>Sensor reading goes above the set value.</p> <p style="text-align: center;"><b>Over a Setpoint</b></p> 
Abrupt	<p>The absolute difference between two consecutive sensor readings is larger than the set value.</p> <p style="text-align: center;"><b>Abrupt Change</b></p>  <p style="text-align: center;"> <small>Alarm trigger: <math>abs(t2 - t1) &gt; \text{alarm setpoint}</math>              Alarm clear: <math>abs(t3 - t2) &lt; \text{alarm setpoint}</math></small> </p>

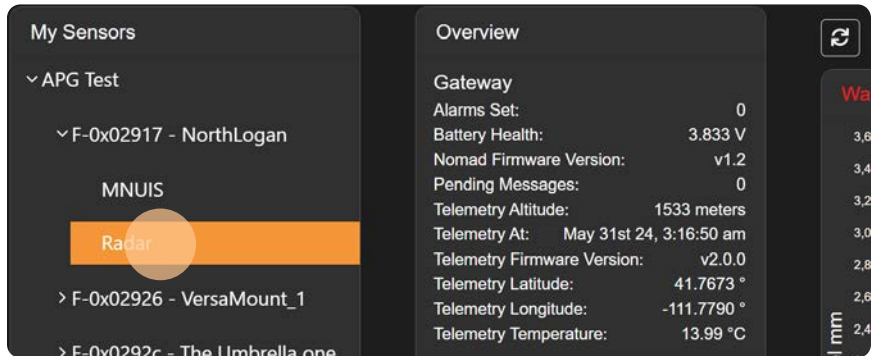
Type	Alarm Triggers
<p>Hysteresis Over</p>	<p>If the value of the sensor, for the specified register, is over the set-point, turn on the alarm.</p> <p>To turn off the alarm, the value of the sensor needs to be out of the hysteresis window.</p> <div data-bbox="426 431 795 688" style="text-align: center;"> <p><b>Hysteresis Over</b></p> <p>The graph shows a red curve representing the Register Value over Time. A horizontal line represents the Setpoint. The curve starts below the setpoint, crosses it upwards, and is marked with a red circle and the text 'Alarm triggered'. The curve then stays above the setpoint for a period before crossing a lower horizontal line marked 'Clear Point' with another red circle and the text 'Alarm cleared'.</p> </div>
<p>Hysteresis Under</p>	<p>If the value of the sensor, for the specified register, is under the set-point, turn on the alarm.</p> <p>To turn off the alarm, the value of the sensor needs to be out of the hysteresis window.</p> <div data-bbox="426 889 795 1146" style="text-align: center;"> <p><b>Hysteresis Under</b></p> <p>The graph shows a red curve representing the Register Value over Time. A horizontal line represents the Setpoint. The curve starts above the setpoint, crosses it downwards, and is marked with a red circle and the text 'Alarm triggered'. The curve then stays below the setpoint for a period before crossing a higher horizontal line marked 'Clear Point' with another red circle and the text 'Alarm cleared'.</p> </div>

Table 3. Gateway Configuration

Action	Description
Turn P1 ON	Gateway will turn Digital Output 1 <b>ON</b>
Turn P1 OFF	Gateway will turn Digital Output 1 <b>OFF</b>
Turn P2 ON	Gateway will turn Digital Output 2 <b>ON</b>
Turn P2 OFF	Gateway will turn Digital Output 2 <b>OFF</b>
Nothing	Gateway will <b>do nothing</b> (Alarm notifications will be sent out)

