

Pressure Ranger Manual



The Pressure Ranger is a self-contained, device that provides pressure readings over an LTE-M1 cellular network.

- Powers integrated pressure sensor available in wide variety of pressure ranges
- Configurable from the SignalFire Cloud website signal-fire.cloud
- SignalFire Cloud allows for data visualization, trending and alarming
- Supports MQTT Sparkplug B communication protocol for connection to other servers
- Compact and simple to install and maintain
- Local configuration and diagnostics available using the micro-USB port and the SignalFire Ranger ToolKit PC software
- Internal backlog of a minimum of 200 datapoints (200,000 for Rangers shipped 1/27/2022 or later) Backlog will be automatically sent when the Pressure Ranger reconnects
- Class 1 Division 2 certified

Specifications

Enclosure Size	7.1" tall × 4.6" diameter
Power Source	Internal Lithium battery pack (SignalFire Part Number: 4DPak)
Temperature Rating	-40°C to +85°C
Enclosure	IP64 rated. Polycarbonate, ½" NPT or F250C Autoclave fitting
SIM Slot	Nano SIM card (LTE Cat M SIM and data plan required)
Local config port	Standard micro-USB connector
Pressure Sensor	½" Male NPT 316-SS (2, 20, 100, 500, 1,000, 3,000, 5,000, and 10,000 PSI) ½" Male NPT 17-4 (15,000 PSI) F250C Female Autoclave 17-4 (15,000, 20,000 PSI)
Compliance	<ul style="list-style-type: none"> • Contains FCC ID: 2ANPO00NRF9160 and IC ID: 24529-NRF9160 • Verizon Network Certified • Certified for use in Class I, Division 2, Groups A, B, C, D areas. Temperature Code T5 EXi [EXi] • [UL 121201:2017 Ed.9+R:26Aug2019], [CSA C22.2#213:2017 Ed.3+U1;U2]

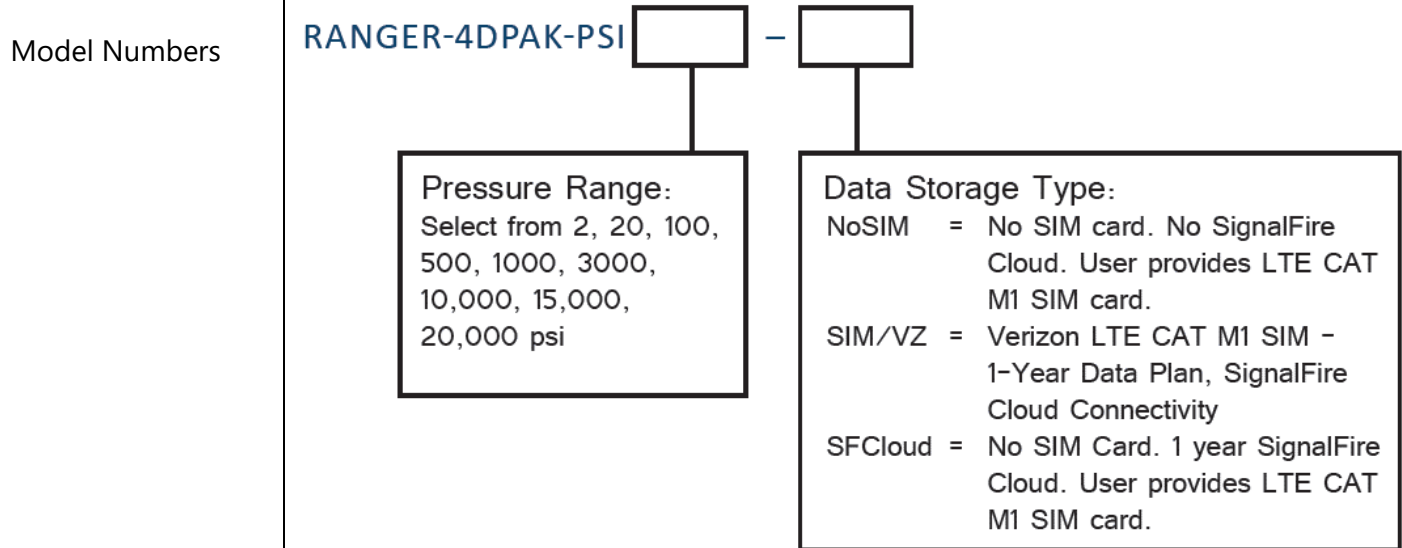


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Hazardous Location Certification

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The Pressure Ranger is rated Class 1 Division 2 non-incendive when powered by its internal battery pack.



WARNING: EXPLOSION HAZARD. DO NOT REMOVE OR REPLACE COMPONENTS UNLESS POWER HAS BEEN DISCONNECTED OR THE AREA IS FREE OF IGNITIBLE CONCENTRATIONS.
AVERTISSEMENT : RISQUE D'EXPLOSION . NE PAS RETIRER OU REMPLACER LES COMPOSANTS QUE L'ALIMENTATION EST DÉBRANCHÉ OU ZONE EST LIBRE DE CONCENTRATIONS IGNITIBLE.



WARNING – EXPLOSION HAZARD Substitution of components may impair suitability for Class I, Division 2

AVERTISSEMENT - RISQUE D'EXPLOSION. La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de classe I, division 2



WARNING – EXPLOSION HAZARD Do not disconnect while circuit is live unless area is known to be nonhazardous

AVERTISSEMENT - RISQUE D'EXPLOSION. Ne débranchez pas lorsque le circuit est en direct , sauf si la zone est connue pour être nonhazardous



WARNING – All wiring methods must be in accordance with the NEC

AVERTISSEMENT - Toutes les méthodes de Essorez doivent être en conformité avec la NEC



WARNING - EXPLOSION HAZARD. Do no remove or replace while circuit is live unless the area is free of ignitable concentrations.

AVERTISSEMENT - RISQUE D'EXPLOSION. Ne pas enlever ou remplacer pendant que le circuit est vivant à moins que la zone soit exempt de concentrations ignitibles.



WARNING – EXPLOSION HAZARD. Do not remove or replace lamps, fuses or plug-in modules (as applicable) unless power has been disconnected or the area is free of ignitable concentrations.

AVERTISSEMENT - RISQUE D'EXPLOSION. Ne retirez ni ne remplacez les lampes, les fusibles ou les modules enfichables (le cas échéant) à moins que l'alimentation ait été coupée ou que la zone soit exempt de concentrations inflammables.

