

Remote Monitoring

Trimble Unity RM Training Guide



www.trimblewater.com

TRANSFORMING THE WAY THE WORLD WORKS



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1. Introduction

This User Guide is intended to get you up and running with the Unity Remote Monitoring (Unity RM) app. It covers both the web and the mobile components of Unity RM, and will cover all the major functions within the scope of the app.

The content is delivered with screenshot illustrations. The guide is user-centered and is organized based on the most common key activities and tasks as part of the remote monitoring business process.

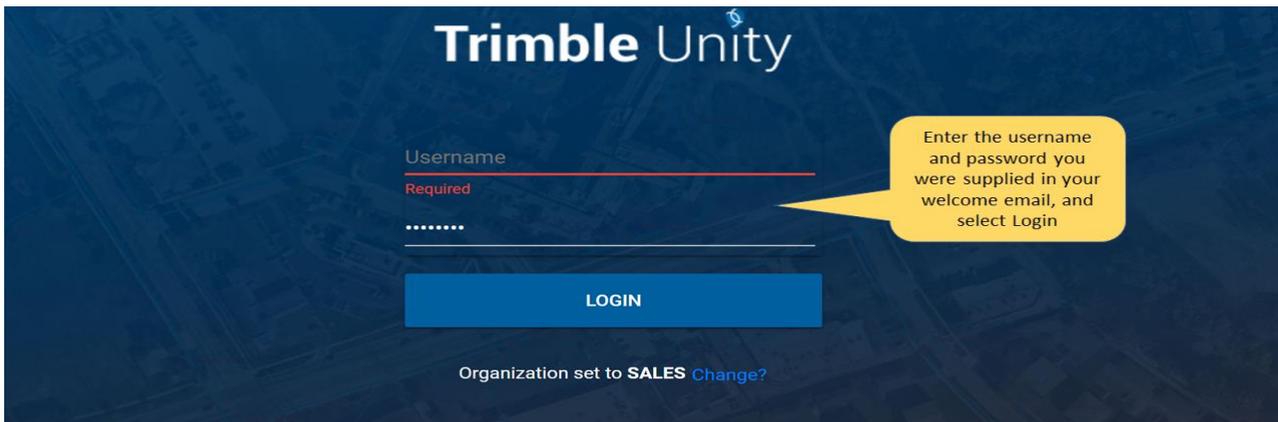
This guide is not intended as a comprehensive training course for use of the app. If you feel your organization would benefit from dedicated training, Trimble Water offers a number of training options including web-based and onsite delivery. Please contact trimblewater_sales@trimble.com for more details.

2. Prerequisites

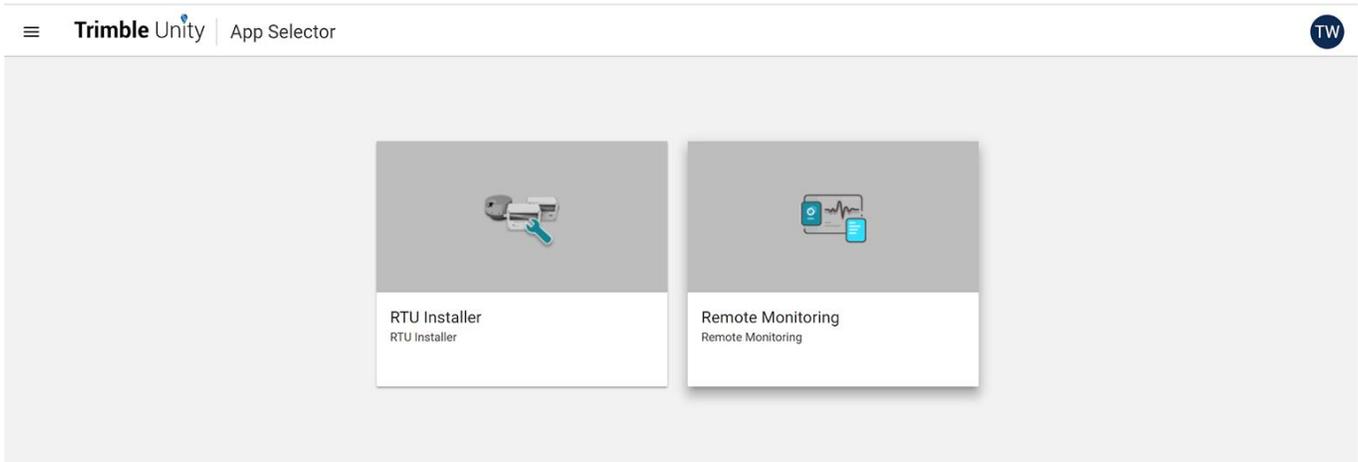
You should have received a welcome email providing details on how to login to Unity. This guide will have been included as an attachment.

3. Login to your Unity RM instance

Click on <https://app.trimbleunity.com/> to launch the Trimble Unity login page.



This will take you to the App Selector screen with the options of the Remote Monitoring and RTU Installer app. For most of the activities covered by this guide you will be using the Remote Monitoring app.



4. Install a RTU and create a new site

Unity RM provides the RTU Installer app to support the creation of new sites and associate RTUs them. There are a number of steps in the process:

1. Create a work order in the RTU Installer app to assign to a crew who will do the actual install



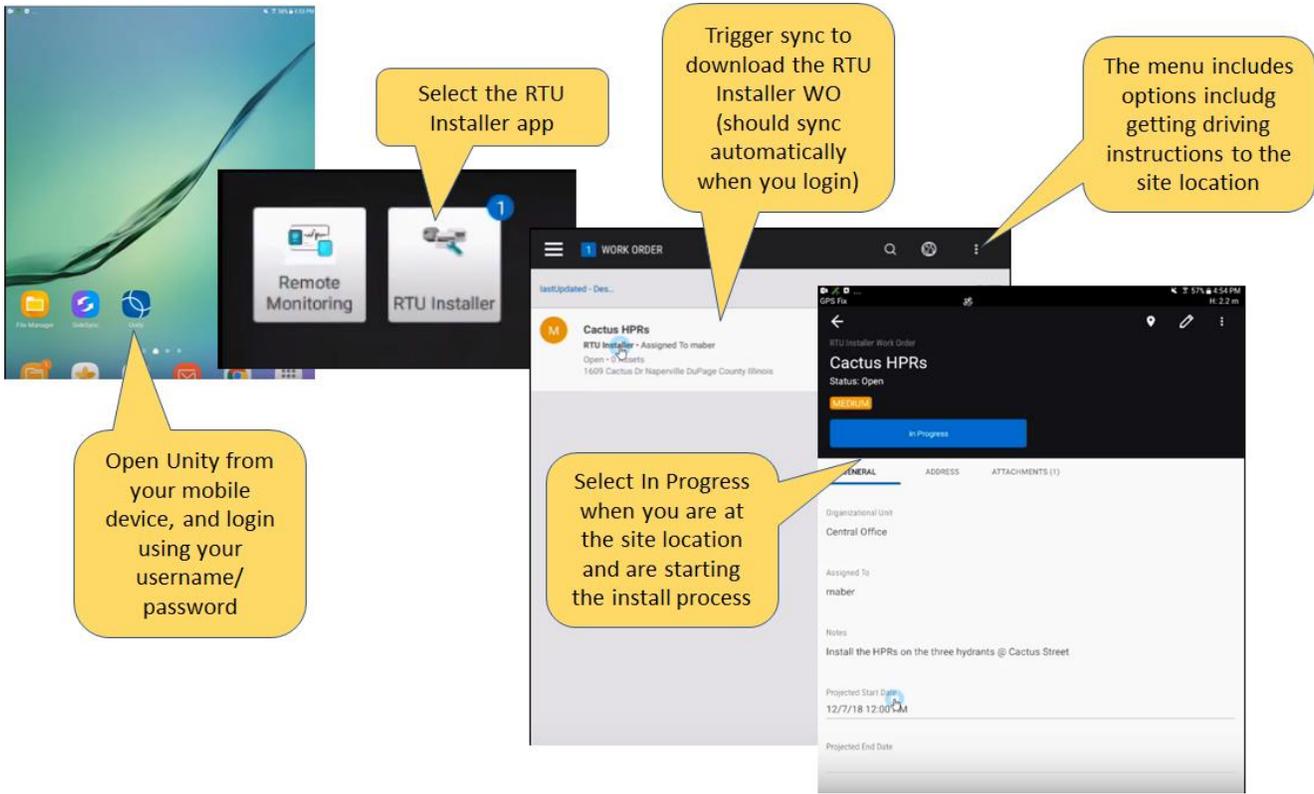
Open the RTU Installer web app

A screenshot of the Trimble Unity RTU Installer web application. The main window is titled "New Work Order" and contains a form with the following fields: "External ID" (text input with "Sunnybrook Dr"), "Organizational Unit" (dropdown menu with "Central Office"), and "Type" (dropdown menu with "RTU Installer"). Below these fields is a "Status" section with four radio buttons: "Open" (selected), "Completed", "Closed", and "In Progress". At the bottom of the form are "RESET", "CANCEL", and "CREATE" buttons. The background shows a map with a blue location pin and a yellow callout bubble pointing to a "+" icon on the map.

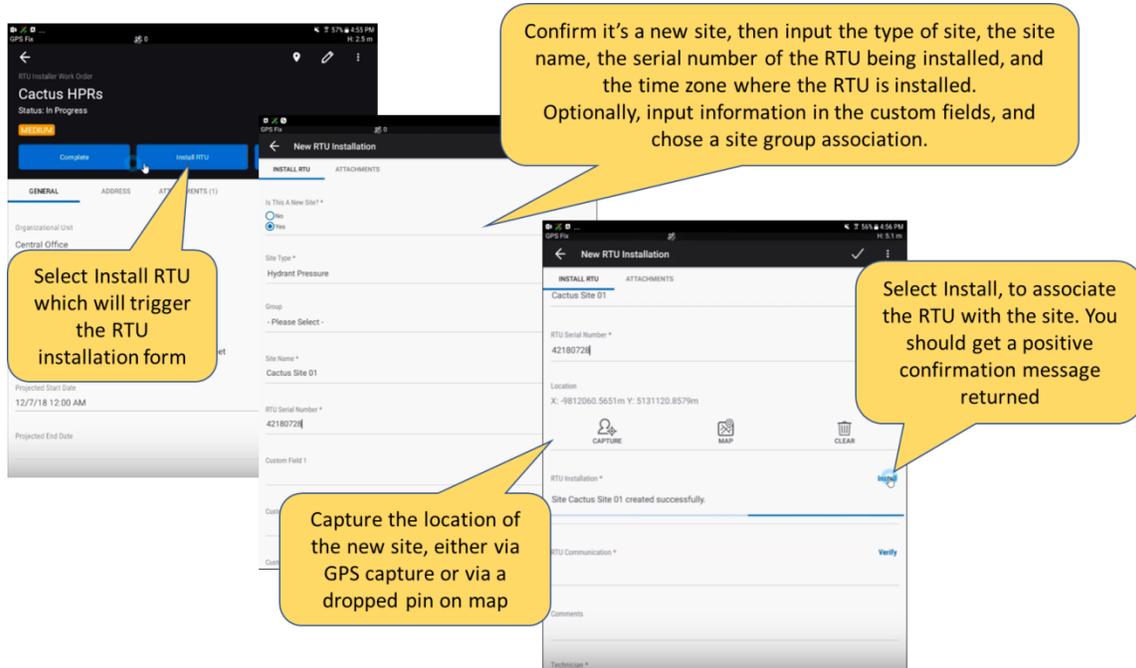
Select the '+' icon to create a new WO, select a location from the map (roughly in the location of the new site), and assign the WO to the crew that will install the RTU at the site, and select CREATE

Note: You can use a single work order for multiple RTU installations.

2. Login to the RTU Installer app on your mobile in the field to download the install WO



3. Add a new site (or select an existing one) and associate the RTU with the site



- Physically install the RTU and use the 'tamper' button to trigger a test call, and verify that call was received. Note that the tamper is not required, however it is recommended to confirm communications, and to complete setting up the site. Otherwise users will have to wait for the next scheduled call to be able to view the measurements on the new site.

Connect the tamper cable to the recorder, and press the tamper button until the light is solid. This will trigger a call to the center

...Select checkmark to complete the installation

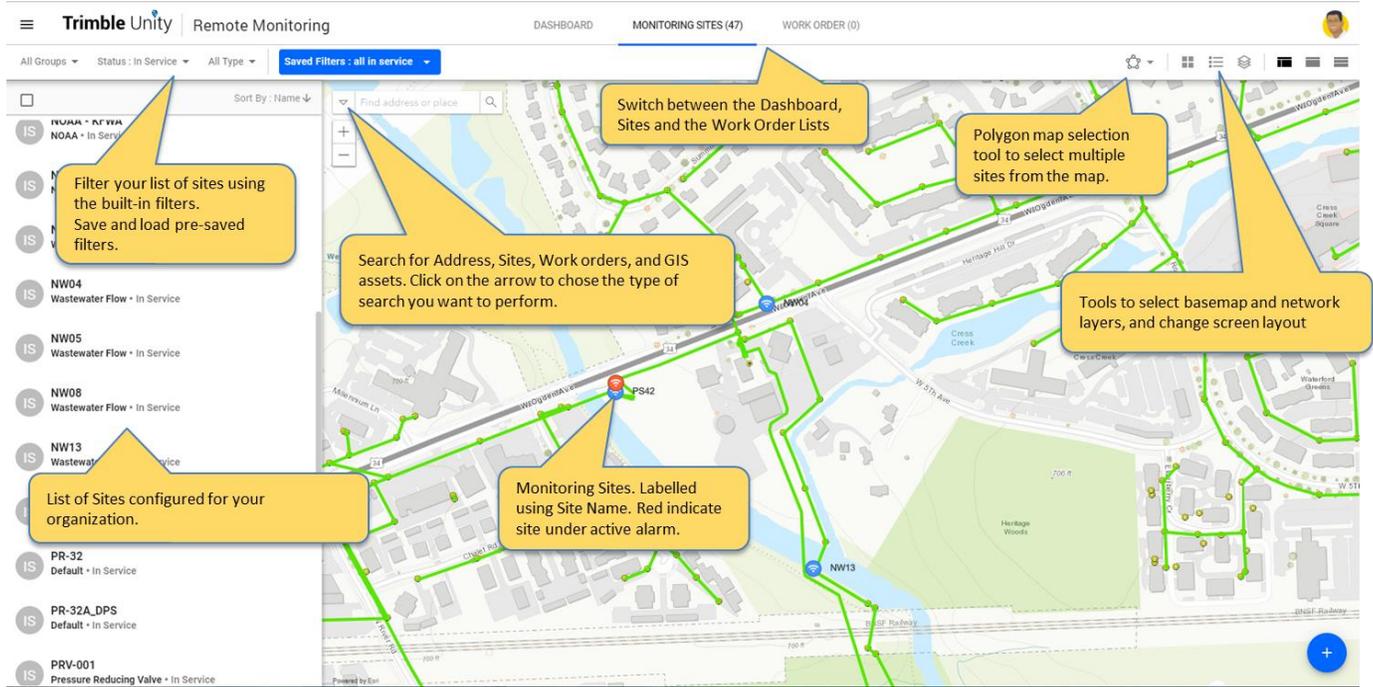
Return to the app, and tap on the Verify button to confirm that the call update was successfully received...