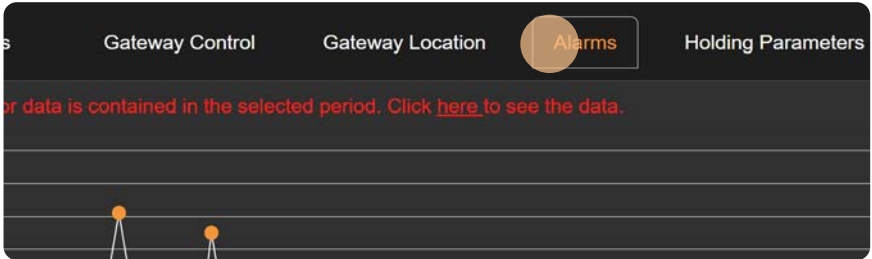
## 2.3.2 HOW TO ADD AN ALARM

**Step 1** Select sensor.



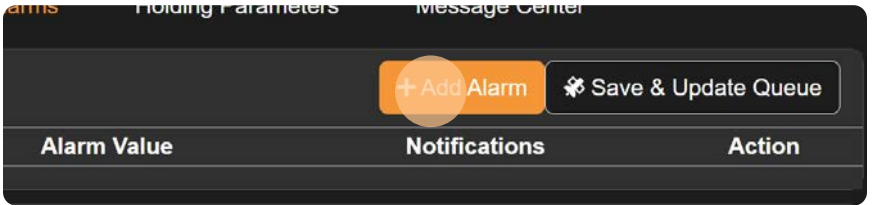
Sensor Selection

Step 2 Click "Alarms".



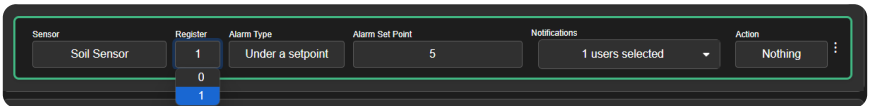
Alarm Menu Options

Step 3 Click "Add Alarms".



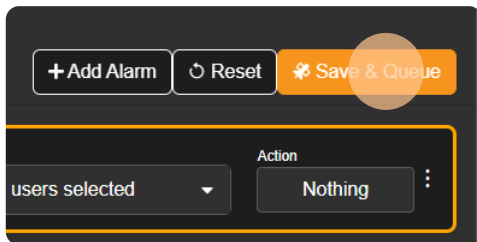
Add Alarm

Step 4 Set the alarm configuration.



Alarm Configuration

Step 5 Click "Save & Update Queue".

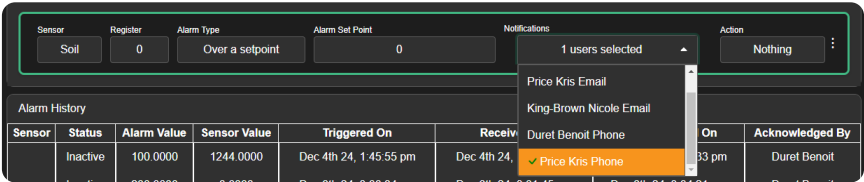


Save & Update Queue Button



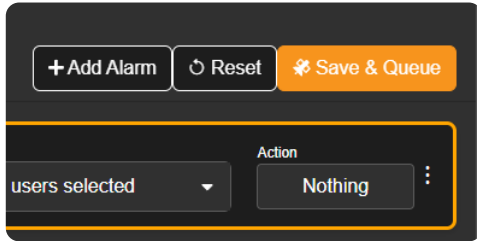
### 2.3.3 HOW TO EDIT AN ALARM

Step 1 Configure alarm to your specifications.



Alarm Specifications

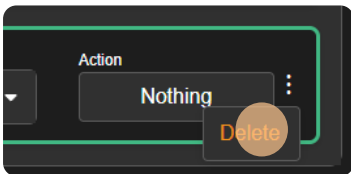
Step 2 Click "Save & Queue".