Connections and Components

STATUS LED

- The STATUS LED (green) will flash 3 times on a successful data transmission to the server

ERROR LED

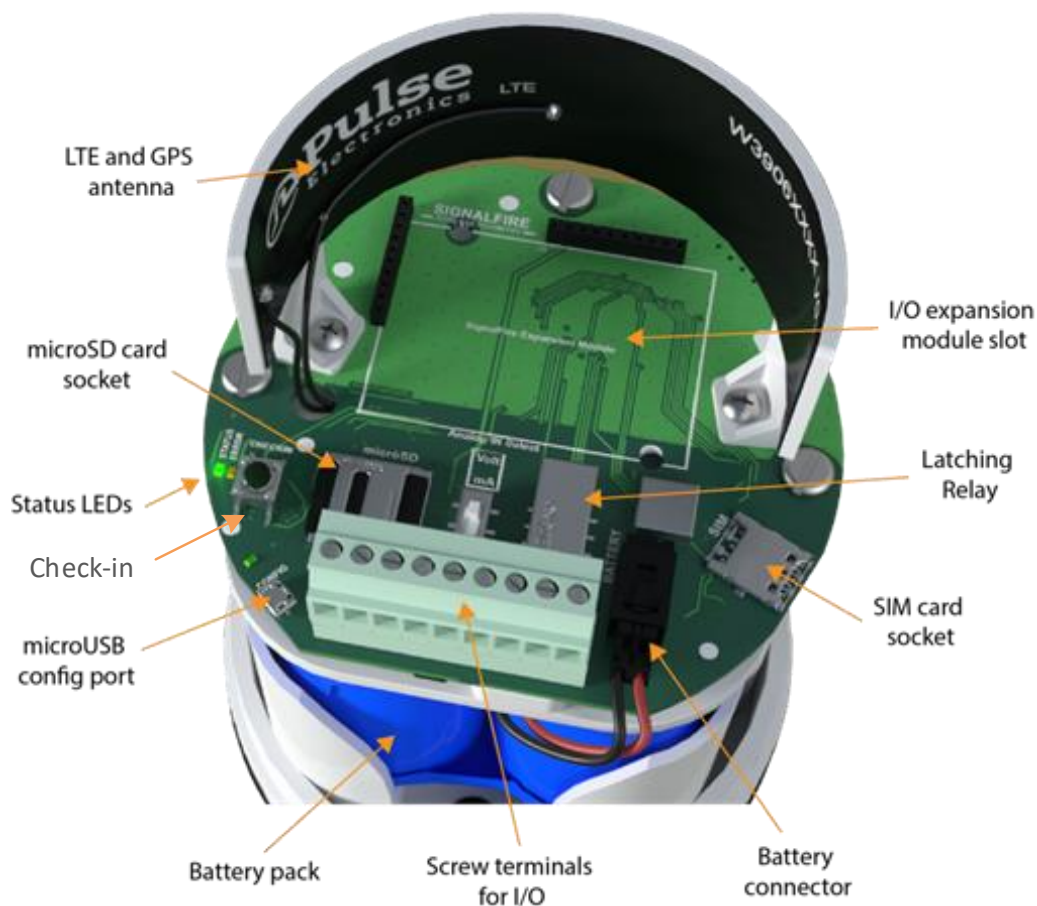
- The ERROR LED (red) will blink 3 times to indicate that an attempted data transmission failed

Check-in Button

- If this button is pressed the Pressure Ranger will blink the Green or Red status LED 3 times to indicate the status of the last transmission to the server. If the Checkin button is pressed and held for more than 1 second, the Pressure Ranger will take readings from the attached pressure sensor and send the readings to the server.

MicroSD Card Slot

- The MicroSD card is for future use, it is not yet implemented and should not be installed



Pressure Ranger Internal components

Power Options

Lithium Battery Pack (4DPak)

The internal lithium battery pack is the default power source for the Pressure Ranger, simply plug the battery pack into the Pressure Ranger PCB battery connector to power the Pressure Ranger on.

Internal Lithium Battery Replacement

Battery Packs can be changed with the node in place.

1. Unscrew the cover from the base.
2. Unplug the battery from the PCB, by depressing the locking clip on the connector.
3. Loosen the three screws that attach the circuit board assembly to the base. **Do not remove the two screws that attach the antenna assembly**
4. Remove/replace battery
5. Re-install circuit board assembly. Do not overtighten the screws
6. Connect the battery to the main PCB battery connector.
7. Install the enclosure cover.

Setup

Devices purchased with the SignalFire Cloud service come with a pre-installed SIM card. Customers will require a login to access the SignalFire Cloud server. Please fill out the request form using the button on the right below to setup your company site.

[Link to SF Cloud](#)

[Link to SF Cloud
Account Creation](#)

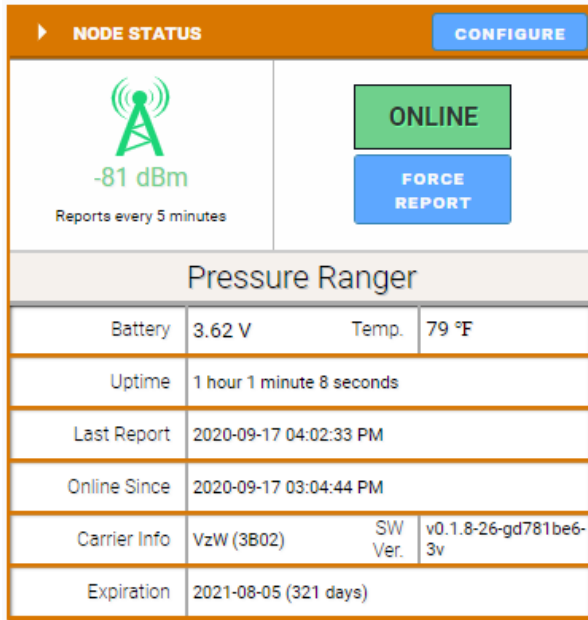
Adding the Ranger to your SignalFire Cloud Group

1. Plug in the battery so the Ranger can connect to the cellular network
2. Verify that the Ranger is connected to the cellular network by pressing the "CHECKIN" button on the device and observe 3 strobes of the green status light.
3. Login to the SignalFire Cloud with your account login/password
4. From the Home page click "Add Device"
5. Enter the Ranger serial number and click "Claim". The serial number is located on the bottom of the Ranger with a format of "RA" followed by 6 numbers. (e.g. RA123456)
6. A message will be sent to the Ranger to claim it to your group account
7. Within approximately one minute the device will connect to your account, and you will be automatically redirected to the device status page

Pressure Ranger Settings

Select a Pressure Ranger from the list on the Home tab to see the device status, sensor readings and settings. The detail display is organized as a “tile” view with each tile representing a specific input or function. Each tile with configurable settings has a “Configure” button that will bring up the related settings.