...the new site and associated RTU will now be available in both the mobile and web apps

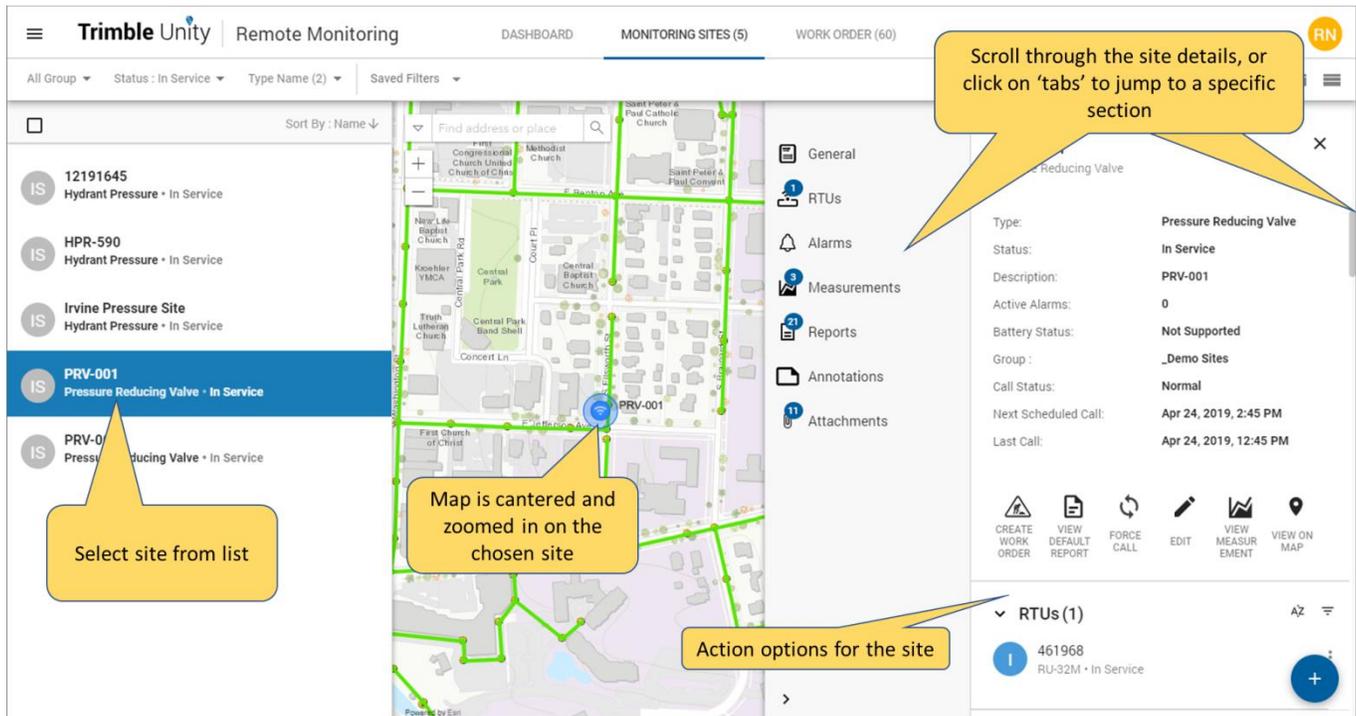
 For more details on the options available when creating new sites and installing RTUs, including downloading attachments, see [this](#) video.

5. Work with the Remote Monitoring app user interface

The Remote Monitoring app UI is centered around the Sites List, showing by default the sites configured for your organization on both a list and a geospatial basis.



Click on one of the sites, either on the list, or from the map, to view the site details. You can view the site type, call status, RTU details, any alarms, list of measurements, telemetry reports, and update the RTU configurations from the site details...



6. Graph measurements

To graph the time series data for a site, there are a couple of options:

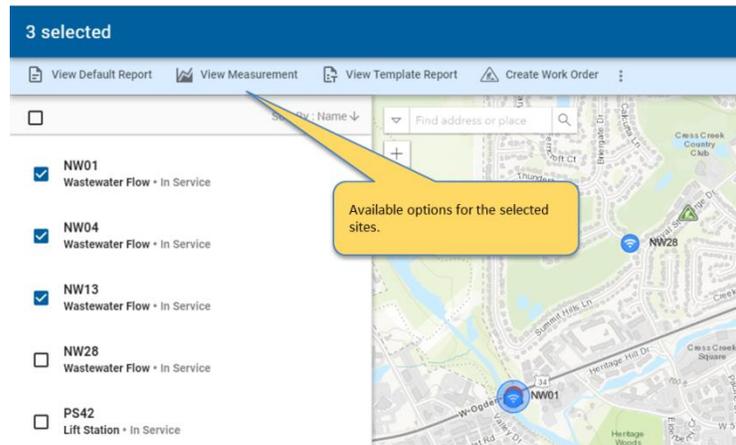
The screenshot shows the Trimble Unity Remote Monitoring interface. On the left, a list of sites is displayed, with 'NW01 Wastewater Flow - In Service' selected. A yellow callout bubble points to this site with the text 'Chose a site from the list.' In the center, a map shows the location of the site. A yellow callout bubble points to the map with the text 'To graph one measurement, click on a measurement.' On the right, a detailed view of the 'NW01 Wastewater Flow' site is shown. A list of measurements is displayed, with 'Dmeter (in) NW01 - Raw' and 'Flow (MGD) NW01 - Calculated' selected. A yellow callout bubble points to the '2 selected' indicator at the top of the list with the text 'To graph multiple measurements, select them from the list, then click on the graph measurements icon.'

You also have the capability of viewing a predefined Default Report or Measurement configured for the sites based on their type. This can be accessed as shown below:

The screenshot shows the Trimble Unity Remote Monitoring interface. On the left, a list of sites is displayed, with 'HPR-590 Hydrant Pressure - In Service' selected. A yellow callout bubble points to this site with the text 'Chose a site from the list.' In the center, a map shows the location of the site. A yellow callout bubble points to the map with the text 'View predefined default report or measurement for the selected site.' On the right, a detailed view of the 'HPR-590 Hydrant Pressure' site is shown. The site details are displayed, including Type: Hydrant Pressure, Status: In Service, Description: HPR-590, Active Alarms: 0, Battery Status: Not Supported, Groups: _Demo Sites, Pressure Zone 0, Call Status: Normal, Next Scheduled Call: Sep 04, 2019, 4:45 PM, and Last Call: Sep 04, 2019, 2:45 PM. Below the details, there are icons for 'VIEW DEFAULT REPORT', 'VIEW MEASUREMENT', 'CREATE WORK ORDER', 'EDIT', and 'VIEW ON MAP'. At the bottom, a list of RTUs is shown, with '472885 HPR-321 - In Service' selected.

6.1. View measurements and reports across multiple sites

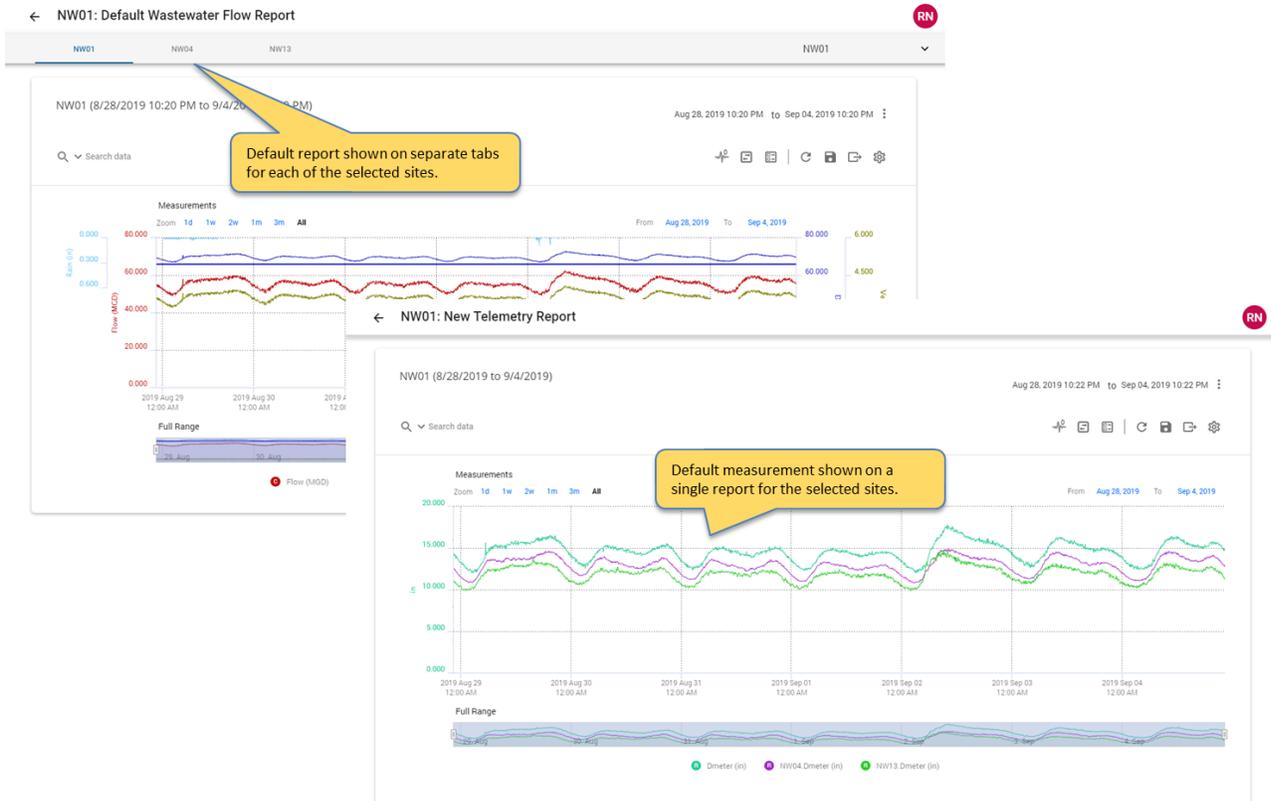
Unity RM provides the capability to view measurements and reports across multiple sites.



View Default Report option shows the default report for each of the selected sites in separate tabs.

View Template Report option gives you the ability to select a template report to run for the selected sites. The template report shows up for each of the selected sites in separate tabs.

View Measurement option shows a single telemetry report with the default measurement for the selected sites graphed on the same report. Option used to compare trends across multiple sites.



7. Work with the telemetry report

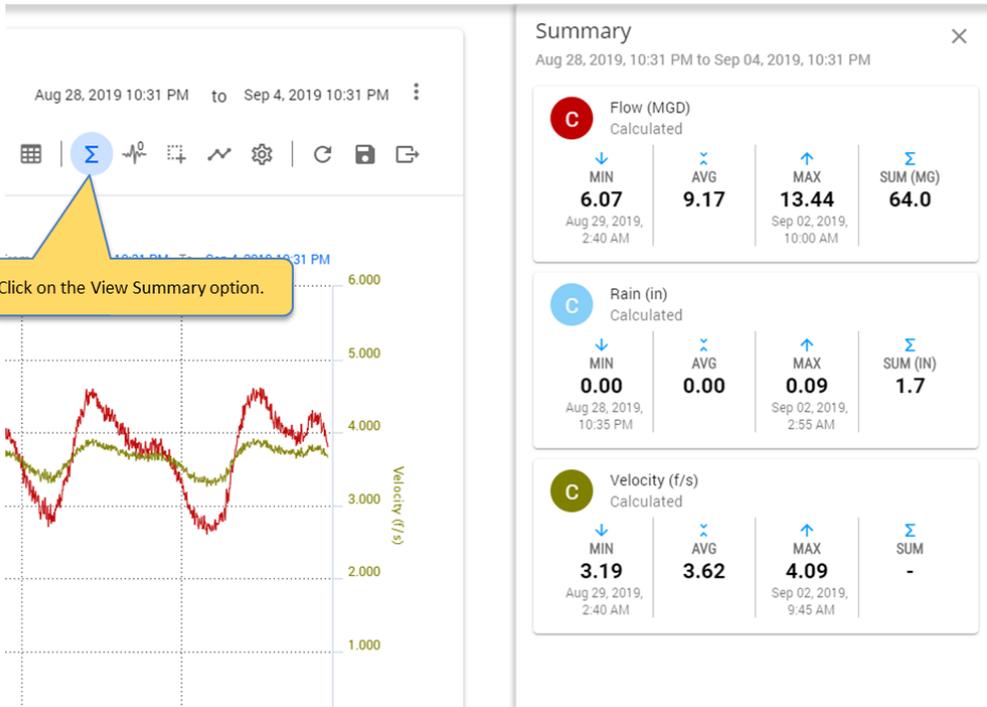
When measurements are graphed, or a saved report is opened, the telemetry report will load and provide you with various tools to navigate and analyze the data.

7.1. Navigate the telemetry report UI



7.2. View statistical summary

Toggle the statistical summary tab on the telemetry report to view the statistical summary for each of the measurements displayed on the report, within the reporting time period. This includes the Min value and corresponding timestamp, Max value and corresponding timestamp, Average, and when supported, the Sum (examples: total flow or total rain).



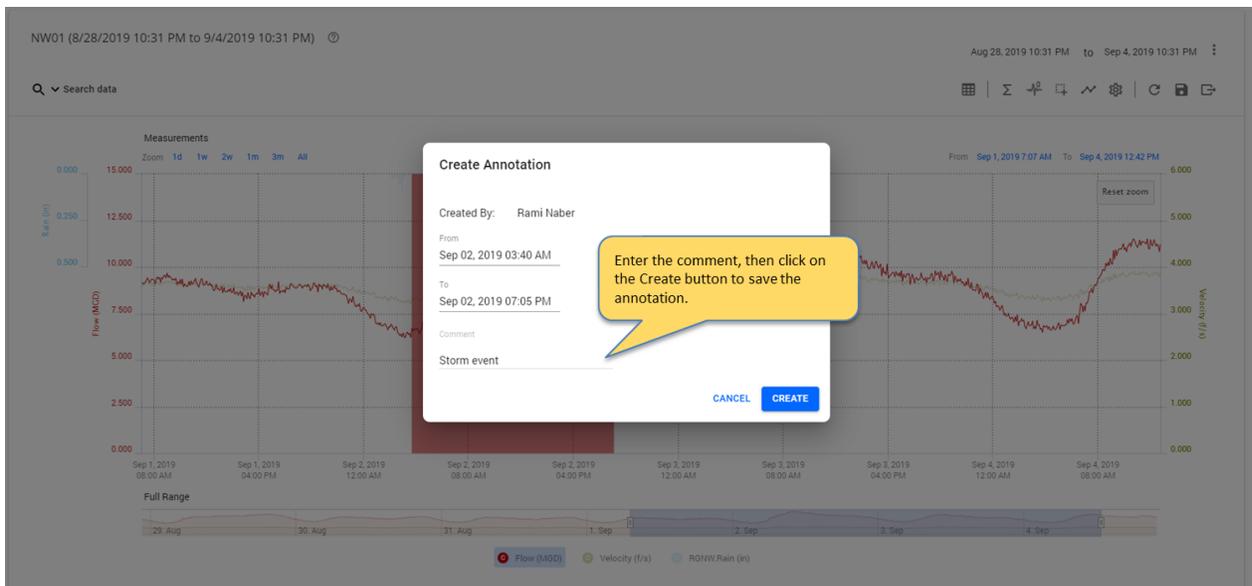
7.3. Toggle tabular view

Quickly compare consecutive measurements in a tabular view, instead of depending on the tooltip within the graph. You can toggle the tabular view on the telemetry report, to view the telemetry data for all enabled measurements on the report in a tabular format, side-by-side with the graph.