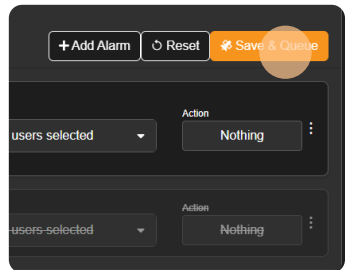
Save & Update Queue Button

### 2.3.4 HOW TO DELETE AN ALARM

- **Step 1** Click the 3 vertical dots to open the menu for the row and click "Delete"
- **Step 2** Click "Save & Queue"



Alarm Delete Button



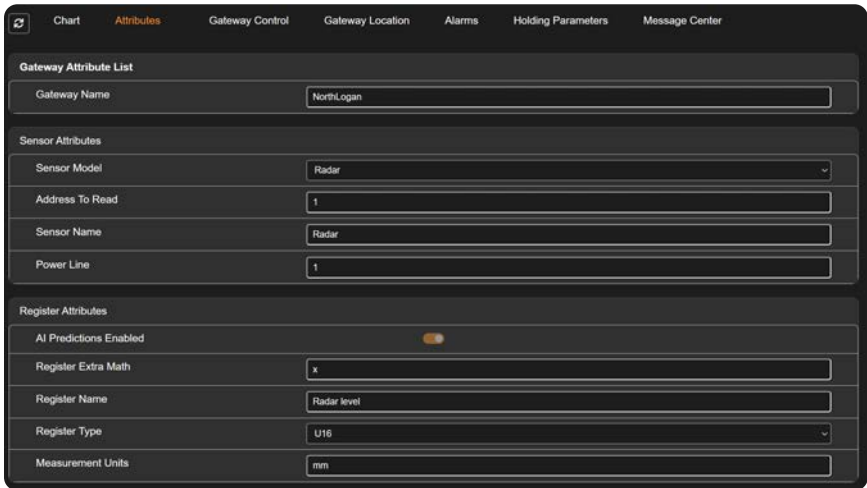
Save & Queue Button

## 2.3.5 ALARM HISTORY

The “Alarm History” table will show all previously triggered alarms as well as all actively triggered alarms. The gateway will clear its own alarms if the sensor value returns to a ‘safe’ reading.

**NOTE:** *Using satellite communications can cause some messages to become unordered. It is possible for Explorer to receive an alarm cleared message before receiving an alarm triggered message. To better inform the user, the Alarm History table includes the “Triggered On”, “Received On”, and “Acknowledged On” timestamp columns.*

## 2.4 ATTRIBUTES



The screenshot shows the 'Attributes' page in the Explorer interface. At the top, there is a navigation bar with tabs: Chart, Attributes (selected), Gateway Control, Gateway Location, Alarms, Holding Parameters, and Message Center. Below the navigation bar, the page is titled 'Gateway Attribute List'. The main content area is divided into three sections: Gateway Attribute List, Sensor Attributes, and Register Attributes. Each section contains several input fields and controls.

Gateway Attribute List	
Gateway Name	NorthLogan

Sensor Attributes	
Sensor Model	Radar
Address To Read	1
Sensor Name	Radar
Power Line	1

Register Attributes	
AI Predictions Enabled	<input checked="" type="checkbox"/>
Register Extra Math	x
Register Name	Radar level
Register Type	U16
Measurement Units	mm

Attributes Page

## 2.4.1 SENSOR ATTRIBUTES

The user can configure the sensor configuration by changing the values in the **Sensor Attributes** list. Any changes to these values will automatically be saved to the database.

**Table 4. Sensor Attributes**

Name	Action
Sensor Model	The model of the sensor.
Default Register	The address of the register holding the sensor value.
Sensor Name	User defined alias for the sensor.
Power Line	Which power line the sensor is using.

## 2.4.2 REGISTER ATTRIBUTES

The register attributes let Explorer know how to format the register values for display to the user.

**Table 5. Register Attributes**

Name	Description
Register Extra Math	Equation used to convert this register's values.*
Register Type	The data type stored by this register.
Register Name	The name of the register
Measurement Units	The unit string associated with the measurement (e.g., $\text{\AA}^{\circ}\text{C}$ , mg/L).
AI Predictions Enabled	Indicates whether AI predictions are enabled for this register. Contact APG Sales for assistance with enabling AI predictions for your gateway

\*Explorer converts to and from the register, meaning this equation must be bijective and should be kept simple.