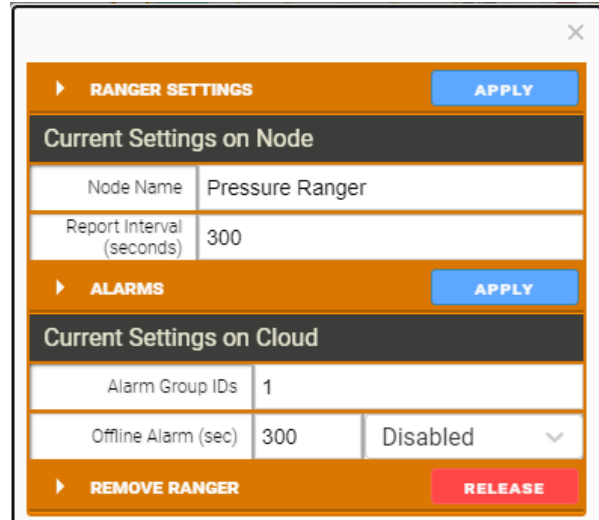
Node Status Tile



The Node Status tile displays the following information:

- Signal Strength:** -81 dBm (Reports every 5 minutes)
- Status:** ONLINE
- Action:** FORCE REPORT
- Pressure Ranger Table:**

Battery	3.62 V	Temp.	79 °F
Uptime	1 hour 1 minute 8 seconds		
Last Report	2020-09-17 04:02:33 PM		
Online Since	2020-09-17 03:04:44 PM		
Carrier Info	VzW (3B02)	SW Ver.	v0.1.8-26-gd781be6-3v
Expiration	2021-08-05 (321 days)		



The Ranger Settings dialog displays the following information:

- RANGER SETTINGS** (APPLY)
- Current Settings on Node**
 - Node Name: Pressure Ranger
 - Report Interval (seconds): 300
- ALARMS** (APPLY)
 - Current Settings on Cloud**
 - Alarm Group IDs: 1
 - Offline Alarm (sec): 300
 - Status: Disabled
- REMOVE RANGER** (RELEASE)

The Node status tile contains general information about the Pressure Ranger and allows setting system parameters.

Force Report

Causes the Pressure Ranger to take a new sensor reading and send the data to the server on its next “ping” interval. This can take up to 40 seconds.

Node Name

The Node name is a user configurable string used to easily identify the Pressure Ranger

Report Interval

The setting controls the interval at which the Ranger will apply power to the attached pressure sensor and forward the sensor readings to the Cloud. Clicking on “Settings” will open up the Fast Reporting Interval window.

FAST REPORTING TRIGGERS:			
Values may not be accurate - Node Offline			
Metric	Value	Comparison	Threshold
PRESS	-25.71	>	100
None	0	N/A	0
None	0	N/A	0
None	0	N/A	0
FAST REPORTING SETTINGS			
Fast Reporting is	Enabled	Current State:	Inactive
Trigger when	Any Fast Reporting triggers are TRUE		
Remain Fast Reporting	while Fast Reporting is Triggered		
Fast Reporting Duration (seconds)	3,600		
REPORT SETTINGS USED WITH FAST REPORTING			
Report Interval (seconds)	60	Sensor On Time (seconds)	0.09 <input type="checkbox"/> Always On

The Ranger can be configured such that if the input cross a threshold, the Ranger will temporarily update at an increased rate. Fast Reporting can trigger when one or all conditions are met and can stay on for the entire time the input(s) are above the threshold, or a set time. This can be used to trigger a report if the pressure crosses the configured threshold

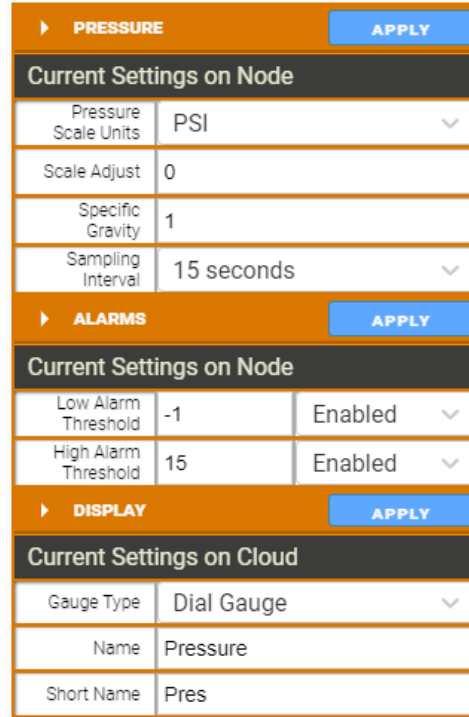
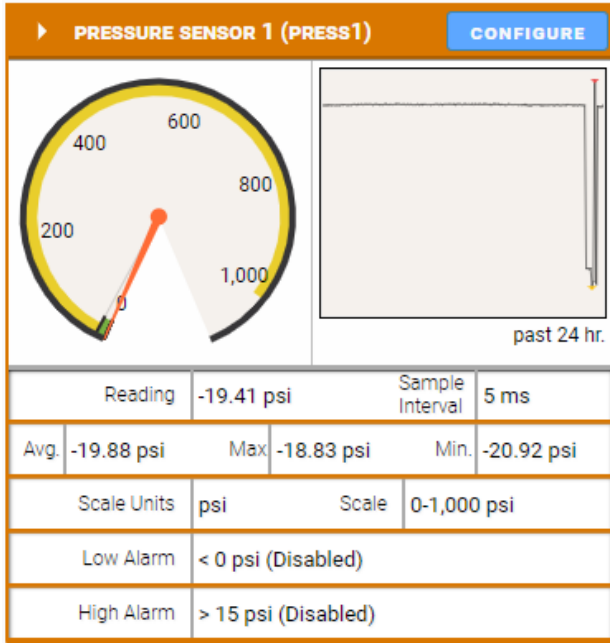
The Alarm Group ID

This defines which alarm group will receive alarms from this device. Each user configured in the Users tab can be assigned an alarm group number. Any users with a matching alarm group will receive alarms from this Pressure Ranger. Multiple alarm groups may be entered separated by commas and all groups entered will receive alarms.

Offline Alarm

The Pressure Ranger will send an alarm if the device is offline for more than the configured 'Offline Threshold' setting.

Pressure Tile



The Pressure tile displays the current pressure and range of the Pressure Ranger, as well as alarm and scale settings. To change these settings, click on the “Configure” button.

The Pressure section is used to change the pressure unit scale, the specific gravity, and sampling interval. The sampling interval can be either the report interval, or more rapidly between 5 and 60 seconds. The Alarms section is used to enable alarms. If the account is alarm enabled, alarms will be sent by text or email if the pressure goes below the low threshold or above the high threshold. The Display section is used to change the graphic and labels on the Pressure tile.

Pressure Scale Units

The Pressure Ranger supports many common pressure unit conversions that are available in the dropdown. Additionally, the user may select “Custom” and then provide a scale low and scale high value.