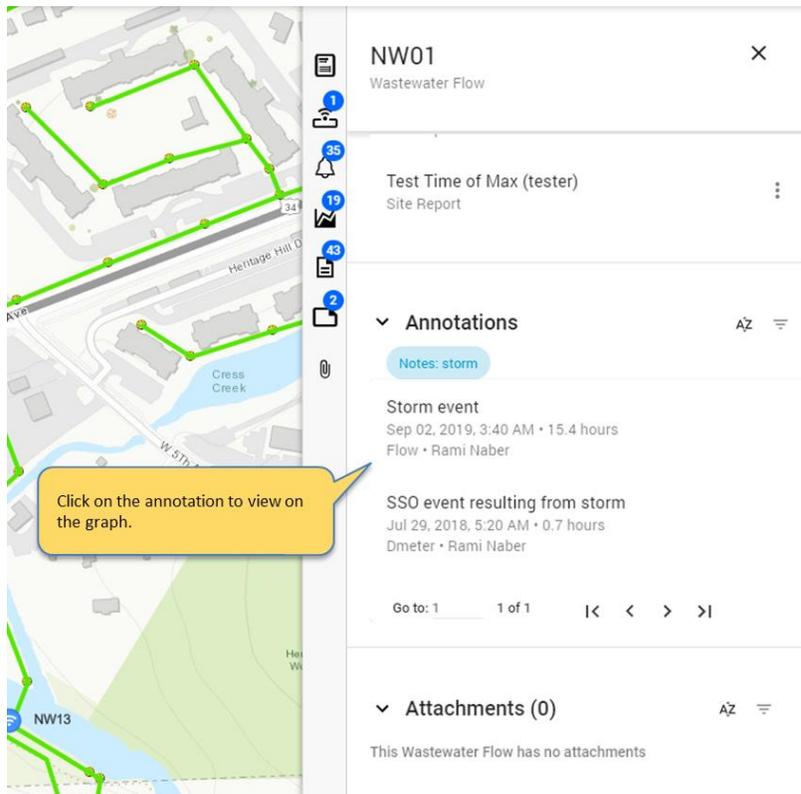


7.4. Annotate measurements

Share insights and details on data anomalies across the organization. You can create annotations on the telemetry data. These are notes that are associated with a particular measurement and time window highlighting data or operational anomalies.



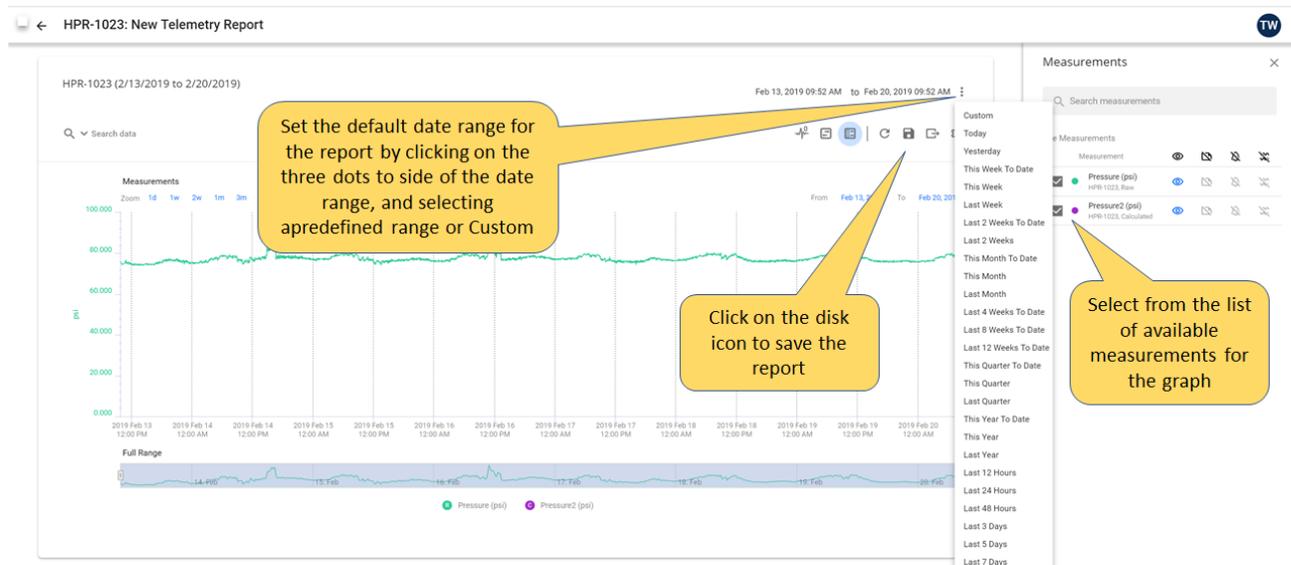
Annotations can be viewed from the annotation list on the site details screen.



7.5. Save telemetry reports

You can create and save both site specific reports and template reports that can be applied to all sites with the same measurement data available.

NOTE: You must have the Report Manager role in Unity to be able to create reports.



As mentioned earlier, reports you create can be set up as templates that are available across sites, or as specific reports, perhaps to illustrate a specific event at an individual site. The option to set up as a template or site-specific report is available when you select Save As..:

7.6. Export Graphs/Reports

Reports can be exported from Unity RM as either an image, or as raw data. Export of a report is triggered from the report/graph itself. To export a report, first open a report (see [View measurement trend graphs](#), and elsewhere):

7.7. Customize report from report settings

Create custom report presentations based on the monitoring application, and user preferences when analyzing the telemetry data. You can customize the telemetry report graphs, including changing series and axis color, graph styles, measurement units, and scaling.

7.7.1. General Tab



Field Name	Description
Site	The name of the site as configured in Unity RM.
Title	Title customizable field that displays information at the top of the page, default information displays site name and start and end date of the data
Subtitle	Title customizable field that displays information below the title; default behavior is to display nothing in this field
Compression	Permits compressing the synchronous data to up to the daily compression, i.e. 15 minutes data can be compressed to 30 minutes, hourly up to the daily
Time Period	Predefined list of time periods to choose from for the report.
From Date/Time	Report start Date/time. When this field is set manually the time period and report date/time range becomes custom.
To Date/Time	Report end Date/time. When this field is set manually the time period and report date/time range becomes custom.

7.7.2. Series Tab

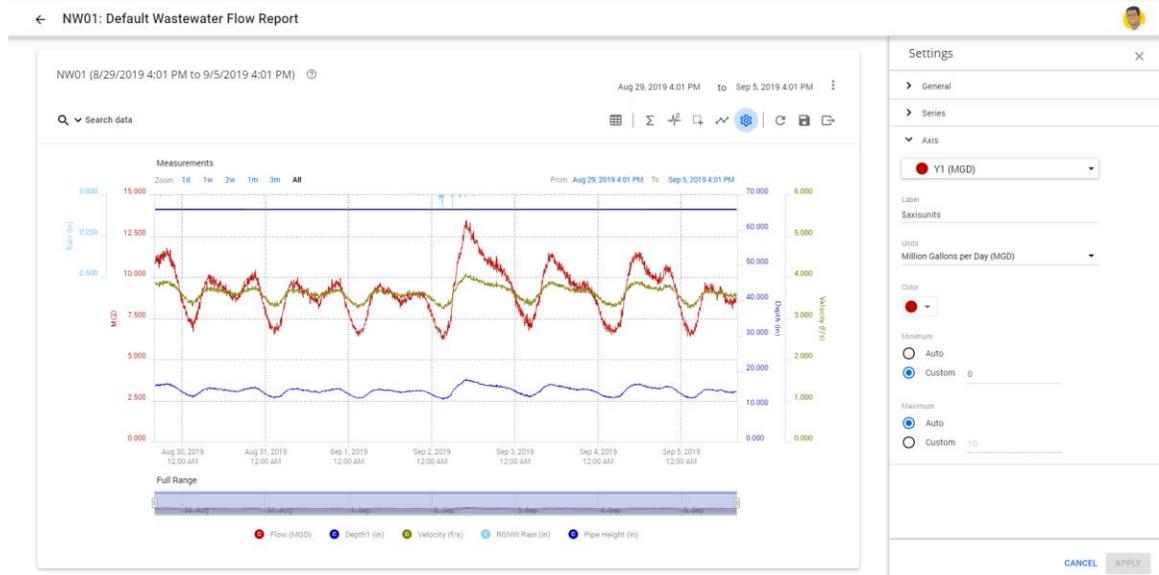
The Following options control the way the measurements are graphed.



Field Name	Description
Series	List of series or measurements enabled on the graph. All choices below describe settings for the selected series.
Name	Series name shown on the graph legend defaults to measurement name and units.
Axis	Defines axis associated with the graph. Note that there is a limit to 5 Axis that can be used in Unity RM. Multiple series can share the same axis if they have the same units.
Color	Sets the color for the series, each new series receives a color different from the previous one.
Chart Type	Supported chart types including: none, line, bar, stair, area. None is used if you don't want to graph the series, but display the data on the tabular view.
Line Style	Line style applicable to Line, and Stair chart types. Styles include: Solid, Dash, Dot, Dashdot, and Dashdotdot.
Line Thickness	Adjusts the thickness of the line.
Point Style	Point style applicable to Line, and Stair chart types. Styles include: Circle, Square, Diamond, Triangle, Downtriangle.
Point Size	Adjusts the size of the points.
Decimal Precision	Sets decimal place resolution, the default 3

7.7.3. Axis Tab

The Following options control the way each axis manages it's data display. There is a limit to 5 Axis that can be used in Unity RM. Multiple series can share the same axis if they have the same units.



Field Name	Description
Axis	Displays the axis selected for selected measurements, by selecting a different axis, all settings change to match the new axis selection.
Label	By default displays name of the unit associated with the axis, allows user type preferable label name.
Units	Drop down list of available unit conversions to display for the axis.
Color	The graph will follow a predefined color scheme by default. In case of multiple series using the same axis the first selected series will designate the color.
Minimum	Sets minimum scaling range <ul style="list-style-type: none"> • Auto- sets scale starting at the same value as lowest value in the series, moving the graph to the different time might change the lowest point of the scale. • Custom- permits a user to specify a starting lowest value, moving to different time span preserves that value
Maximum	Sets maximum scaling range <ul style="list-style-type: none"> • Auto- sets scale starting at the same value as highest value in the series, moving the graph to the different time might change the highest point of the scale. • Custom- permits a user to specify an ending highest value, moving to different time span preserves that value

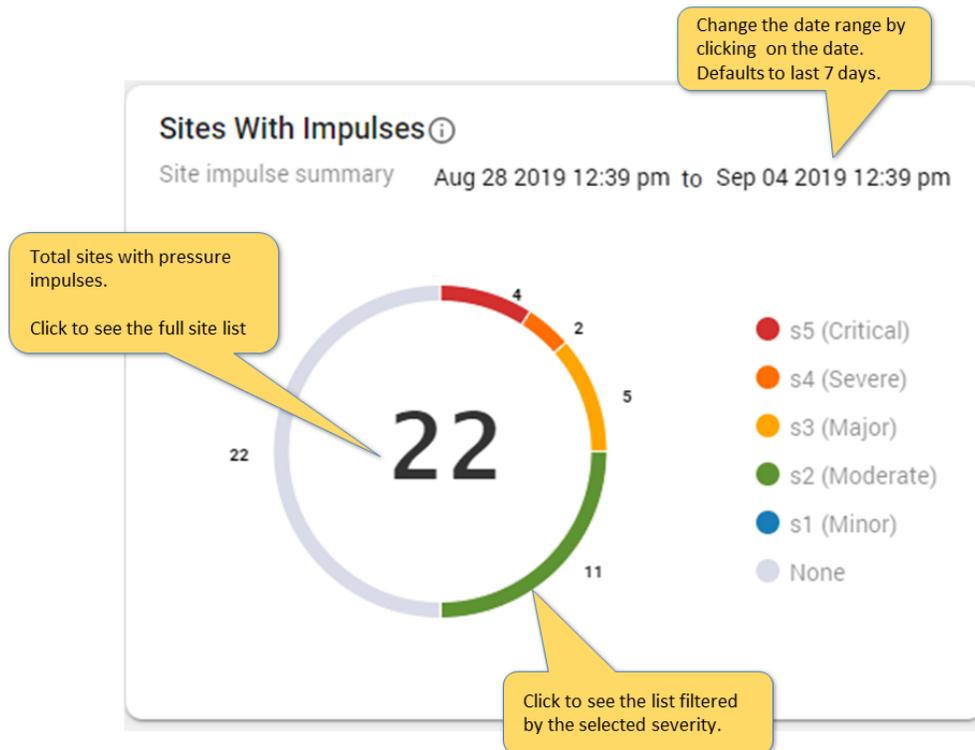
8. View and analyze pressure impulses

If your organization deployed high resolution pressure recorders to record pressure impulses, Unity RM has specific capabilities to help you identify those impulses to analyze the underlying causal factors.

8.1. Analyzing pressure impulses and intensity across sites

The impulse dashboard widget summarizes the total number of monitoring sites with impulses, during the past week as the default, categorized and color coded by severity. The impulse severity level is calculated based on the pressure deviation during each of the impulse events. You can change the date range, or drill down to view the list of sites filtered by impulse severity, giving you the tools to focus on sites with the most severe and damaging impulses.

Click on the dashboard tab to view the system health dashboard and access the site impulse widget.



Click on the dashboard widget to drill down to the list view.

Trimble Unity Remote Monitoring DASHBOARD MONITORING SITES (45)

All Groups Status: In Service Type: Hydrant Pressure Saved Filters: Hydrant Pressure

System Health Dashboard > Sites With Impulses Aug 28 2019 12:53 pm to Sep 04 2019 12:53 pm

Filter Sites by Group, Status or Type.

Filter Sites by Impulse Severity.

Total number of impulses for each site categorized by severity, in the selected time frame.

Click on the site to navigate to the site details to view measurements and impulse data.