## 2.4.3 REGISTER SELECTION

Register	
★	Name: Humidity Latest Reading: 22.9 %
☆	Name: Temperature Latest Reading: 19.2 C
☆	Name: Conductivity Latest Reading: 359 us/cm
☆	Name: PH Latest Reading: 7.3
☆	Name: Nitrogen (N) Latest Reading: 36 mg/kg
☆	Name: Phosphorus (P) Latest Reading: 130 mg/kg
☆	Name: Potassium (K) Latest Reading: 123 mg/kg
☆	Name: Salinity Latest Reading: 197 mg/L
☆	Name: TDS Latest Reading: 179 mg/L
☆	Register: 299 Latest Reading:
☆	Register: 665 Latest Reading:

**Star Selection:** Determines which register data is loaded by default when the sensor is selected. Additionally, the starred register determines which register data is used for the sensor card sparkline display.

For more information on defining the register name, conversion equation, and units, refer to Section 2.4.2.

## 2.5 MESSAGE CENTER

The “Message Center” is where outgoing messages are queued and sent to gateway devices.

Pending Messages to be Sent <span style="float: right;">Send Message(s) ✎</span>				
Raw Message	Message Description	Last Update	User	Remove
Previously Sent Messages				
Commands Sent		Date Sent	Date Received	
1 commands sent	~	May 29th 24, 6:00:01 am		
1 commands sent	~	May 3rd 24, 2:00:01 pm	May 6th 24, 12:26:00 am	
1 commands sent	~	Apr 26th 24, 10:00:01 pm	Apr 27th 24, 12:40:00 pm	
1 commands sent	~	Apr 25th 24, 4:54:27 pm	Apr 26th 24, 10:22:00 pm	
1 commands sent	~	Apr 22nd 24, 10:00:01 pm	Apr 19th 24, 9:56:00 pm	
1 commands sent	~	Apr 18th 24, 4:55:22 pm	Apr 19th 24, 9:56:00 pm	
1 commands sent	~	Jan 27th 24, 8:09:13 am	Jan 27th 24, 8:14:00 pm	

*Message Center Page*

## 2.5.1 SENDING MESSAGES

Configuration changes to a gateway or a sensor are encoded into hexadecimal messages and assembled in the Message Center. Users will see a notification if any pending messages are waiting to be sent.

To send the messages simply click the “Send Message(s)” button.

## 2.5.2 MESSAGE HISTORY

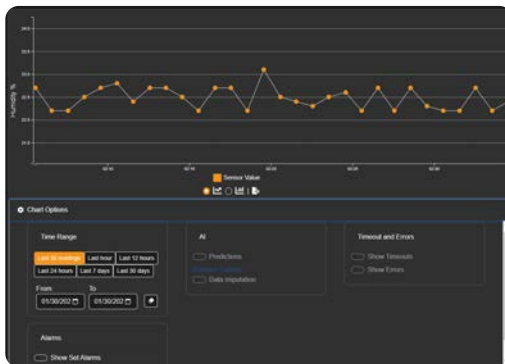
Messages that have been sent are saved and can be viewed in the Message Center. Messages that have been received and acknowledged by the device have a “Date Received” timestamp.

Commands Sent	Date Sent	Date Received
1 commands sent	-	-
1 commands sent	May 29th 24, 6:50:01 am	-
1 commands sent	May 3rd 24, 2:00:01 pm	May 6th 24, 12:26:00 am
1 commands sent	Apr 26th 24, 10:00:01 pm	Apr 27th 24, 12:40:00 pm
1 commands sent	Apr 25th 24, 4:54:27 pm	Apr 26th 24, 10:22:00 pm
1 commands sent	Apr 22nd 24, 10:00:01 pm	Apr 19th 24, 9:56:00 pm
1 commands sent	Apr 18th 24, 4:55:22 pm	Apr 19th 24, 9:56:00 pm
1 commands sent	Jan 27th 24, 8:09:13 am	Jan 27th 24, 8:14:00 pm

Message History

## 2.6 CHART

The Chart tab will visualize a sensor’s register values over time.