Scale Adjust

The value in the scale adjust will be added to the scaled pressure reading. For example, this is useful if the pressure is being used for tank level and the pressure source is offset from the bottom of the tank.

Specific Gravity

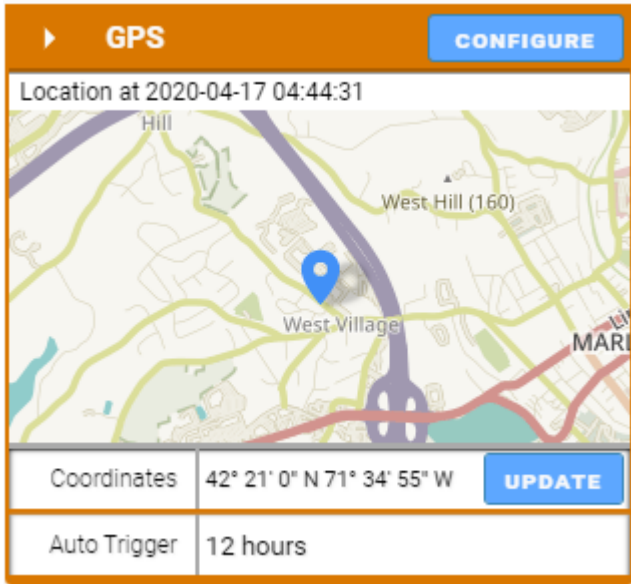
The scaled value will be multiplied by the specific gravity setting. For liquid level applications this value can be used to increase the accuracy of the level measurement.

Rapid Pressure Sampling and Report on Exception

If the Sampling Interval is set less than the report interval, the pressure will be sampled at this higher rate. The Pressure Ranger will report the maximum, minimum, and average of the pressure samples obtained over the configured reporting interval.

The Fast Reporting feature can be utilized to cause a report on exception if the pressure crosses a configured setpoint.

GPS Tile



The Pressure Ranger has an internal GPS receiver/antenna to provide location data to the server. The Pressure Ranger requires a clear view of the sky for the GPS functionality. GPS will often not work inside even if the Pressure Ranger is near a window.

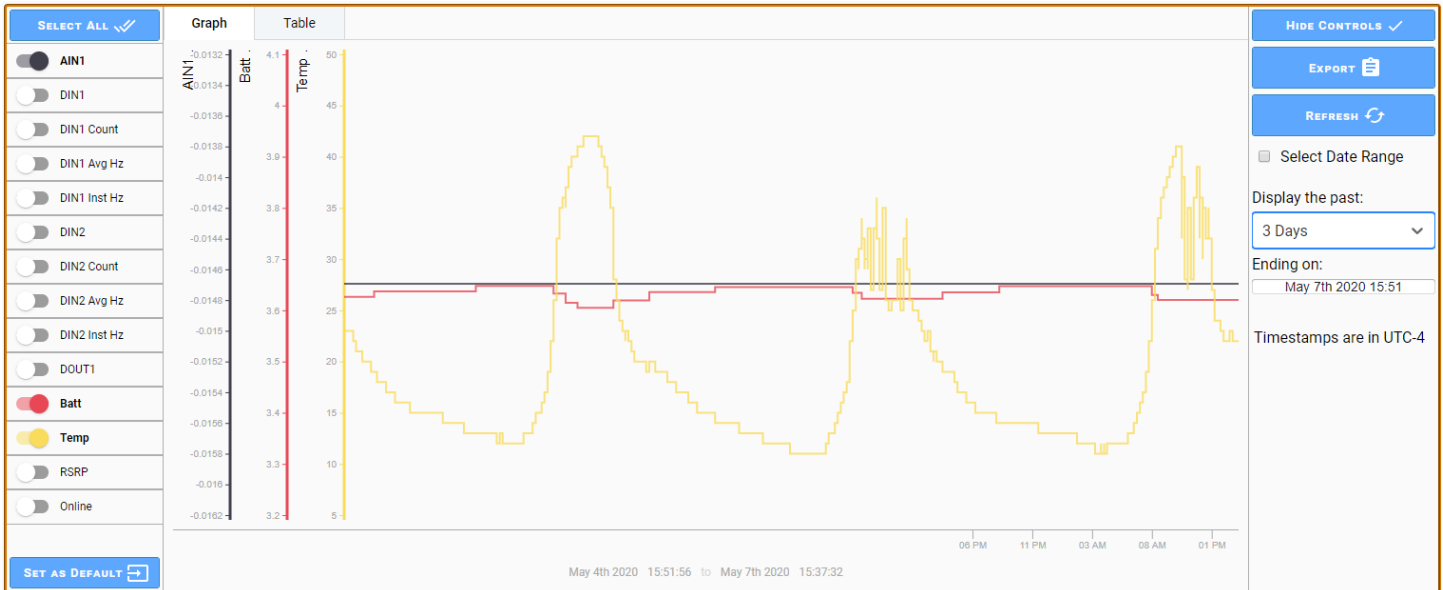
A GPS update may be triggered on demand, or an automatic location update interval between 1 and 12 hours can be configured. For an on-demand location update, click the "UPDATE" button. Note that an initial "cold" GPS fix may take up to 5 minutes.

While the GPS receiver is active commands sent to the Pressure Ranger may take up to 80 seconds to be delivered.

Historical Data View

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The server maintains a database containing the historical data view of all reported readings. The data may be viewed as a graph or a table view. Select which data values to display and the time range to view. The selected data for the configured time interval may be exported to a .csv file by clicking the "Export" button.



Default View

A user can configure the default trend view they which to see when they open the view for a Ranger. Simply configure the desired data to display and the desired default time display and click the "Set as Default" button. This view will be saved and be the default view for your account for that Ranger device.

Users can create custom dashboards that can display data from multiple Rangers on a single dashboard. Within each dashboard users can create groups to logically group data views. To create or edit a dashboard the user must have "Dashboard Admin" rights on their account.

Create Dashboards and Data Groups

1. select the "Dashboards" menu item, then click "Manage Dashboards" and then click "add a Dashboard" and enter a name for the custom dashboard and click the "rename" button to save.
2. Click the "+ Add Data Group" button to create your first data group and click the edit button to edit this group.
3. Name the data group and click the "rename" button to save. Each dashboard can have multiple data groups

Add data points to Data Group

In each data group users can add data points one at a time or in bulk.

To add a single data point click the "Add Data Point" button. From here select the Ranger, metric and then the display type. The options for display type will vary depending on the metric type. Options include the Device tile which mirrors the tiles on each Ranger detail page, additionally there are other simple data views like a gauge, tank alarm status icon, or value display.

Each tile will have a title bar indicating the Ranger name along with the Ranger connectivity status.