Severity	Site Name	Site Groups	Measurements	Site Type	s5	s4	s3	s2	s1
32	19101 Kingsbury St 46180781	Zone E	Pressure	Hydrant Pressure				2	
32	95 Selby Drive	Zone B	Pressure					3	1
32	96 Edgefield Ave.	Zone C	Pressure					7	
33	65 Locust Drive	Zone A	Pressure				5	8	1
32	8183 Gulf Ave.	Zone E	Pressure	Hydrant Pressure				2	
33	42 Pineknoll Ave.			Hydrant Pressure			1	50	80
35	325 Edgewood Street			Hydrant Pressure	1		10	1	
33	77 Hawthorne Ave.	Zone B	Pressure	Hydrant Pressure			3	83	29
35	2 Princeton St.	Zone E	Pressure	Hydrant Pressure	1	1	24		
33	9441 Oklahoma Street	Zone B	Pressure	Hydrant Pressure			20	17	1
32	845 Lyme Rd.	Zone C	Pressure	Hydrant Pressure				1	
35	89 Brookside St.	Zone A	Pressure	Hydrant Pressure	3		10	85	22
32	9807 Market St.	Zone E	Pressure	Hydrant Pressure				1	
32	998 Fairway Street	Zone D	Pressure	Hydrant Pressure				1	

8.2. Viewing pressure impulses and high resolution data

The starting point for viewing pressure impulse data is to view the pressure measurement data for the relevant site (or sites), see [View measurement trend graphs](#) for instructions on how to display the measurements for a pressure recorder as shown below:



There are various ways to load the high resolution data and view impulse details, these are also displayed in the helper tooltip on the Impulses list:

1. **Click** on a specific impulse from the list to load its high resolution data.
2. **Double Click** on a specific impulse from the list to load its high resolution data, and zoom to the impulse on the graph.
3. **Click on “Load high resolution data”** option on the list to load the high resolution data for all impulses on the list.
4. **Click on impulse + hold Shift + Click on another impulse** to load the high resolution data for the selected range of impulses.

It can be useful to compare impulses across multiple sites for causal analysis; you can do this using the facilities to compare measurements across sites described in [“View measurements and reports across multiple sites”](#) section.

9. Monitor sensor call in performance and battery health

Unity RM allows you to monitor the health of your system remotely using simple dashboard functionality.

To view the system health dashboard select the Dashboard tab:

The screenshot shows the 'System Health Dashboard' with several key components and callouts:

- Navigation:** A callout points to the 'Dashboard' tab in the top navigation bar, stating 'Select 'Dashboard' to access System Health Dashboard'.
- Filters:** A callout points to the filter dropdowns, stating 'You can filter the dashboard by Group, Status and Site Type'.
- Active Alarms:** A callout points to the 'Active Alarms' widget showing a count of 1 and 'Total Active Site: 30', stating 'Overview of all active alarms in the system, and broken down by type'.
- Active Alarms By Type:** A callout points to the bar chart, stating 'Summary Site Call Status'.
- Battery Status:** A callout points to the donut chart, stating 'Summary battery health status (dependent on RTU battery health detection being supported)'.
- Site Call Status:** A callout points to the donut chart, stating 'You can drill down into dashboard by clicking on the widget to view in list format'.
- Table:** A table at the bottom shows site call details for HPR-590 and HPR-1023.

Site Name	Expected Call Date/Time	Last Call Date/Time	Total (Hours, Days) since last call
HPR-590	February 15, 2019 4:45 PM	February 15, 2019 2:45 PM	30 minutes
HPR-1023	February 15, 2019 4:45 PM	February 15, 2019 2:45 PM	30 minutes

The dashboard also links back into the main Monitoring Sites screen:

This section illustrates the workflow from the dashboard to the main monitoring screen:

- Dashboard to Main Screen:** A callout points to the site name link in the dashboard table, stating 'The dashboard links directly to the Site details by clicking on the link to the site name'.
- Main Monitoring Screen:** A callout points to the filtered list of sites on the map, stating 'The main remote monitoring screen is filtered to highlight the pre-select and zoom to the selected site.'.
- Site Details Panel:** A detailed view of site HPR-1023 is shown, including:
 - General:** Type: Hybrid Pressure; Status: In Service; Description: HPR-1023; Active Alarms: 0; Battery Status: Not Supported; Call Status: Normal.
 - RTUs (1):** RTU 481083 (Hybrid Pressure - In Service).
 - Alarms:** This Alarms has no related items.
 - Measurements:** Pressure (last).

10. Manage Sites

10.1. Update site information

If you need to update the site name, location or populate values in the site custom fields, you need to view and then edit the Site details. To view the site details, click on the site from the list or map.

NOTE: you will need to have the RTU Management role assigned to you to be able to edit site information.

The key features of the Site Details are illustrated below:

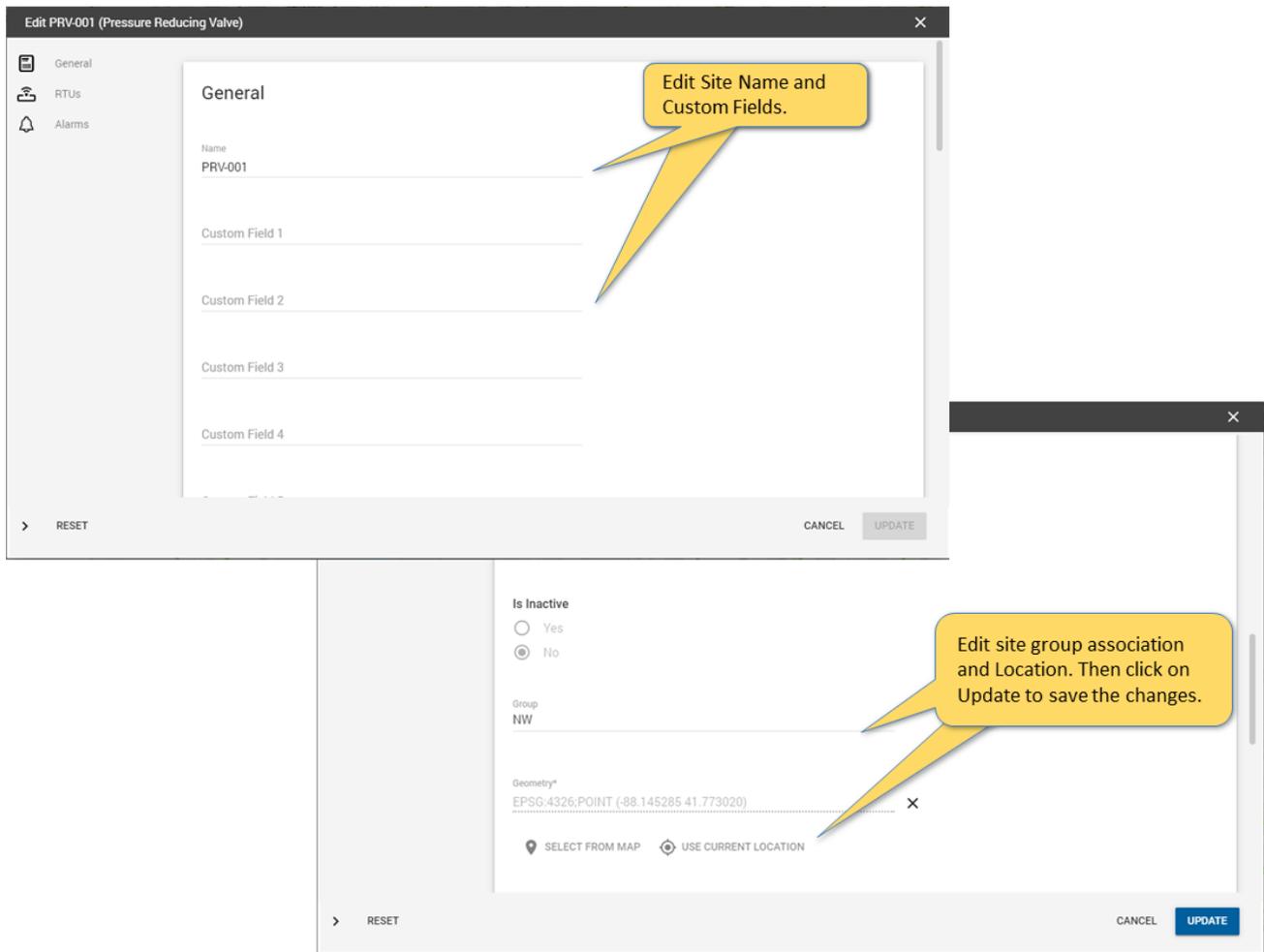
The screenshot displays the 'Site Details' page for a Pressure Reducing Valve (PRV-001). The page is divided into a left sidebar with navigation options and a main content area. The sidebar includes: General, RTUs (1), Alarms, Measurements (3), Reports (21), Annotations, and Attachments (11). The main content area shows the following details for PRV-001:

- Type: Pressure Reducing Valve
- Status: In Service
- Description: PRV-001
- Active Alarms: 0
- Battery Status: Not Supported
- Group: _Demo Sites
- Call Status: Normal
- Next Scheduled Call: Apr 22, 2019, 1:45 PM
- Last Call: Apr 22, 2019, 11:45 AM

Below the details are several action buttons: CREATE WORK ORDER, VIEW DEFAULT REPORT, FORCE CALL, EDIT, VIEW MEASUREMENT, and VIEW ON MAP. A yellow callout bubble points to the 'EDIT' button with the text: 'Click on Edit to edit site information including, name, group association, location and custom fields.'

Another yellow callout bubble at the top right of the details panel says: 'Site Details showing key site information.'

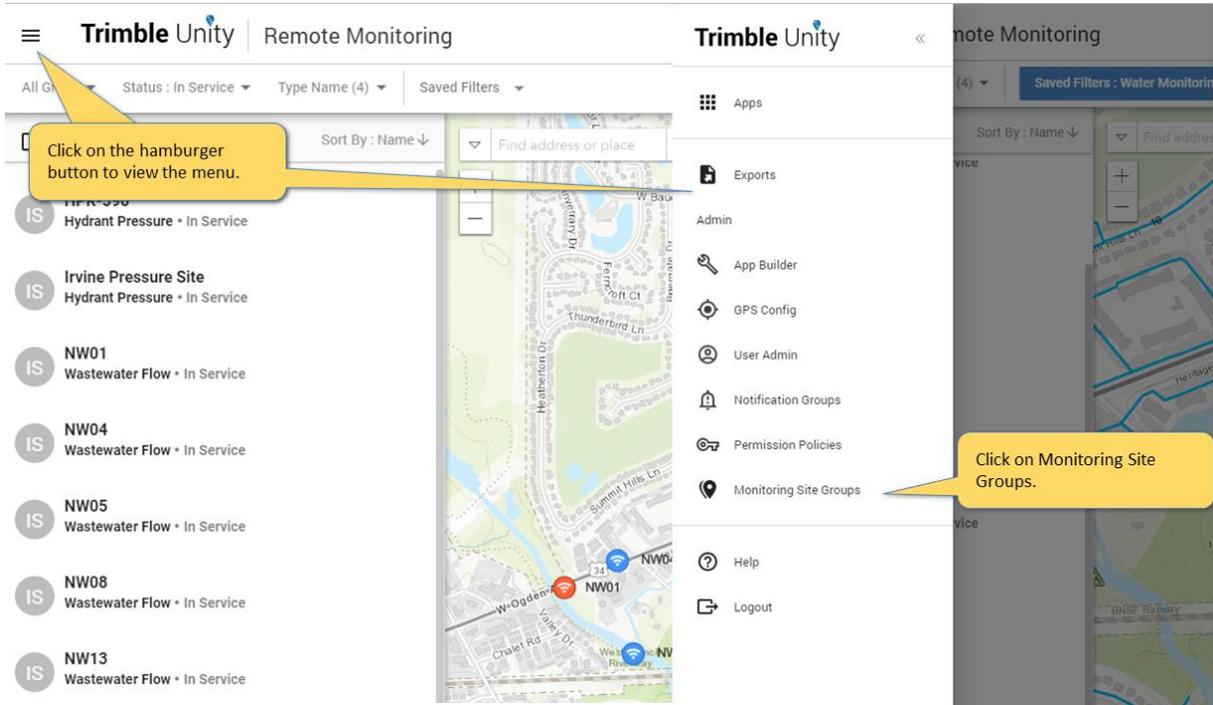
When you click on Edit, the Edit Site panel is displayed.



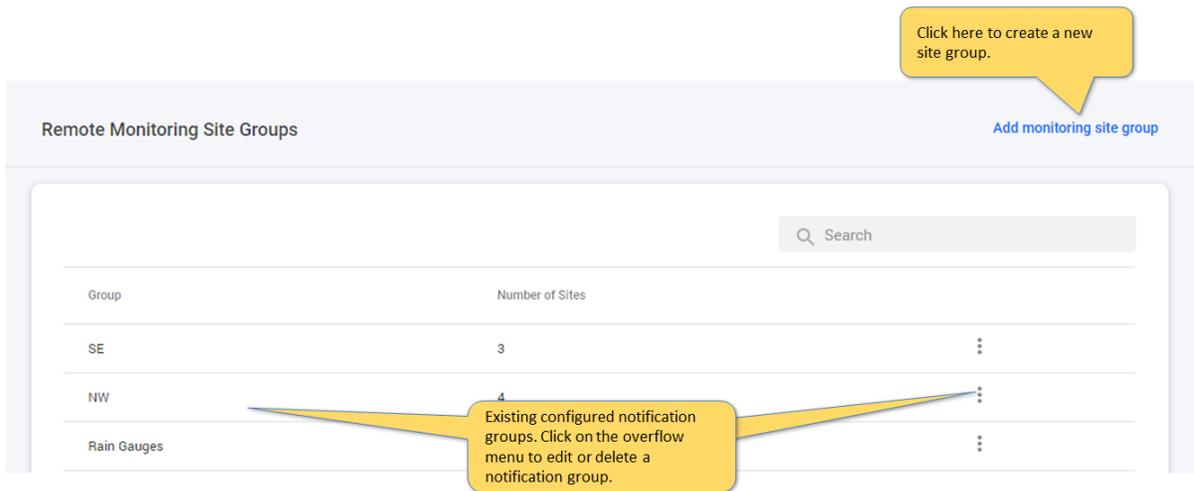
Clicking on the Update button will save the updated site information.

10.2. Create and manage monitoring site groups

If you need to group sites to simplify the management of sites, quickly filter sites by groups (examples: pressure zones or basins), or want to create group of sites to manage user access permissions to sites within specific groups, then you need to access the Monitoring Site Groups Admin page. **NOTE: you will need to have the RTU Management role assigned to you to be able to manage site groups.**



To create a new monitoring site group, or manage existing groups:



To create a new monitoring site group, or manage existing groups:

Zone 6 PRVs

Group Name*
Zone 6 PRVs

11 / 255

Monitoring Sites

2 selected X PR

Name ↓	Type
<input type="checkbox"/> prv11	Pressure Reducing Valve
<input type="checkbox"/> prv10	Pressure Reducing Valve
<input checked="" type="checkbox"/> PRV-005	Pressure Reducing Valve
<input checked="" type="checkbox"/> PRV-001	Pressure Reducing Valve
<input type="checkbox"/> PR Cork	Hydrant Pressure

Save the Site Group

CANCEL SAVE

Note that deleting a site group will delete the group and site association to the group. Site will not be deleted.

Once site groups are created, they will show up in the Site Group filter on the map:

Trimble Unity Remote Monitoring DASHBOARD

Group: Zone 6 PRVs All Status Type Name (4) Saved Filters

Search...