Sensor Value Chart

## 2.6.1 CHART OPTIONS

### Number of Readings

The number of readings can be changed to:

- Last 30 readings
- Last hour
- Last 12 hours
- Last 24 hours
- Last 7 days
- Last 30 days
- Custom

### Alarms

Toggle to display alarms as dashed blue horizontal lines.



### AI Options

Toggle to enable AI predictions

Temporarily remove outliers from the displayed data

Toggle for data imputation

### Timeouts & Errors

Toggle to display timeouts and errors as dashed red vertical lines. Hovering over these markers will show additional details.



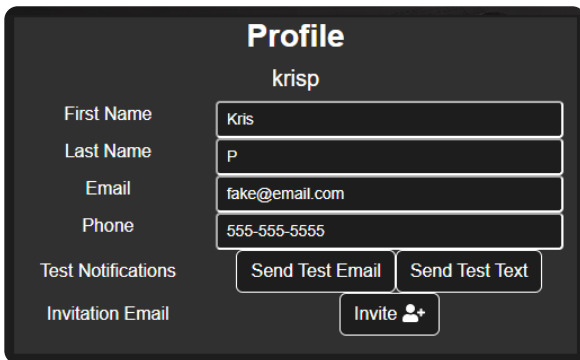
## 2.6.2 EXPORT DATA

Users can download a CSV file that contains the current chart visualization data. The column headers of this downloaded data are:

- sensor\_id
- sensor\_type\_id
- address
- lastupdate\_ts
- last\_update\_user\_id
- sensor\_data\_id
- sensor\_data\_value
- receive\_date\_time
- sensor\_address

## 2.7 PROFILE

The Profile page is for users to add or change basic user information, test notifications, and invite other users.



The screenshot shows a dark-themed 'Profile' page for a user named 'krisp'. The page contains several input fields for user information: First Name (Kris), Last Name (P), Email (fake@email.com), and Phone (555-555-5555). Below these fields are two buttons for 'Test Notifications': 'Send Test Email' and 'Send Test Text'. At the bottom, there is an 'Invite' button with a person icon.

*Profile Page*

### 2.7.1 USER CONTACT INFORMATION

The user's contact information is used almost exclusively for alarm notifications. Users should keep this information updated and use the test notification to ensure that alarm notifications are delivered.

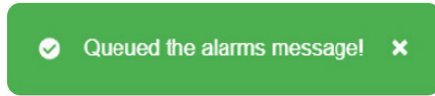
## Section 3

# TROUBLESHOOTING & SUPPORT

## 3.1 ERROR MESSAGES ---

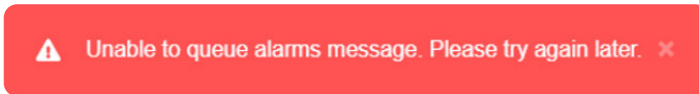
The result of Explorer saving information to the database is displayed to the user using pop up notifications (examples below). These notifications will be shown at the bottom right of the website.

When data was saved successfully the user will see a green notification along with a brief description:



*Example of a Successful Database Interaction*

However, whenever there is a problem saving data, the user will see a red notification.



*Example of an Unsuccessful Database Interaction*

**NOTE:** *If an error message appears, any changes the user was attempting to make will NOT be saved until the error has been corrected.*



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## 3.2 TROUBLESHOOTING

The most common reason for a user to run into problems with Explorer is disruption of their Internet connection.

- **Step 1** The first step of troubleshooting should always be to check that the user's device has a connection to the Internet.

The second most likely reason a user will experience problems is if Explorer's website host is down. Once the user has ensured that they are connected to the Internet, the second step is to wait. This will give the hosting service time to get back online.

- **Step 2** Wait one hour before resuming work on Explorer.

If user still has problems after these two steps, please see **Section 3.3** about getting support.

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## 3.3 SUPPORT

**Organization:** Automation Products Group, Inc.

**Phone:** +1 (435) 753-7490

**Email:** sales@apgsensors.com





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