If you want to add the same data point from multiple Rangers to a data group, click the "Bulk Add Data Points" button. Select multiple Rangers in the select device list by holding the Ctrl key. Once one or more Rangers is selected, a list of common metrics will be displayed in section. Select a metric then select the display type and click Save to Data Group to apply changes.

Add Data Points to Data Group: Sample Data Group

1) Select one or more devices

- 352656100597312 [RA000000]
- 352656100923278 [RA000060]
- 352656102536243 [RA001460]
- Josh Rev 2.0 Test [I751931]
- Josh Test Ranger [I597486]
- RP A2D1 [RA000006]
- RP HART [RA000005]
- RP MODBUS [RA000004]
- RP Modbus 96 [RA000566]
- RP PRESSURE [RA000003]
- RP Rev2 [I751998]
- RP SDI-12 [RA000007]

2) Select a metric common across selected devices

- Analog Input 1
- Digital Input 1
- Digital Input 1 Count
- Digital Input 1 Average Frequency
- Digital Input 1 Instantaneous Frequency
- Digital Input 2
- Digital Input 2 Count
- Digital Input 2 Average Frequency
- Digital Input 2 Instantaneous Frequency
- Digital Input 3
- Digital Input 3 Count
- Digital Input 3 Average Frequency

3) Select a display type

- Device Tile
- 24 Hour History
- Alarm Indicator
- Value Reading
- Dial Gauge
- Tank Gauge

Save to Data Group

Go back to Data Group

Example of bulk adding datapoints

Users

To have access to your company's Rangers, you will need a SignalFire Cloud account user login. Contact your company's Cloud user admin to set up your account. If your company does not have an account and you are performing first time setup, complete the form at <https://signal-fire.com/lte-m1-cellular-products/cloudregister/> to request a new user account group.

User Settings

Once logged in, select your username in the upper right to change your user settings. Enter your contact phone number and/or email address and enable Alarms to have alarm notifications sent to you. Enable billing to receive reports on which Rangers are about to expire and need to have their Cloud subscription renewed. After making changes (highlighted in yellow), click Save or Undo to apply or revert the changes made.

User Settings: signalfire

First Name

Last Name

Alarm Group ID CHANGE ALARM GROUP

Alarm Message Timezone Current time: 20:24:46 UTC

SMS # Alarms

Email Address Alarms Billing
Alarm emails will be sent from ignition-noreply@signal-fire.com, please add this email address to your whitelist.

User Roles

- User Admin
- Device Admin
- Alarm Admin
- Alarm Ack
- Report Admin
- Dashboard Admin
- Power Chart Admin

SAVE
UNDO

User Roles

All users in the group can view any Ranger, but their ability to change settings can be restricted by their user roles. There are five user roles: User Admin, Device Admin, Alarm Admin, Alarm Ack, and Report Admin.

User Admin – Can add, edit, and remove users in the user group, including changing other users' permissions. The User Admin cannot view anyone's password, but they may reset the password for a user who forgets theirs. It is recommended to restrict the number of users with this permission to as few people as possible.

Device Admin – Can add, edit, and remove Rangers in the user group and toggle the relay output. Note that device admins can change any settings in any Ranger without restriction.

Alarm Admin – Can configure just the alarm settings for Rangers and users.

Alarm Ack – Can acknowledge active alarms.

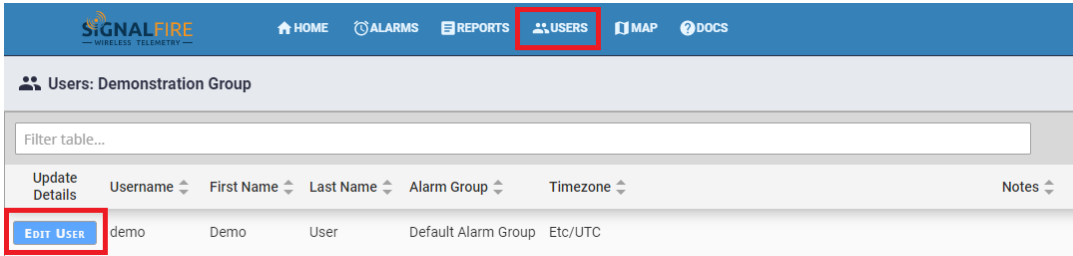
Report Admin – Can add, edit, and remove automated reports.

Dashboard Admin – Can create and edit custom dashboards. All users can view created dashboards

Power Chart Admin – Can create and edit Power Charts. All users can view Power Charts

User View

A list of users in the group can be viewed by clicking on the Users icon in the top menu. User Admins will be able to edit any user by clicking on the "Edit User" button. This will bring up the same User Settings as shown above, with an additional option to delete the user.

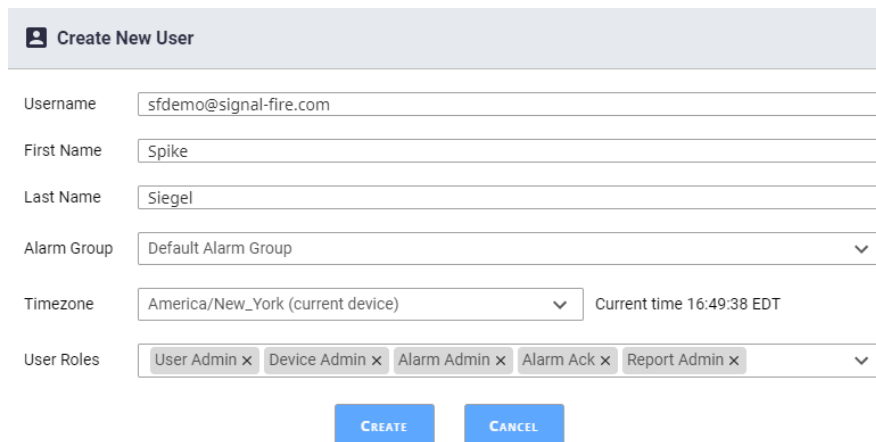


The screenshot shows the SignalFire web interface. At the top, there is a navigation bar with the SignalFire logo and menu items: HOME, ALARMS, REPORTS, USERS (highlighted with a red box), MAP, and DOCS. Below the navigation bar, the page title is "Users: Demonstration Group". There is a search filter box labeled "Filter table...". Below the filter, there is a table with columns: Update Details, Username, First Name, Last Name, Alarm Group, Timezone, and Notes. The first row of data shows a user with Username "demo", First Name "Demo", Last Name "User", Alarm Group "Default Alarm Group", and Timezone "Etc/UTC". The "EDIT USER" button in the first row is highlighted with a red box.