Sort By: Name ↓

Find address or place

Filter by Site Group

- Zone 6 PRVs
- _Demo Sites
- _RTU
- GasMonitoring
- Group1

APPLY

PRV-001 PRV-005

Site groups can also be used to set up permission policies. See managing permission policies section.

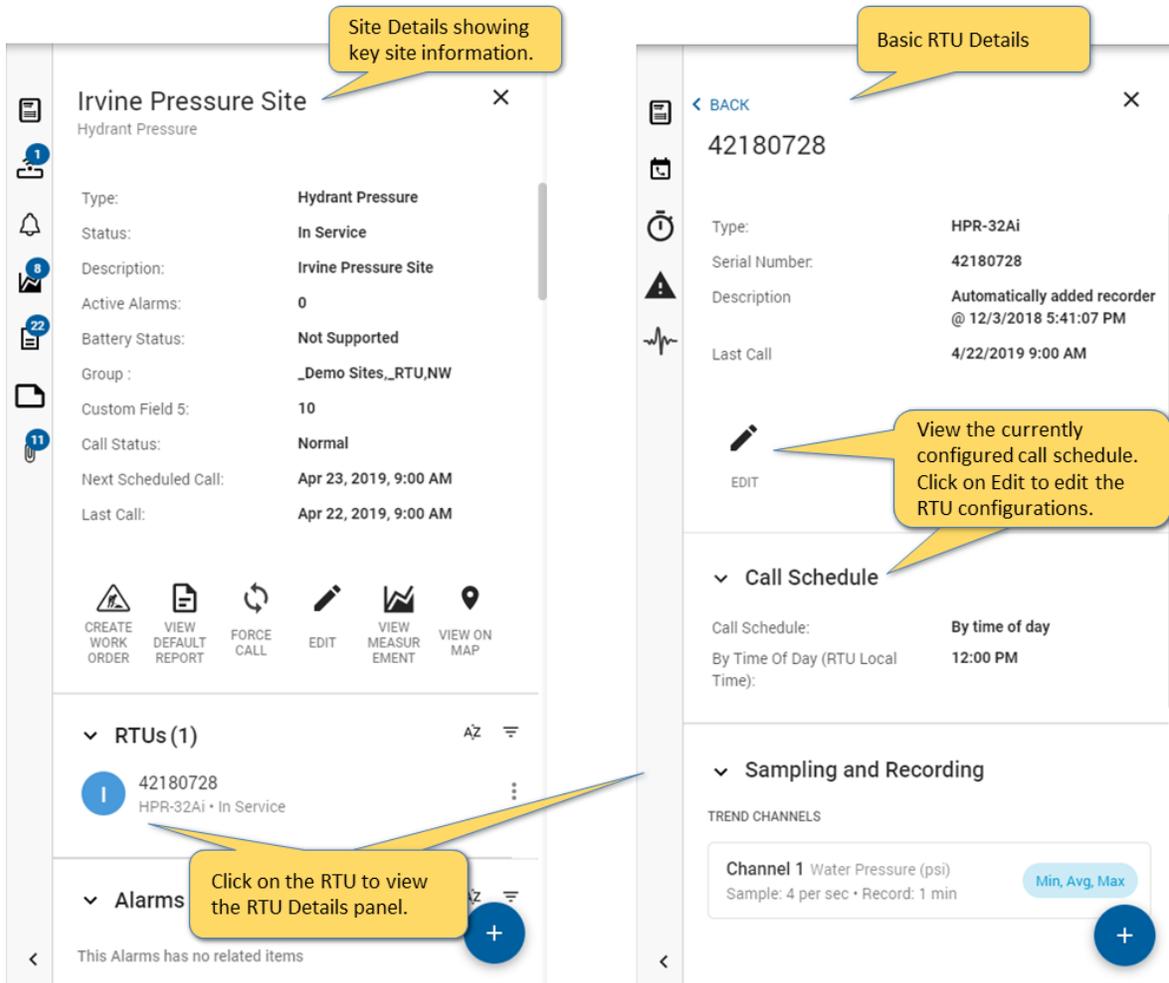
11. Manage RTUs

11.1. Configure RTU call schedule

If you need to change how frequently the RTU calls into the system, then you need to view the RTU details associated to the site you want to update. To view the RTU details at a site, click on the site to view its details.

NOTE: you will need to have the RTU Management role assigned to you to be able to edit RTU configurations.

The key features of the Site and RTU Details are illustrated below:



When you select Edit, the Edit RTU panel is displayed:

The screenshot shows the 'Edit RTUs 42180728' window. On the left is a navigation menu with icons for General, Call Schedule, Sampling and Recording, Alarms, and Impulse. The main area is divided into two sections: 'Call Schedule' and 'Sampling and Recording'. In the 'Call Schedule' section, there are two radio buttons: 'By hours' (unselected) and 'By time of day' (selected). A yellow callout box points to the 'By time of day' option with the text: 'Update the call schedule by specifying a new call in time, either a frequency by hours, or once every 24 hours at a specified time of day.' Below this, there is a text input field labeled 'By Time Of Day (RTU Local Time)' containing '12:00'. The 'Sampling and Recording' section contains a table titled 'TREND CHANNELS' with columns for Channel, Measurement, Record, and Sample Rate. The table has one row: Channel 1, Measurement Water Pressure, Record 'Min, Avg, Max' (with a dropdown arrow), and Sample Rate '4 per sec' (with a dropdown arrow). A yellow callout box points to the 'UPDATE' button at the bottom right of the interface with the text: 'Click on Update to save the configuration changes.' At the bottom left, there is a 'RESET' button, and at the bottom right, there are 'CANCEL' and 'UPDATE' buttons.

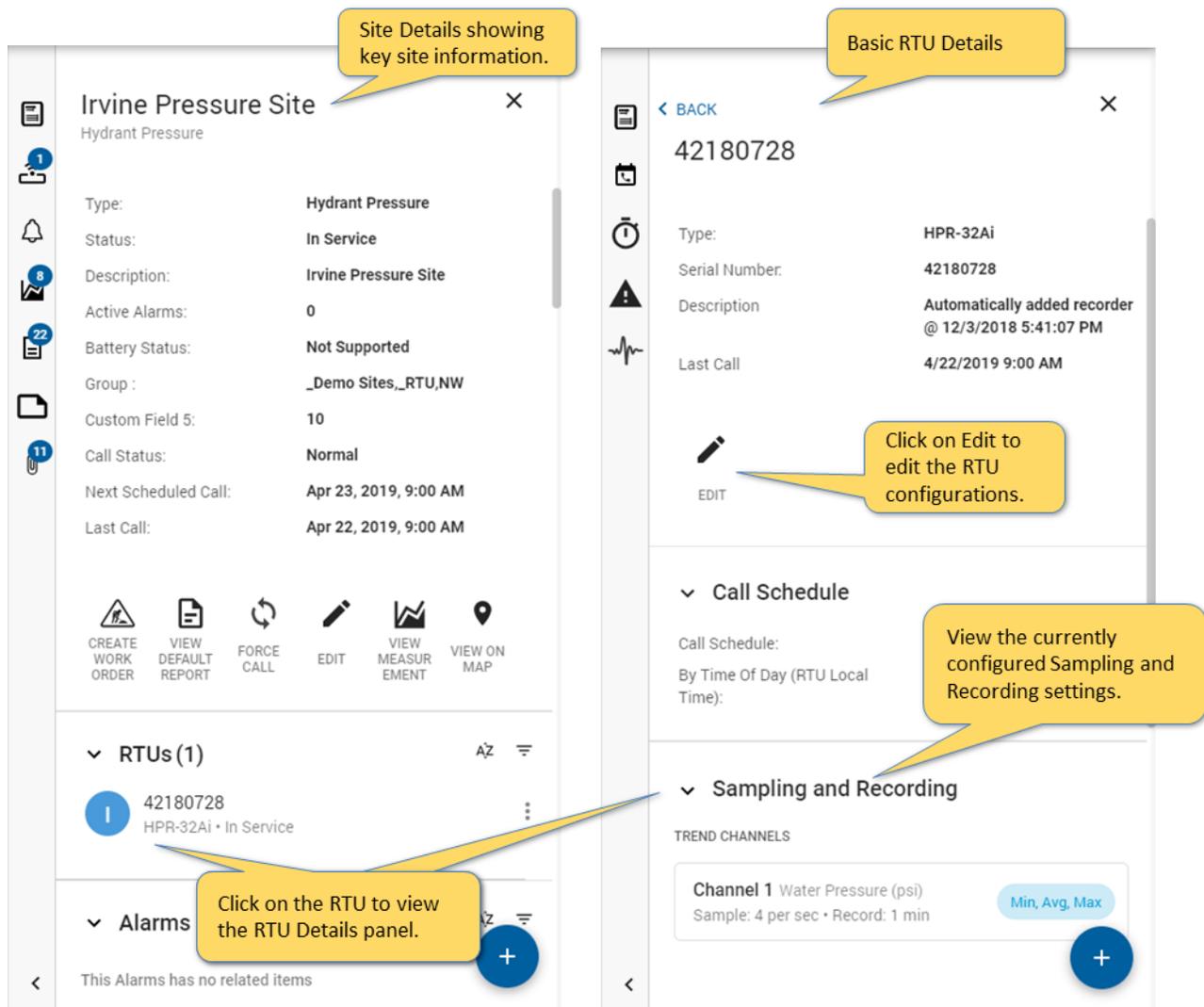
Note that the RTU configuration updates will be applied to the RTU the next time the RTU calls in.

11.2. Configure RTU sampling and recording settings

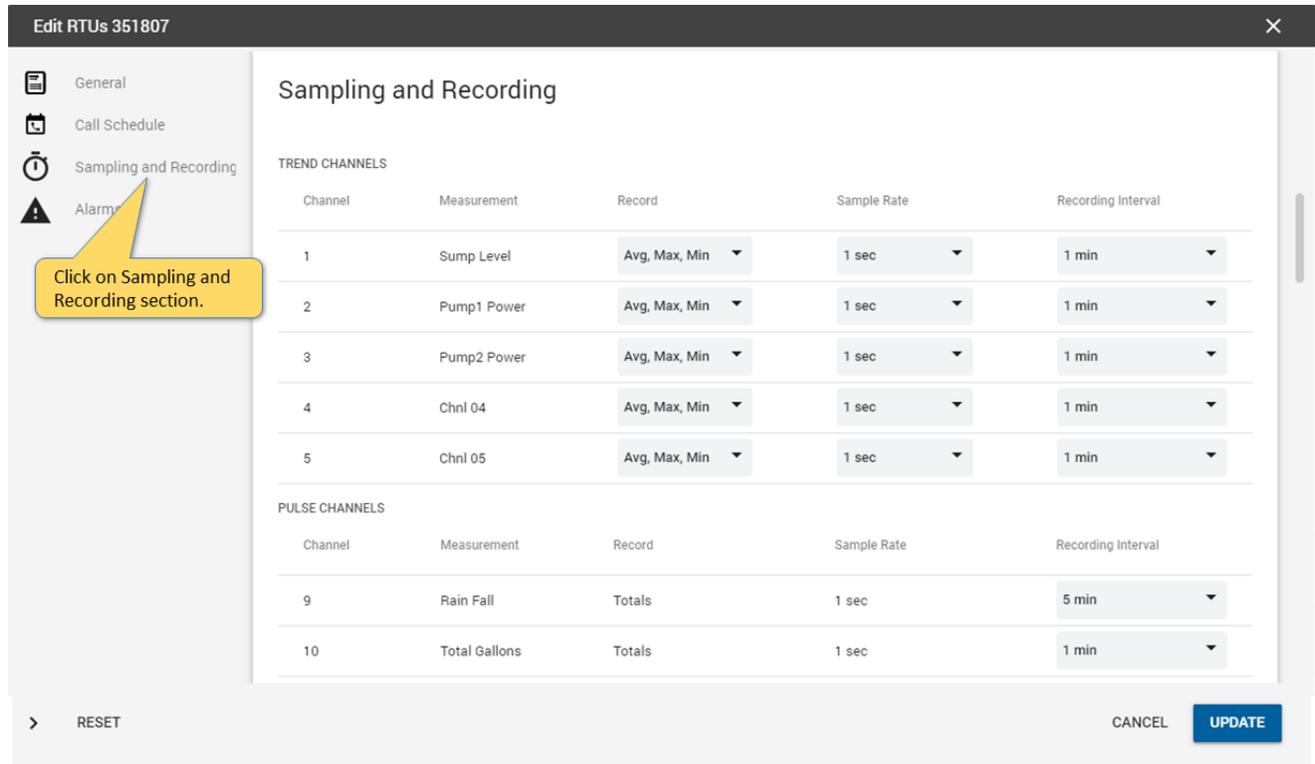
If you need to change how often the RTU samples, records and what data it is recording, then you need to view the RTU details associated to the site you want to update. To view the RTU details at a site, you will need to view the Site Details.

NOTE: you will need to have the RTU Management role assigned to you to be able to edit RTU configurations.

The key features of the Site and RTU Details are illustrated below:



When you select Edit, the Edit RTU panel is displayed:



There are three channel categories supported in this section. The list of channels and categories shown are dependent on the RTU type.

Trend Channels: these channels sample electric current or voltage from the connected sensors, and translate into meaningful data and measurements such as water level, pressure, flow. You can configure three parameters. The statistical data to record (Avg, Min, and Max), how often to sample from the sensor, and how often to save or record the statistical data.

Pulse Channels: these channels count pulses from sensors, which can then translate the totals into meaningful data and measurements such as total rain fall, or total flow from water meters. You can configure how often to record the total pulses.

Event Channels: these channels do not record trending data over time, rather state changes when switches close and open, and time when these events occur. Typically used to alarm and monitor events like pump run cycles, flow switches, power failure, etc. You can configure what events the RTU will record.

Note that there are some limitations in configuring sampling and recording settings for the RU-33 and RU-35. See the [Supported RTU Configuration Matrix](#), listing the supported RTUs and configurations in Unity.

To configure sampling and recording settings on **Trend Channels**:

Sampling and Recording

TREND CHANNELS

Channel	Measurement	Record	Sample Rate	Recording Interval
1	Sump Level	Avg, Max, Min	1 sec	1 min
2	Pump1 Power	Avg, Max, Min	1 sec	1 min
3	Pump2 Power	Avg, Max, Min	1 sec	1 min
4		Max, Min		
5		Max, Min		

PULSE CHANNELS

Channel	Measurement	Record	Sample Rate	Recording Interval
9	Rain Fall	Totals	1 sec	5 min
10	Total Gallons	Totals	1 sec	1 min

RESET CANCEL UPDATE

Select what data (statistics) to record for the specified sampling and recording interval.

Select how often the RTU will read (sample) from the sensor.

Select how often the RTU will record and store the statistics of all the samples taken within this recording interval period.

Click on Update to save the configuration changes.