Update Details	Username	First Name	Last Name	Alarm Group	Timezone	Notes
EDIT USER	demo	Demo	User	Default Alarm Group	Etc/UTC	

Adding Users

User Admins may add additional users in the User view by clicking Add User in the upper right-hand corner. Fill in the fields, configure permissions, and click "Create". A window will pop up with a temporary password for the new user once complete. It is recommended that an email address is used for the username so it is unique.



The screenshot shows the "Create New User" form. It has the following fields and options:

- Username: sfdemo@signal-fire.com
- First Name: Spike
- Last Name: Siegel
- Alarm Group: Default Alarm Group (dropdown menu)
- Timezone: America/New_York (current device) (dropdown menu) Current time 16:49:38 EDT
- User Roles: User Admin x, Device Admin x, Alarm Admin x, Alarm Ack x, Report Admin x (checkboxes)

At the bottom of the form, there are two buttons: CREATE and CANCEL.

Alarms

The SignalFire Cloud provides a robust and flexible system that allows users to be notified by email and/or text when a specified metric from a Ranger enters and clears an alarm state. The alarms can be set up so only certain users get alarms for certain Rangers with the alarm group function.

To enable an alarm on an account with the Alarm Admin role, go to the Ranger, click "Configure" on the tile for the metric that you'd like to trigger an alarm on, and set its alarm threshold through the Alarms tab. The screenshot below shows the Configure window for Analog Input 1. If Analog Input 1 goes below 6mA or above 18mA, an alarm notification will go out to every user subscribed to this Ranger's alarms. A user with Alarm Ack permissions may acknowledge the alarm to signal that the alarm and/or its cause have been taken care of. Unacknowledged alarms can be seen accumulated in the upper right-hand corner of the Cloud page.

Analog Input 1 Settings

General Alarms Display

Press Apply to set values





Alarm Thresholds

Low	6	Enabled
High	18	Enabled

APPLY EXIT

Alarms View

Clicking on the Alarms button in the top bar will open a table of all alarm trigger events. The list of events can be sorted in ascending or descending order by any of the display columns by clicking on the column name.

The upper-right hand corner of the table contains a gear  icon, sort  icon, and search  icon that help filter and find alarm triggers. The gear icon is used to enable/disable the display columns used for ascending/descending sort. The sort icon is used to filter alarms by their cleared/acknowledge state. The search icon is used to search alarms by keyword in any of its enabled columns. For example, if there is a Ranger named "Tank 6R" and the name column is enabled, typing in "Tank 6R" will show all alarm events from that Ranger. Hovering the mouse over a line will show a  icon. Clicking on it will reveal a detailed view for that alarm.

State

Ranger alarms, once triggered, can be in one of four states: "Active, Unacknowledged", "Active, Acknowledged", "Cleared, Unacknowledged", and "Cleared, Acknowledged". Active means that the alarm still meets the alarm trigger criteria, while Cleared means it no longer does. Unacknowledged means that the alarm has not been dismissed by someone with Alarm Ack privileges, while Acknowledged means someone has been seen.

For example, a digital input set to flow mode may have an alarm set to trigger when the average flow rate goes above 15 gallons/sec. When that threshold is first crossed, the alarm will appear in the Alarms table as “Active, Unacknowledged”. If the average flow rate goes down to 12 gallons/sec, the state will change to “Cleared, Unacknowledged”. Once an Alarm Ack user acknowledges the alarm, the state will change to “Cleared, Acknowledged”. In other words, the inputs control the Active/Clear state, while users control the Unacknowledged/Acknowledged state.

To Acknowledge an alarm, a user with the Alarm Ack user role must click on the alarm and click “Acknowledge” in the bottom right corner. A user may alternatively select “Shelve”, which prevents the alarm from triggering for a time period.

The screenshot shows the SignalFire web interface. The top navigation bar includes links for HOME, ALARMS, REPORTS, USERS, MAP, DOCS, DASHBOARDS, and CHARTS. The user is logged in as SIGNALFIRE and has 1 ALARM. The main content area is titled "Alarms" and includes a sub-menu with "Alarm Status", "Alarm Journal", "Configure Alarms", and "Alarm Groups". A notification bell icon indicates "1 ACTIVE" alarm. Below this is a table with the following columns: Active Time, Display Path, State, and Label. One row is visible, representing an active alarm.

Active Time	Display Path	State	Label
03/03/2022 14:40:58	Ranger Demo	Active, Unacknowledged	Analog Input 1 HIGH

At the bottom of the table, there is a dropdown menu set to "25 rows" and a blue circle with the number "1" indicating the total number of active alarms.

Configure Alarms

Users may also edit alarm settings by clicking on “Configure Alarms” in the tab list of the Alarms page. This view shows all possible alarm sources on all possible devices in the user group. The interface on the right side can be used to filter which devices, input types, and alarm groups show up in the table. This interface provides a much faster and more convenient way of editing a large number of alarms

For example, clicking on Select Devices will pull up a list of all devices available. Select the Rangers to filter by and click “Select” to add it to the list. Hold the Ctrl key as you click to select multiple at a time, or the Shift key to select a range. Once you have all the devices you’d like to see on the Included Devices list, click View Selected. Click “Clear Filter” to view all devices again.

Current Settings on Devices					
Device	Alarm	Type	Current Value	Setpoint	Deadband
Ranger Demo	BATTERY LOW	Low Alarm	3.561904	3	0
Ranger Demo	Flow Totalizer 1 Total HIGH	High Alarm	0.271136	0	0
Ranger Demo	Flow Totalizer 1 Average Flow Rate HIGH	High Alarm	0	0	0
Ranger Demo	Flow Totalizer 1 Average Flow Rate LOW	Low Alarm	0	0	0
Ranger Demo	Flow Totalizer 1 Instantaneous Flow Rate HIGH	High Alarm	0	0	0
Ranger Demo	Flow Totalizer 1 Instantaneous Flow Rate LOW	Low Alarm	0	0	0
Ranger Demo	Digital Input 2	Digital Alarm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0
Ranger Demo	Digital Input 2 Average Frequency HIGH	High Alarm	0	0	0
Ranger Demo	Digital Input 2 Average Frequency LOW	Low Alarm	0	0	0
Ranger Demo	Digital Input 2 Count HIGH	High Alarm	0	0	0
Ranger Demo	Offline Alarm	Digital Alarm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0
Ranger Demo	Analog Input 1 HIGH	High Alarm	7.858577	7	0

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To change a field, double click the field, enter the desired value, and then press the Enter key. Fields that have been edited but not set will be highlighted yellow. Clicking cancel will undo the yellow highlighted fields. Once all fields have been edited as needed, click the green Apply button in the upper-right hand corner. The yellow highlighted fields will change to green to indicate the changes have been set.

For a digital input, if the setpoint column is checked off that means the alarm will trigger when that input is Close or logic 1. For analog alarms, it sets the high or low threshold value depending on if it's a High Alarm type or Low Alarm type.