To configure sampling and recording settings on **Pulse Channels**:

PULSE CHANNELS

Channel	Measurement	Record	Sample Rate	Recording Interval
9	Rain Fall	Totals	1 sec	1 min
10	Total Gallons	Totals	1 sec	1 min

EVENT CHANNELS

Channel	Measurement	Record	Sample Rate	Recording Interval
11	AC Pwr Fail	Open, Closed	N/A	N/A
12	Pump1 Run	Open, Closed	N/A	N/A
13	High Float	Open, Closed	N/A	N/A
14	Pump2 Run	Open, Closed	N/A	N/A
15	Pump1 Hi Temp	Open, Closed	N/A	N/A
16	Pump2 Hi Temp	Open, Closed	N/A	N/A
17	Pump1 Vibration	Open, Closed	N/A	N/A

RESET CANCEL UPDATE

Preconfigured to record the totals, and sample once per second. Select how often to record the totals.

Click on Update to save the configuration changes.

To configure sampling and recording settings on **Event Channels**:

Channel	Measurement	Record	Sample Rate	Recording Interval
11	AC Pwr Fail	Open, Closed	N/A	N/A
12	Pump1 Run	Open, Closed	N/A	N/A
13	High Float	Open, Closed	N/A	N/A
14		Open, Closed	N/A	N/A
15		Open, Closed	N/A	N/A
16	Pump2 Hi Temp	Open, Closed	N/A	N/A
17	Pump1 Vibration	Open, Closed	N/A	N/A
18	Pump2 Vibration	Open, Closed	N/A	N/A
20	Backup Power On	Open, Closed	N/A	N/A

Disabled Channels 6,7,8,19,21,22,23,24,25,26,27,28,29,30

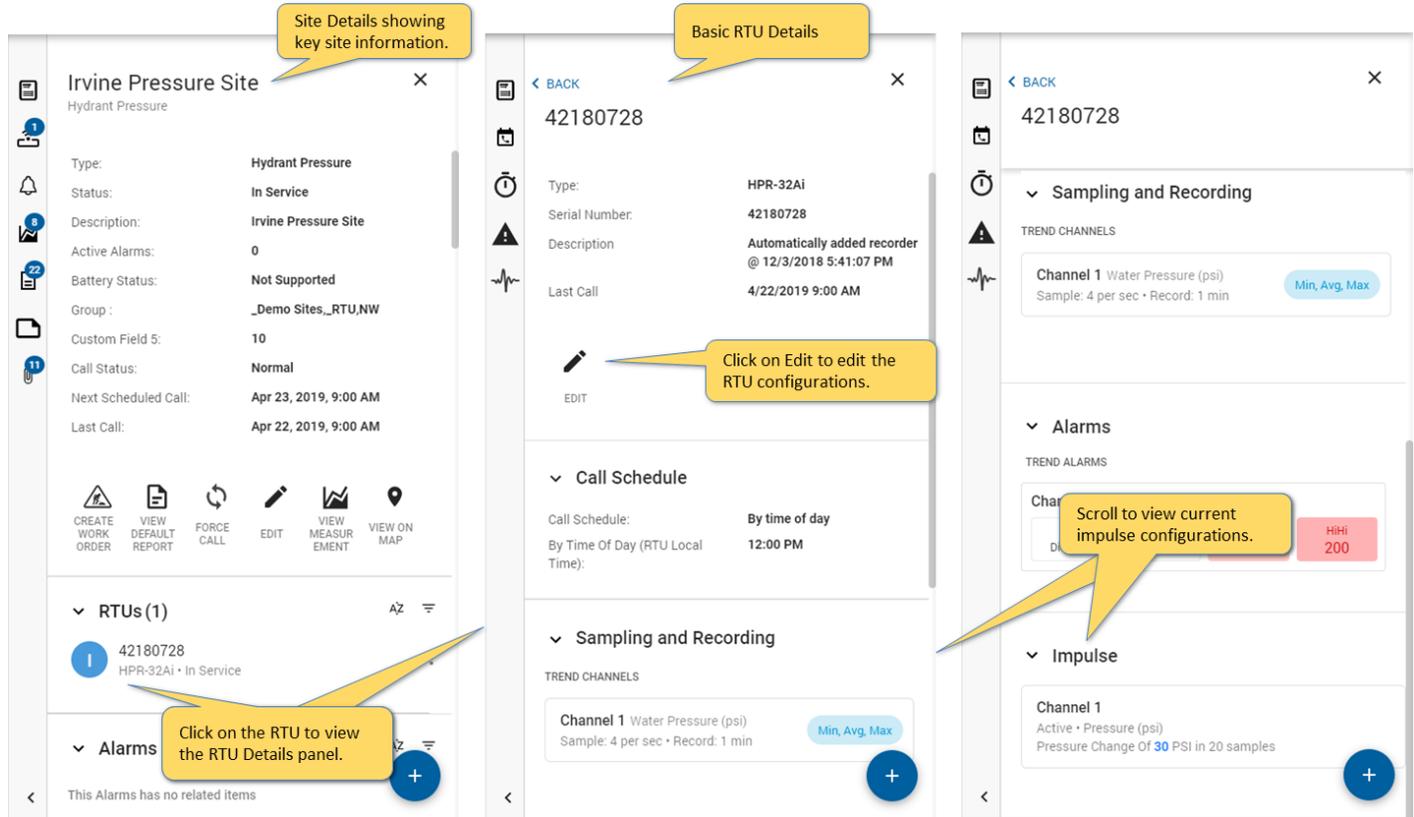
Note that the RTU configuration updates will be applied to the RTU the next time the RTU calls in.

11.3. Configure pressure impulse settings

If you need to enable and configure pressure impulses (water hammers) on impulse enabled RTUs, then you need to view the RTU details associated to the site you want to update. To view the RTU details at a site, you will need to view the Site Details.

NOTE: you will need to have the RTU Management role assigned to you to be able to edit RTU configurations.

The key features of the Site and RTU Details are illustrated below:



An impulse capture is triggered when the difference between the maximum pressure reading, minus the minimum reading, during the trigger window, is greater than or equal to the pressure change configured. The impulse capture completes after the trigger is no longer active, meaning the maximum reading minus the minimum reading is less than the pressure change configured for the trigger window.

There are four parameters that you need to set for impulses:

Pressure Change of: is the minimum pressure change required to trigger an impulse capture.

In: is the trigger window or the maximum number of samples considered when detecting an impulse.

Store Pre Impulse Data For: is the number of samples saved before the impulse trigger.

Store Post Impulse Data For: is the number of samples saved after the impulse trigger is no longer active.

Enable or Disable impulse detection. Configure the 4 required impulse detection parameters.

Total time based on the configured sampling rate.

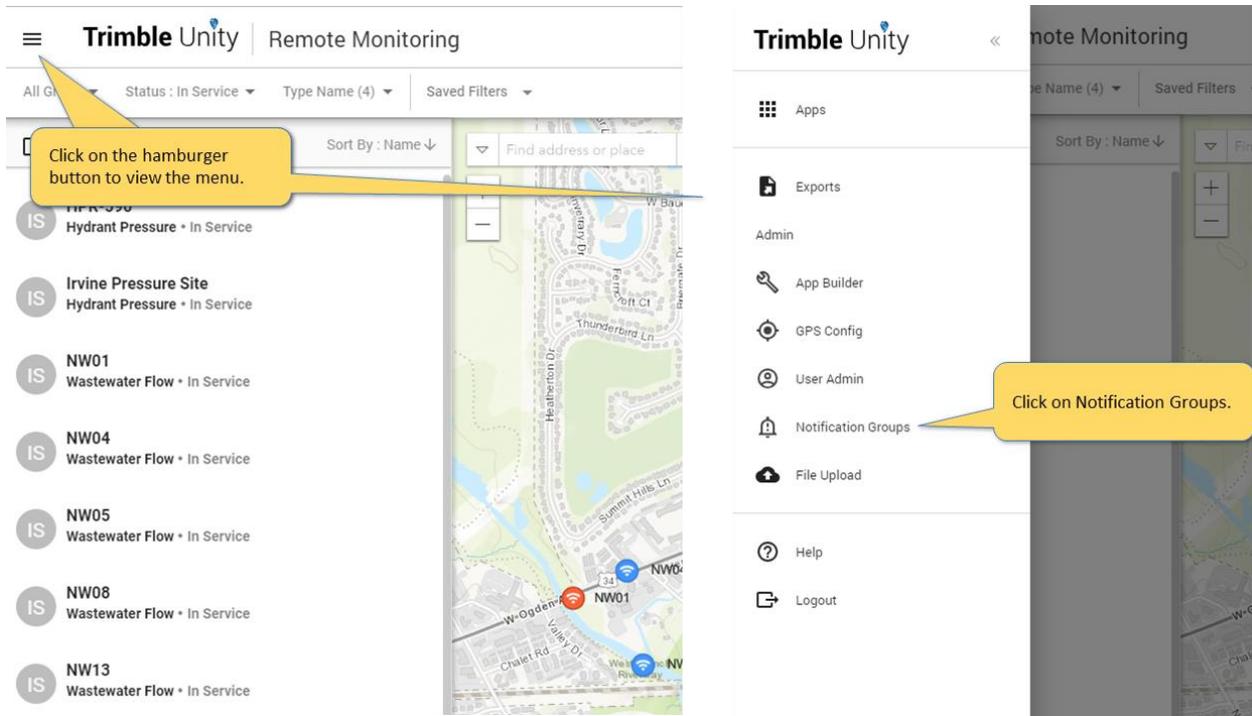
Click on Update to save the configuration changes.

Note that the RTU configuration updates will be applied to the RTU the next time the RTU calls in.

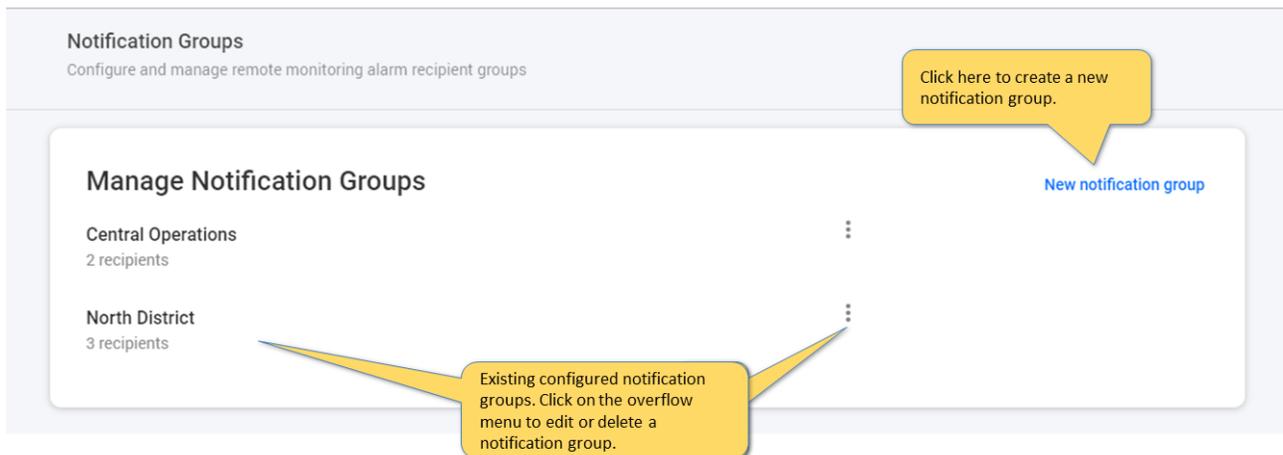
12. Manage Alarms

12.1. Configure alarm notification recipients and groups

If you need to configure alarms, and have the alarm notifications be sent via emails to certain individuals, then you will need to configure alarm recipients and notification groups. You will need to access the Notifications Group administration page to create and manage notification groups and recipients. **NOTE: you will need to have the RTU Management role assigned to you to be able access this feature.** Here is how you can access the Notification Groups admin page:



To create a new notification group or manage existing ones:



New notification group

Group Title
South District

14 / 50

CANCEL SAVE

Enter the Group Title then click on Save.

South District
0 recipients

Edit
Delete

Once group is created, click on the overflow menu and chose Edit.

Notification Groups > South District

South District 0 recipients

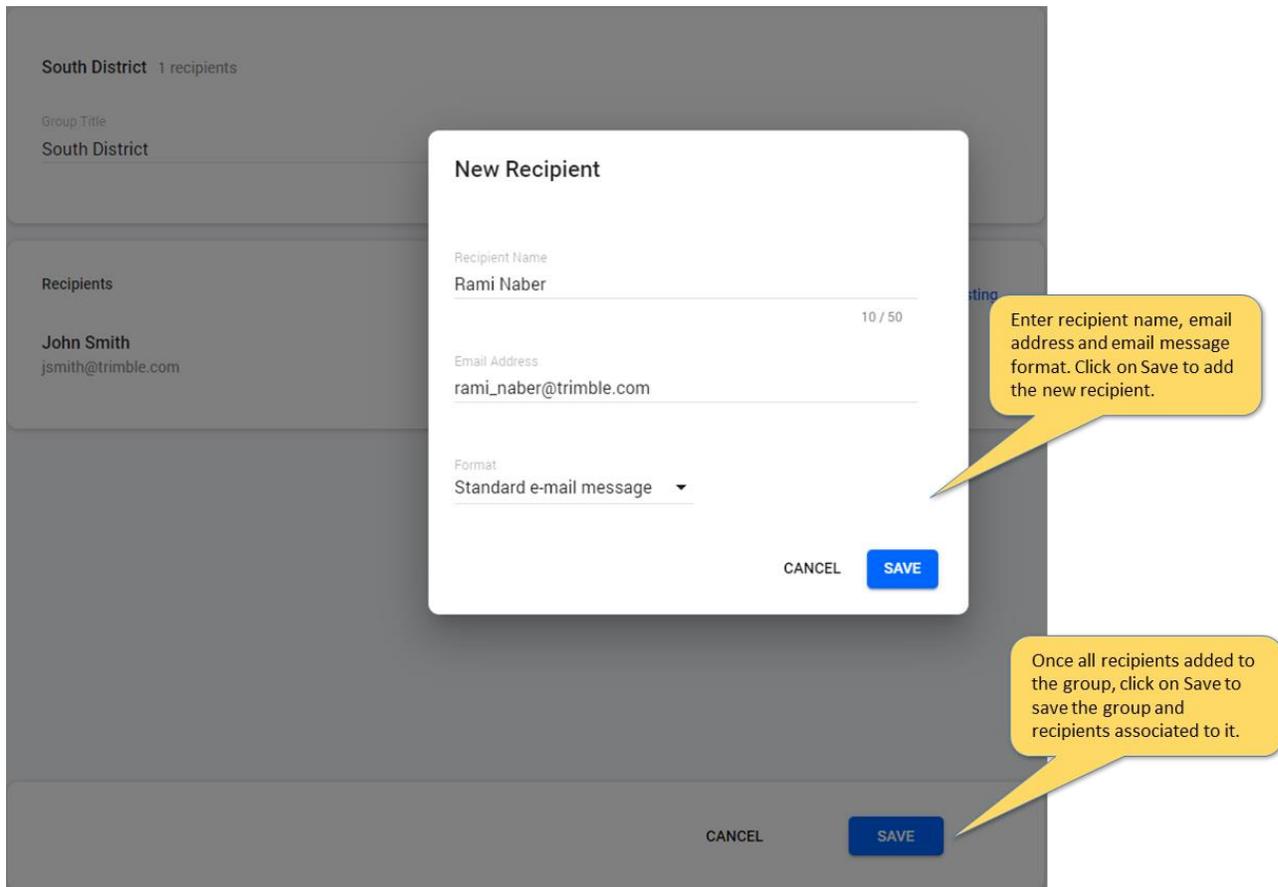
Group Title
South District

14 / 50

Recipients
No recipients currently added

New Recipient Add Existing

Click on New Recipient to create a new recipient and add to the group. Or click on Add Existing, to add a previously created recipient to the group.



Note that notification groups are used during alarm configurations, to specify what group of recipients will receive email notifications when alarms are triggered by the RTUs.

To send a text message to a phone instead of an email, make sure to choose the Short email Message format type, and use the following format for the email address [phonenumber@mobilecarrierSMSSGateway].

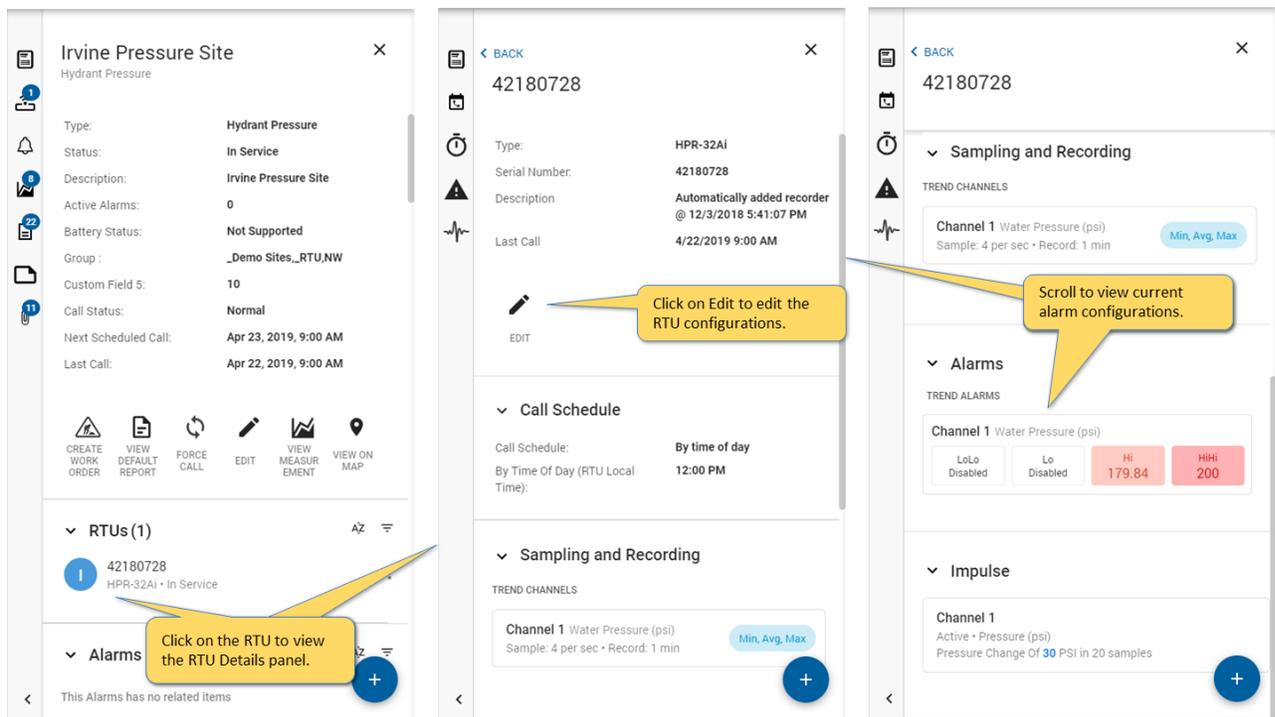
See list of mobile carrier SMS Gateways [here](#).

12.2. Configure alarming

If you need to enable/disable or configure alarms on the monitoring sites, then you need to view the RTU details associated to the site you want to update. To view the RTU details at a site, you will need to view the Site Details).

NOTE: you will need to have the RTU Management role assigned to you to be able to edit RTU configurations.

The key features of the Site and RTU Details are illustrated below:



If you want the alarms to be communicated to users via email, make sure you follow the steps under the Configure alarm notification recipients and groups section first, to configure notification groups, before the alarms are enabled and configured on the sites.

There are three channel categories that support alarm configurations. The list of channels and categories shown are dependent on the RTU type.

Trend Channels: these channels sample electric current or voltage from the connected sensors, and translate into meaningful data and measurements such as water level, pressure, flow. You can configure four types of alarms (Lo Lo, Lo, Hi, and Hi Hi). For each, you can enable the alarm, set the alarm threshold, specify how long the alarming condition will have to persist before the alarm is triggered, and finally what group of users will receive alarm notifications via email.

Pulse Channels: these channels count pulses from sensors, which can then translate the totals into meaningful data and measurements such as total rain fall, or total flow from water meters. Users can configure four types of alarms exactly the same as for Trend Channels.

Event Channels: these channels do not record trending data over time, rather state changes when switches close and open, and time when these events occur. Typically used to alarm and monitor events like pump run cycles, flow switches, power failure, etc. Users can configure what event will trigger an alarm, and what group of users will receive alarm notifications via email.

Note that there are some limitations in configuring alarms for the RU-33 and RU-35. See the [Supported RTU Configuration Matrix](#), listing the supported RTUs and configurations in Unity.

To configure alarms on **Trend and Pulse Channels:**

Alarms

TREND ALARMS

Channel 1 - Water Pressure (psi)

Type	Enabled	Threshold	Sample Count	Sample Period	Distribution
LoLo	<input type="checkbox"/>	-15	0		None
Lo	<input type="checkbox"/>	4.9	32	8 seconds	None
Hi	<input checked="" type="checkbox"/>	160	32	8 seconds	Central Operations
HiHi	<input checked="" type="checkbox"/>	200	32	8 seconds	Central Operations

Impulses

RESET CANCEL UPDATE

Callout 1: Enable or Disable the alarm for each available channel.

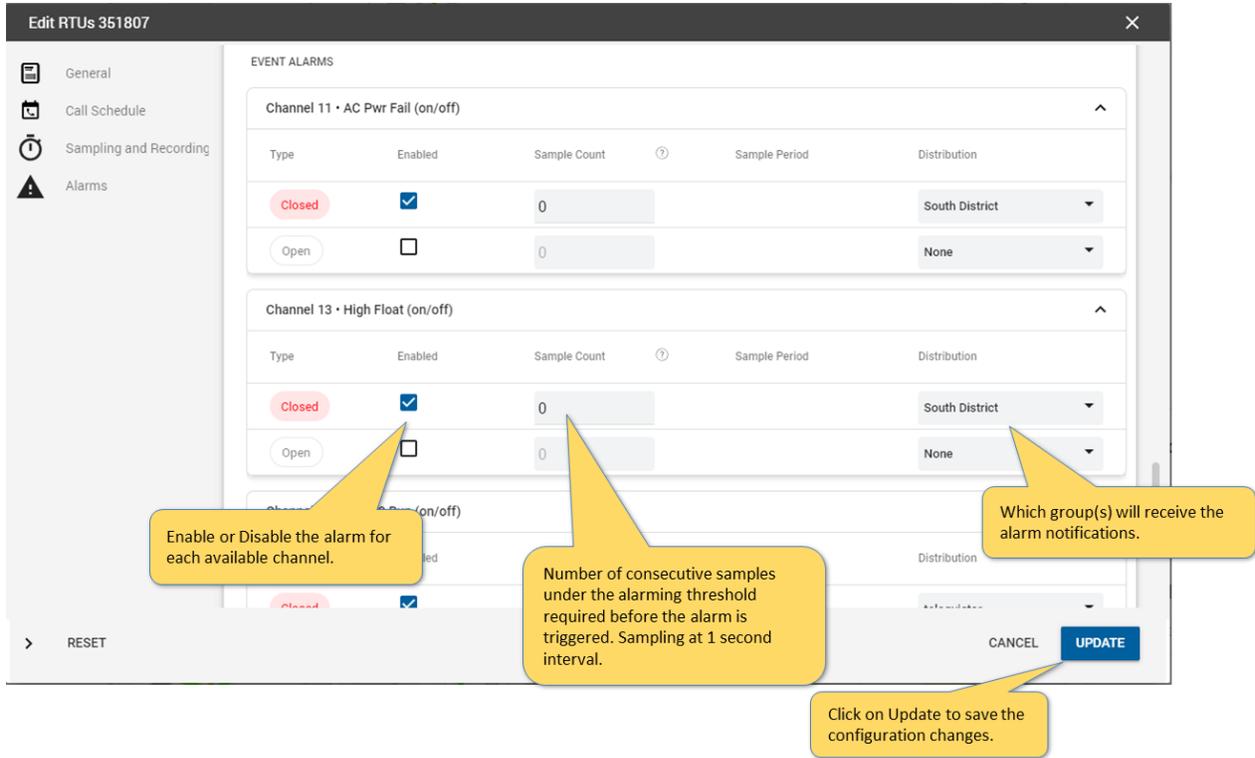
Callout 2: Enter the alarming threshold. For Lo and Lo Lo: Alarm is triggered when reading is equal or less than the threshold. For Hi and Hi Hi: Alarm is triggered when reading is equal or higher than the threshold.

Callout 3: Number of consecutive samples under the alarming threshold required before the alarm is triggered.

Callout 4: Which group(s) will receive the alarm notifications.

Callout 5: Click on Update to save the configuration changes.

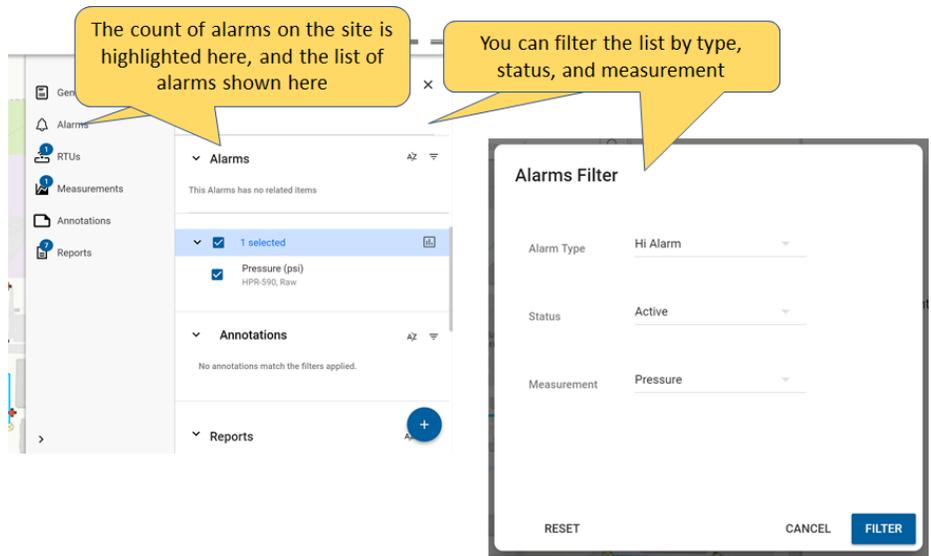
To configure alarms on **Event Channels**:



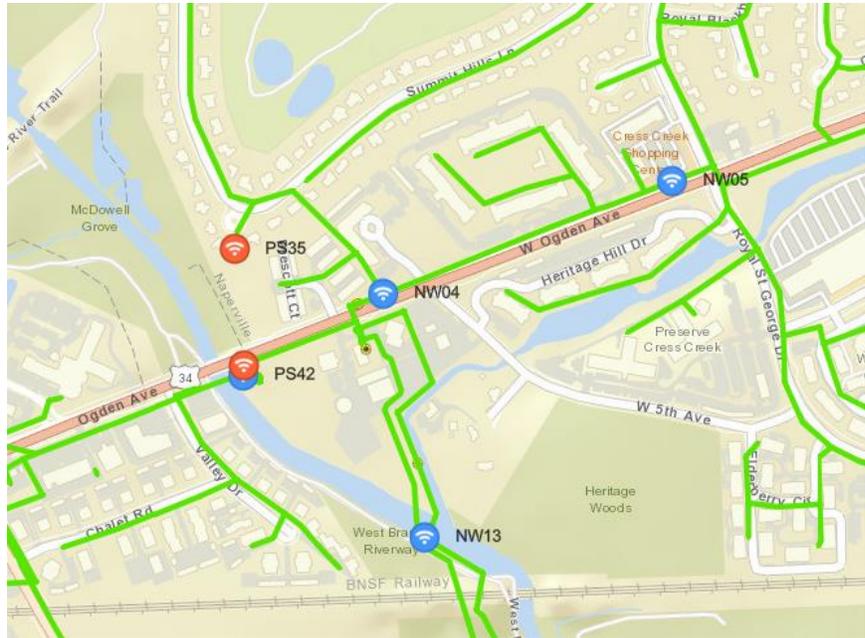
Note that the RTU configuration updates will be applied to the RTU the next time the RTU calls in.

12.3. View and filter alarms for a site

Unity Remote Monitoring provides a powerful suite of tools for reviewing and managing sensor alarms. The primary location to access the alarms at a site is via the Site Details



Sites with alarmed conditions are also highlighted on the map in red:



You can drill down to explore the underlying alarm scenario:

Click on an alarm to view the Alarm details

View the measurement associated with the alarm event

The period for which the alarm threshold is valid is also highlighted on the graph

Multiple measurements can be added to the measurement graph to aid analysis of the underlying causal factors.

Note you can also get an overview of active alarms in the system via the System Health Dashboard, see section 9 Monitor sensor call in performance and battery health, for more details.