The **Deadband** column changes the Clear threshold for an analog alarm. As an example, if the high alarm level is 4,000, and the deadband is 200, after the analog input has gone above 4,000 and activated the alarm, it will have to go below 3,800 for the alarm to clear. Similarly, if the low alarm is 2,000 and the deadband is 200, the input will have to go above 2,200 to clear an active low alarm. This setting is useful to prevent multiple alarms when a reading is at the alarm threshold.

The **Delay** column adds a countdown timer to the alarm that starts once the threshold has been crossed. If the input stays past the threshold for entire duration of the Delay countdown, the alarm becomes active and alert messages are sent out. However, if the Ranger reports a reading below the threshold during that countdown, the timer is reset, and the threshold must be crossed again for the countdown to start again. **The Delay value should be greater than the Ranger's report interval** so there's at least one new reading before the countdown ends.

The Delay timer takes the Deadband value into consideration. Consider the previous example where the high alarm threshold is 4,000 and the deadband is 200, but now there is a 120 second Delay. Once the Ranger reports a reading above 4,000, a 120 second countdown begins. If the Ranger reports a reading of 3,900 before

the timers hits 0, the alarm still activates because it's within the deadband. If it instead goes to 3,700, the timer is reset and the input has to go back above 4,000 for the Delay timer to count down again.

Alarm Groups

When alarms are triggered, the Cloud sends messages out to users based on alarm groups. Click on the "Configure Groups" button in the upper-right corner of the Alarms tab to edit user and Ranger alarm groups. **Only users with Alarm Admin privileges may edit settings here.**

New users and newly added Rangers will be assigned to the Default Alarm Group, which cannot be removed or renamed. To add a new group, click on the "+ New" button in the Groups tab, and then rename it in the Name field. To select which Rangers you'd like to have in the group, click on the Configure button, check off the desired Rangers, and click Apply.

To add a single Ranger to multiple groups at once, go to the Rangers tab, click on the Ranger, check off the groups to add it to in the panel on the right, and click Apply. When any of that Ranger's alarms become active or clear, the Cloud will send messages to every user in the groups the Ranger is a part of.

To edit each user's group, click the Configure button to bring up a list of all users. You may then one-by-one edit which single group a user is assigned to. **Users may only be assigned to a single group.**

Configure Rangers in Alarm Group

Alarm Group: Alarm Group 2

Press Apply to set values

Name	In Group
SignalFire-Lab Rev 1.2 (AT&T) [I604589]	<input type="checkbox"/>
RA000497 [RA000497]	<input type="checkbox"/>
SF TANK-EH3 [I604480]	<input checked="" type="checkbox"/>
352656100817868 [I817868]	<input type="checkbox"/>
SignalFire-Lab Rev 1.3 (VzW) [I817835]	<input checked="" type="checkbox"/>
352656100818007 [I818007]	<input checked="" type="checkbox"/>
352656100817991 [I817991]	<input type="checkbox"/>
352656100817751 [I817751]	<input checked="" type="checkbox"/>
RA000503 [RA000503]	<input type="checkbox"/>
352656100817983 [I817983]	<input type="checkbox"/>
352656100302614 [I302614]	<input type="checkbox"/>
352656100817892 [I817892]	<input type="checkbox"/>
352656100818015 [I818015]	<input type="checkbox"/>
352656100597817 [RA000498]	<input type="checkbox"/>
Murphy TTD [I597486]	<input type="checkbox"/>
352656100926891 [I926891]	<input type="checkbox"/>
SandroPool RANGER900 [RA000582]	<input type="checkbox"/>
352656102543801 [RA000566]	<input type="checkbox"/>
352656100923278 [RA000060]	<input type="checkbox"/>
Contract Hour Flow Test [I597312]	<input type="checkbox"/>

APPLY CLOSE

Alarm Groups per Ranger CONFIGURE **Alarm Groups for Ranger** APPLY CANCEL

Device Name View

SignalFire-Lab Rev 1.2 (AT&T) [I604589] VIEW

RA000497 [RA000497] VIEW

SF TANK-EH3 [I604480] VIEW

352656100817868 [I817868] VIEW

SignalFire-Lab Rev 1.3 (VzW) [I817835] VIEW

352656100818007 [I818007] VIEW

Ranger: SF TANK-EH3 [I604480]

Current Settings on Cloud

Group Name	In Group
Alarm Group 88	<input type="checkbox"/>
Alarm Group 23	<input type="checkbox"/>
Default Alarm Group	<input checked="" type="checkbox"/>
Alarm Group 2	<input type="checkbox"/>
Troy's Alarm Group	<input type="checkbox"/>
Alarm Group 4	<input type="checkbox"/>
Alarm Group 9	<input checked="" type="checkbox"/>
Alarm Group 93	<input type="checkbox"/>
Alarm Group 72	<input type="checkbox"/>

Alarm Groups + NEW **Alarm Group 2** CHANGE CANCEL

Group Name View

Alarm Group 88 VIEW

Alarm Group 23 VIEW

Default Alarm Group VIEW

Alarm Group 2 VIEW

Troy's Alarm Group VIEW

Alarm Group 4 VIEW

Alarm Group 9 VIEW

Alarm Group 93 VIEW

Alarm Group 72 VIEW

Name:

Remove Alarm Group

REMOVE Warning: Removing alarm group cannot be undone

Users in Alarm Group CONFIGURE

Username	First Name	Last Name	Alarm Group
stdemo@signal-fire.com	Spike	Siegel	Alarm Group 2

Rangers in Alarm Group CONFIGURE

Name	Alarm Groups
Have a HART [RA001664]	Alarm Group 2

Reports

The SF Cloud has an automated reporting function that can send either a snapshot of data or a historical csv data dump to a group of recipients on a schedule.

To create a report, go to the Reports tab and then click on the "Add Report +" button and set the report filename and display name. Next select the type of report which can be either a snapshot or history report. The enabled checkbox enables the report to run automatically on the configured schedule.

Snapshot reports can be sent out up to 4 times a day, while history reports support daily or weekly data.

Change Recipients allows you to configure one or more email addresses that the reports will be sent to

Change Columns is only valid for snapshot reports and allows the user to device up to 6 columns of data

Change Devices allows the user to select which set of Rangers the report could contain.