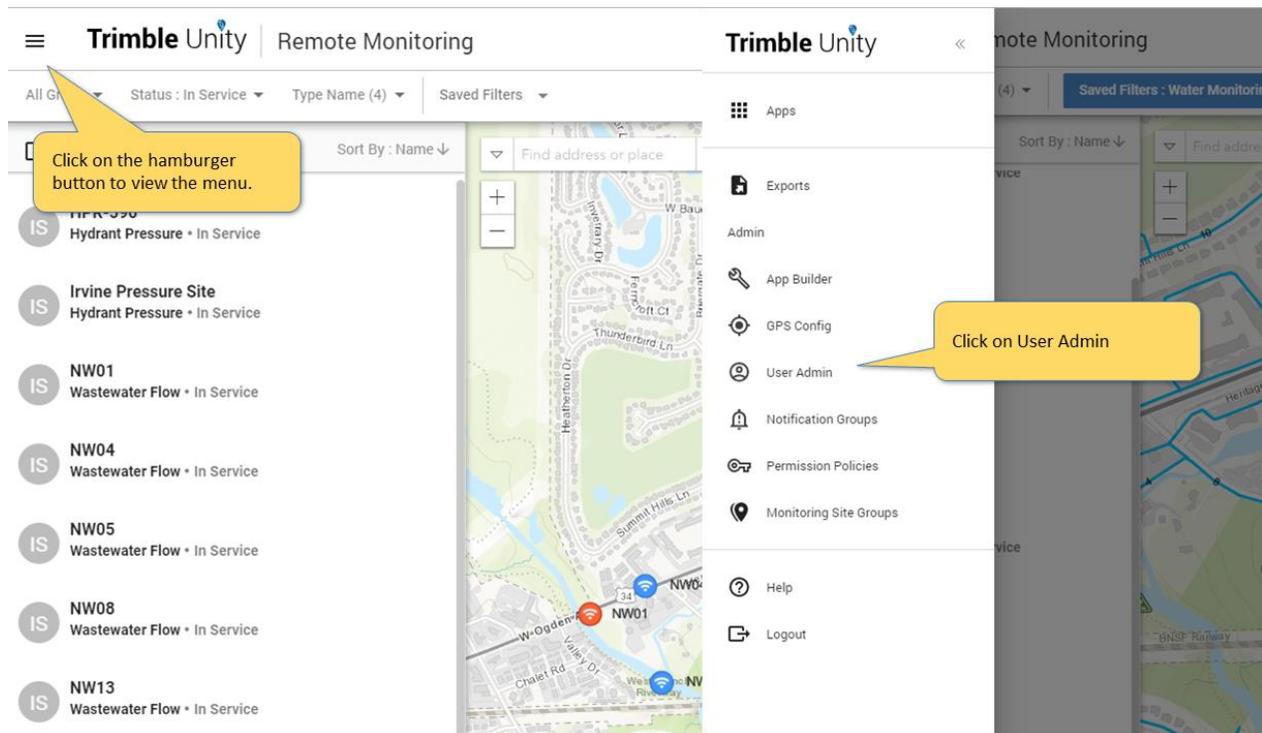
13. Manage User and Access Permissions

13.1. Add and manage users

You can add and manage users in Unity RM, including the facility to add roles, set passwords, and associate specific apps to users.

NOTE: you must have the Admin user role yourself if you want to access the admin functions in Unity.

Adding and managing users is managed via the User Admin function accessed as shown below:



You can manage users from the User Admin list:

User Admin

User Admin

Subscription Overview
 Work Management Standard Users: 46/50, Work Management Viewer Users: 4/50
 Remote Monitoring Editor Users: 39/50, Remote Monitoring Basic Users: 46/50

Edit Deactivate **Add User**

Username	First name	Last name	Date created	Role(s)	Account Status
dkanter	David	Kanter	Dec 12 2018	Publisher, Technician, Supervisor...	Active
eJones	Eliot	Jones	Dec 12 2018	Publisher, Technician, Supervisor...	Active
fpillet	Franck	Pillet	May 13 2019	Publisher, Technician, Supervisor...	Active
frito	Mark		Apr 08 2019	Publisher, Technician, Supervisor...	Active
gdesantis	Gregory		Dec 12 2018	Publisher, Technician, Supervisor...	Active
gmayoue	George	Mayoue	Dec 12 2018	Publisher, Technician, Supervisor...	Active
icm	ICM	Demo	May 03 2019	Publisher, Technician, Supervisor...	Active
imeucci	Irene	Meucci	Dec 12 2018	Publisher, Technician, Supervisor...	Active
jburdett	James	Burdett	Dec 12 2018	Publisher, Technician, Supervisor...	Active
jmegiel	Jacek	Megiel	Dec 12 2018	Publisher, Technician, Supervisor...	Active

To create a new user:

User Admin

User Admin > Add User

Subscription Overview
 Work Management Standard Users: 46/50, Work Management Viewer Users: 4/50
 Remote Monitoring Editor Users: 39/50, Remote Monitoring Basic Users: 46/50

Add User Cancel Save

Username*
jsmith

Password*
.....

First name*
John

Confirm Password*
.....

Last name*
Smith

Applications
Remote Monitoring x

Department
Maintenance

Local Office*
Central Office x South District x North District x

Roles*
RM - Telemetry Report Management x
RM - RTU Management x

Site and Measurement Permissions
Zone 6 PRV Team x

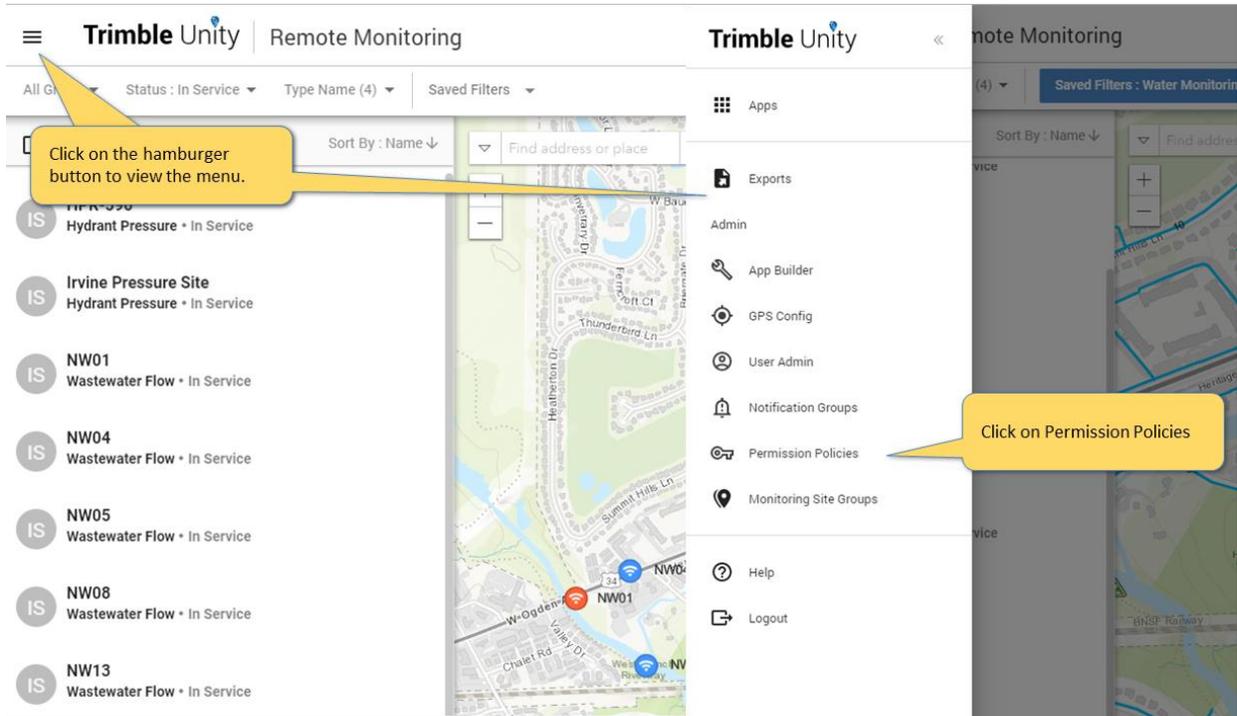
Enter user details, roles, site and measurement access permissions, initial password, applications the user will have access to and their local office they report to.

Click on Save to save changes.

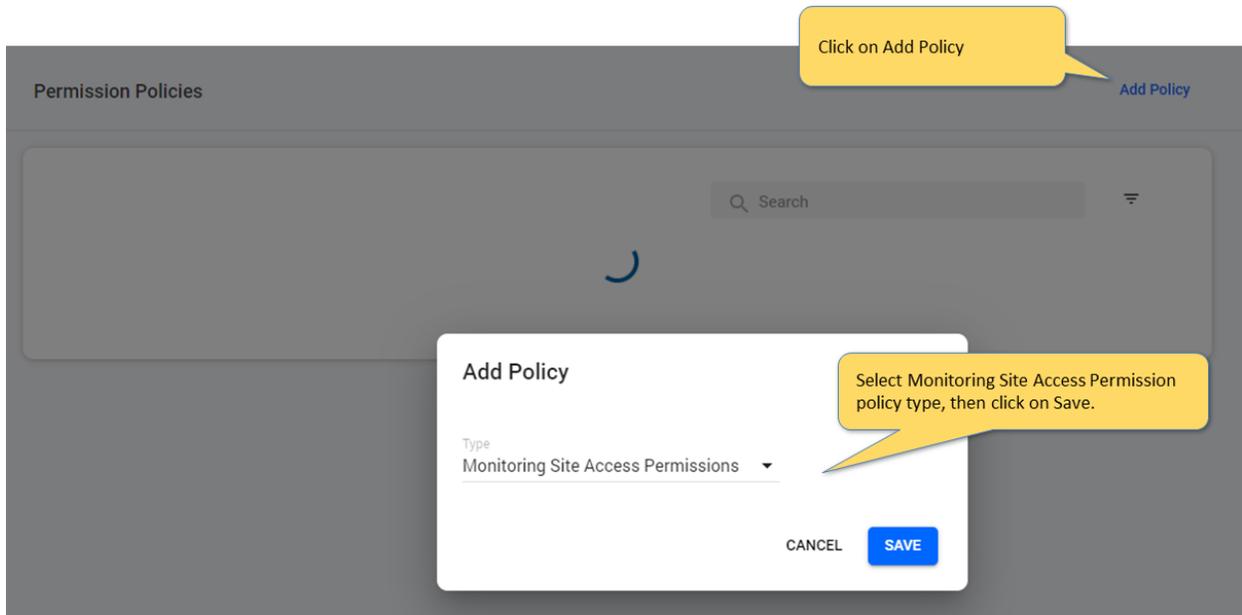
13.2. Manage User Permission Policies

If you need to manage user access permissions to sites and measurements within sites, you need to create Monitoring Site Access Permission Policies that you can then apply to users. These policies enforce user access based on defined site groups and measurement type.

To manage Monitoring Site Access Permission Policies you will need to access the Permission Policies Admin page. **NOTE: you will need to have the admin role assigned to you to be able to manage permission policies groups.**



To create or manage a monitoring site access permission policy:



General

Name
Zone 6 PRV Team 15 / 255

Description
Limit access to PRV pressures for pressure Zone 6 49 / 255

Site Groups

Group • 1 selected (2 distinct sites) X PRV ^

Group	Number of Sites
<input type="checkbox"/> PRVs	2
<input checked="" type="checkbox"/> Zone 6 PRVs	2

Measurement Types

Type • 2 selected (2 distinct sites) Q Search ^

Measurement Type	Number of Sites
<input type="checkbox"/> Temperature	2
<input type="checkbox"/> volume flow	2
<input type="checkbox"/> Flow	2
<input checked="" type="checkbox"/> Inlet Pressure	2
<input checked="" type="checkbox"/> Outlet Pressure	2

CANCEL SAVE

To assign permission policies to users, you will need to go to the user admin page. See section below.

Note that when sites are added or removed from groups used in site access permission policies, this will automatically impact user access to these sites, based on their assigned permission policies.

14. View sites and measurements in the field using your mobile device

One of the useful features in Unity RM is the ability to view sites and measurement graphs in the field using the Unity RM mobile app.

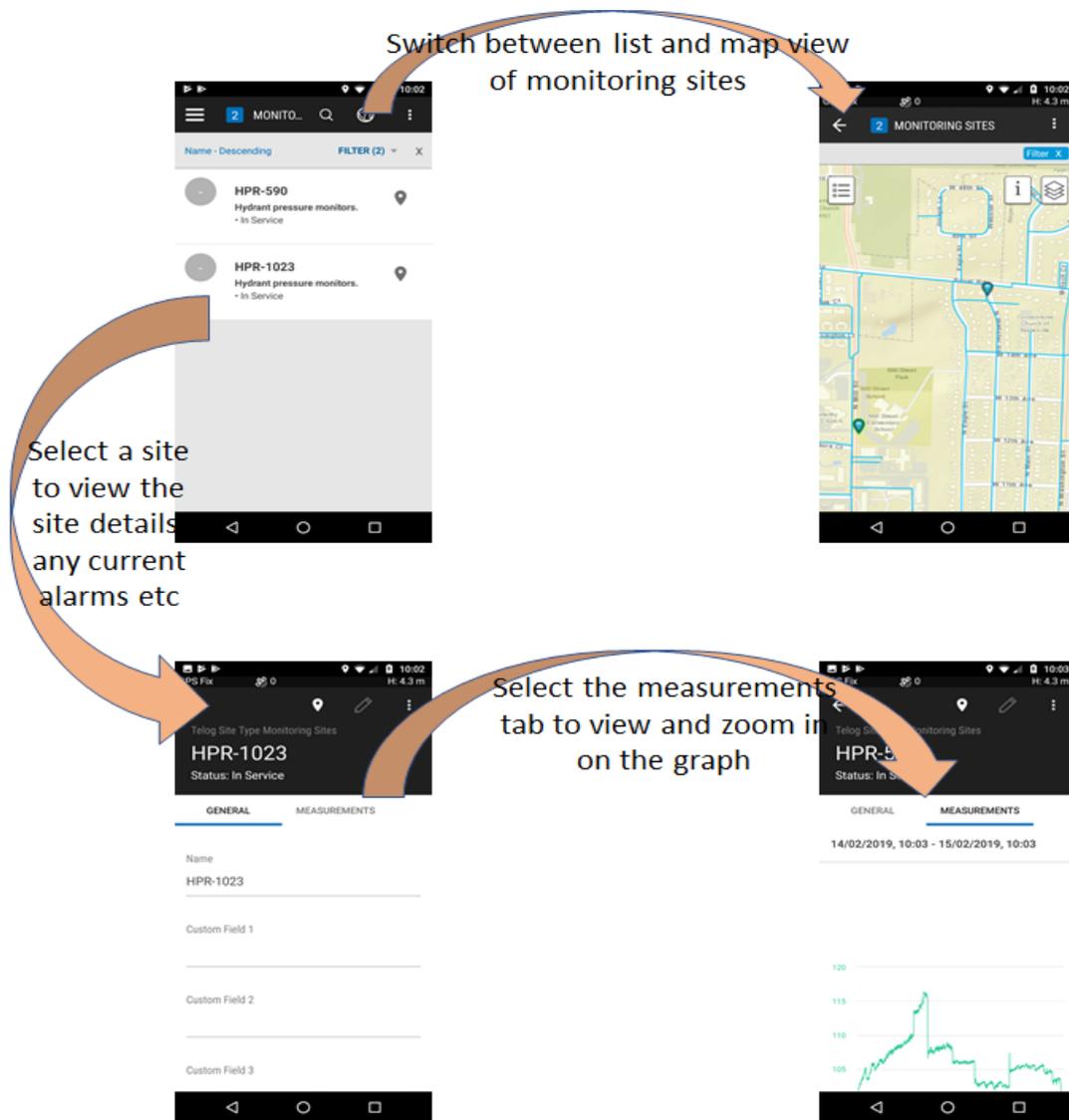
Before you get started first you need to download the Unity mobile app to your mobile device either from the

Android Play store  , or the Apple App Store .

Login to Unity using your org unit and username/password supplied (see [Login to your Unity RM instance](#)). After login you should be presented with the app selector screen:



Select Remote Monitoring, and you will be presented with a list of your monitoring sites, the illustration below explains how to navigate between the key features:



To view a bit more on use of the Unity Remote Monitoring mobile app, in particular how to filter the site list, and configure the measurement graphs, see [this](#) short video.