The screenshot shows the 'Report Settings: new_report1' configuration page. It includes the following fields and options:

- Filename:** new_report1
- Display Name:** Custom Report
- Type:** snapshot (dropdown menu)
- Enabled:**
- Schedule:** 1 time(s) daily at 12AM (midnight). Next 5 occurrences: 1. Wed Nov 24, 2021 12:00AM UTC, 2. Thu Nov 25, 2021 12:00AM UTC, 3. Fri Nov 26, 2021 12:00AM UTC, 4. Sat Nov 27, 2021 12:00AM UTC, 5. Sun Nov 28, 2021 12:00AM UTC. A 'CHANGE SCHEDULE' button is on the right.
- Recipients:** Please specify recipients. A 'CHANGE RECIPIENTS' button is on the right.
- Columns:** 6 columns: NAME, LASTREPORTED, AIN1, DIN1, DIN2, BATTERY. A 'CHANGE COLUMNS' button is on the right.
- Devices:** All group devices. A 'CHANGE DEVICES' button is on the right.

At the bottom, there are buttons for PREVIEW, SAVE, CLONE, UNDO, and DELETE.

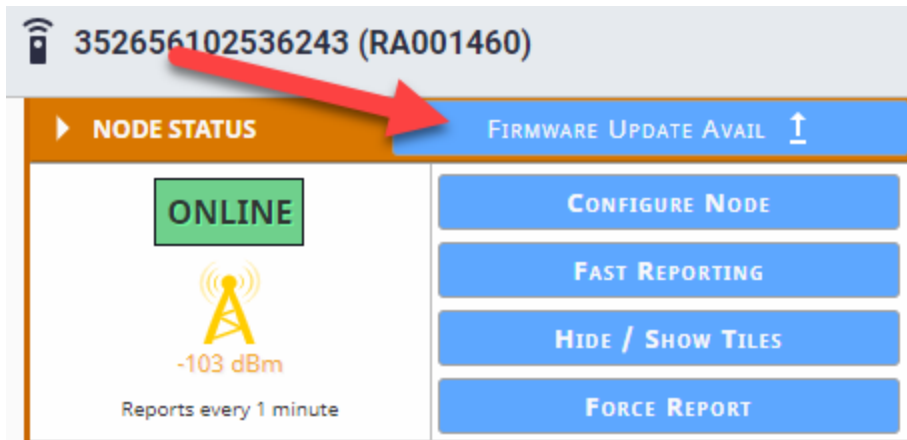
Note that history reports generate one .csv file per selected Ranger containing all historical data for that Ranger. If multiple Rangers are selected one .csv file for each Ranger will be included in a .zip file.

Updating Ranger Firmware

Rangers support Over the Air (OTA) updating of firmware. The Signal Fire Cloud Platform has tools built in to help you do this.

Single Ranger Firmware Update

On the Node Status of any Ranger, if there is an applicable firmware update available and the Ranger is online, the tile will display a button allowing you to upgrade the Ranger's firmware:

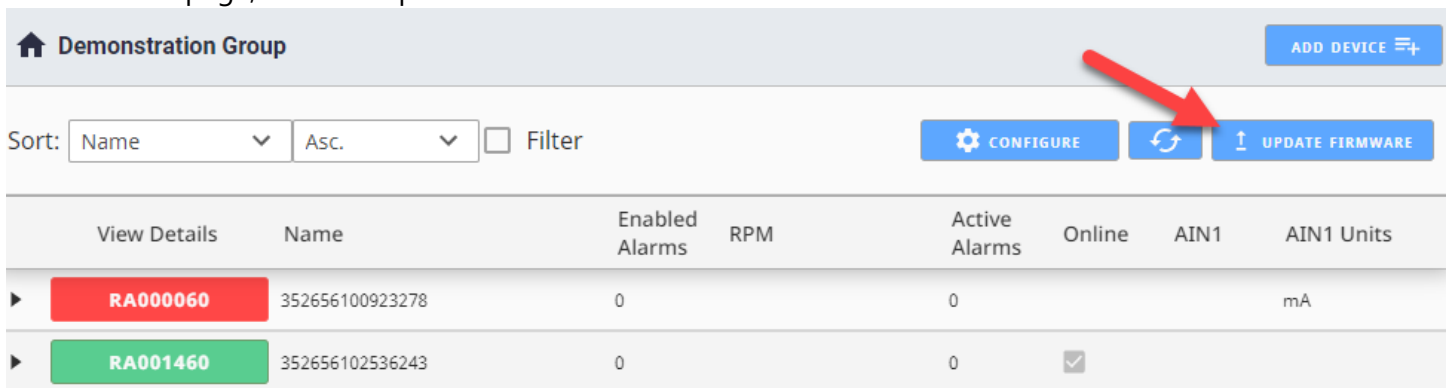


Upon clicking the button, the Bulk Firmware update page will be brought up with the target device pre-selected for receiving an update. You may review the list of nodes eligible for a firmware update to go through with a bulk firmware update.

Bulk Firmware Update

If you have multiple Rangers, you can update one or more of them at the same time using the Bulk Firmware Update tool.

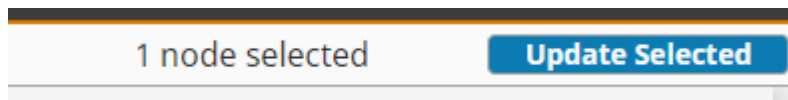
On the home page, click the Update Firmware button:



You will see a screen which lists the Rangers in your group, along with their current firmware version, and any available firmware version. You will also see buttons to review Release Notes for the latest firmware version available.

Available Version	Release Notes
v0.1.21-v1-A-modbus	VIEW RELEASE NOTES
v0.1.21-v1-A-3v	VIEW RELEASE NOTES

You can select one or more Rangers to update simultaneously, and then click the Update Selected button to begin the OTA firmware update process.



You will see each step of the firmware update process:

Update Status	Device	Current Version
Downloading Firmware	352656102536243 [RA001460]	v0.1.19-3v (Downloading v0.1.20-v1-3v)
Rebooting Ranger	352656102536243 [RA001460]	v0.1.19-3v (Downloading v0.1.20-v1-3v)

You will also see the status of recently updated Rangers:

Update Status	Device	Current Version	Available Version
Recently Updated	352656102536243 [RA001460]	v0.1.20-v1-3v	v0.1.20-v1-3v

If you trigger a firmware update and it doesn't complete successfully within 10 minutes, you will get a message that the firmware update failed. This can happen if the Ranger loses power during the update or if the download of the firmware software over the air fails. You can try again by selecting the checkbox again. There are many fail-safes in place to ensure that firmware updates will not leave the Ranger in an inoperative state.

If there is more than one person in your organization logged into the Signal Fire Cloud platform, you will be able to see firmware status updates that others perform in real time.

Technical Support and Contact Information

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Revision History

Revision	Date	Changes/Updates
1.0	9/23/2020	Initial release
1.1	11/30/21	Added detail on reports, dashboards, alarms
1.2	3/4/22	Added OTA firmware information. Updated screenshots and paragraphs to match the current cloud updates. Simplify user guide for claiming devices.
1.3	3/21/22	Added fast reporting settings