Informatik Werkstatt
Analyse | Design | Entwicklung

ViewMondo®
User's Manual

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Table of Contents

1 Introduction 3
2 Logon 4
3 Title bar 5
4 Navigation Tree View 6
4.1 Profile 7
4.1.1 Change Password 7
4.1.2 CSV Export Settings 9
5 Group Display 10
5.1 Group – Map 10
5.1.1 Critical Spots 11
5.2 Group – Table 13
6 Station Display 14
6.1 Station - Current Data 14
6.1.1 Current Data – Mobile 14
6.1.2 Current Data – Stationary 18
6.2 Station – Diagrams 19
6.2.1 Diagrams 21
6.2.2 Navigating over time 23
6.3 Station – Report 24
6.3.1 Statistics 24
6.3.2 Alarm Events 24
6.3.3 Outage Events 24
6.4 Mobile Station Measurement Drives 25
7 Optional / Additional Functions 27
7.1 SnowTam Workflow 27
7.2 Gritting Recommendation 27
7.3 Plausibility checking 28
8 User type dependent functions 30
8.1 Station Groups 30
8.2 Edit Station 31
8.2.1 UMB Station 33
8.2.2 HTTP Camera Station 35
8.3 Alarm Settings 36
8.3.1 Alarm Delivery Settings 37
8.3.2 Working Hours Schedules 38

8.3.3 Alarm Recipient Groups 39
8.3.4 Alarm Rule Settings 42
8.3.5 Alarm Station Rule Assignment 45
8.4 Status Mapping 47
8.4.1 Status Map Entry – range type 49
8.4.2 Status Map Entry – discrete value 50
9 Sensor Types – Template matching 51
10 Change History 52

1 Introduction

ViewMondo® is a software platform to visualize and analyze measurement data from your mobile and stationary road sensor and environmental sensor data. The user interface is simple and intuitive, and provides all functionality purely based on html and JavaScript and runs in all modern browsers without requiring any plugins or extensions.

ViewMondo® is provided as a SaaS (Software as a service) solution by "Informatik Werkstatt" in cooperation with Lufft GmbH, or might be licensed for installation at your own server.

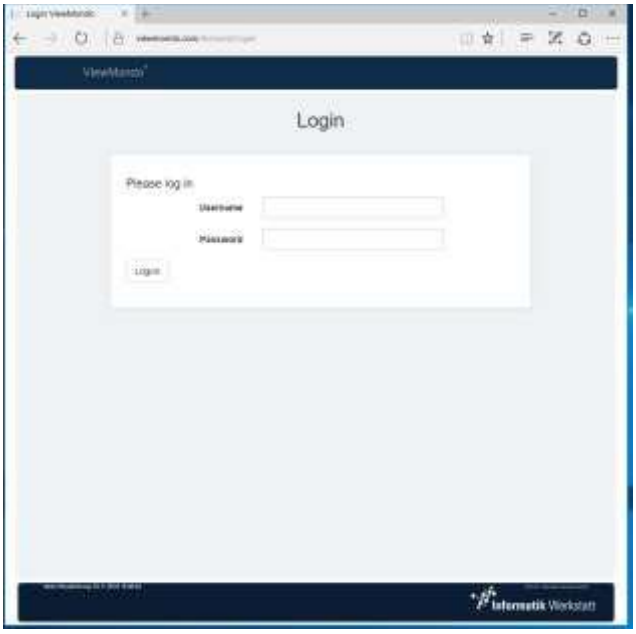
Throughout this manual, the term **station** is used to represent a source of measurement data, which could be taken from a mobile road sensor (Marwis), or a stationary installation of one or more road sensor and/or environmental sensor (e.g. wind, precipitation, temperature, humidity etc.), possibly combined with a snapshot camera.

2 Logon

To use the software, a user id and password are required. User accounts are set up by your site administrator. The initial password for your user id will be set when the user is set up by your administrator.

To log on to the system, open the URL provided by your administrator in your favorite browser.

For the ViewMondo® hosting service, this usually is https://viewmondo.com.



If there is more than one device/station assigned to your user id, a "Group Map" will be displayed (see 5.1 Group – Map), showing all your stations on a map. If there is only one device/station assigned to your user id, the current measure values for this station/device (see 6.1 Station) are shown.

3 Title bar

After logging on, the "context" menu ☰ is available on the right-hand side of the title bar

The menu items available from this context menu depend on the user type (Analyst, Device Administrator, Group Administrator or Site Administrator), on the "page type" shown (Group Display, Station Display etc.), and possibly on additional functions that might have been activated for the user logged on.

Always available are the following menu items

- Logoff: log off from ViewMondo
- Profile: edit your user profile (see below)

Clicking on "ViewMondo®" on the left-hand side of the title bar will always show the "Group Map" display for all stations assigned to the user logged on (if there is more than one station assigned to the user), or the "Station Current Values" display for the user's station (if there is only one station assigned to the user).

4 Navigation Tree View

The “navigation tree view” is shown on the left-hand side of all data display pages.

This tree view allows for quick access to all station groups and sub-groups which might be configured, and all stations that are assigned to your user id.

Note: if there is only one station assigned to your user id, the tree view will be minimized.

The tree view can be hidden by clicking the arrow button on the left side of the tree view.

Clicking on a “station group name” (node in the tree view) will open the corresponding group overview display (see 5.1 Group – Map).

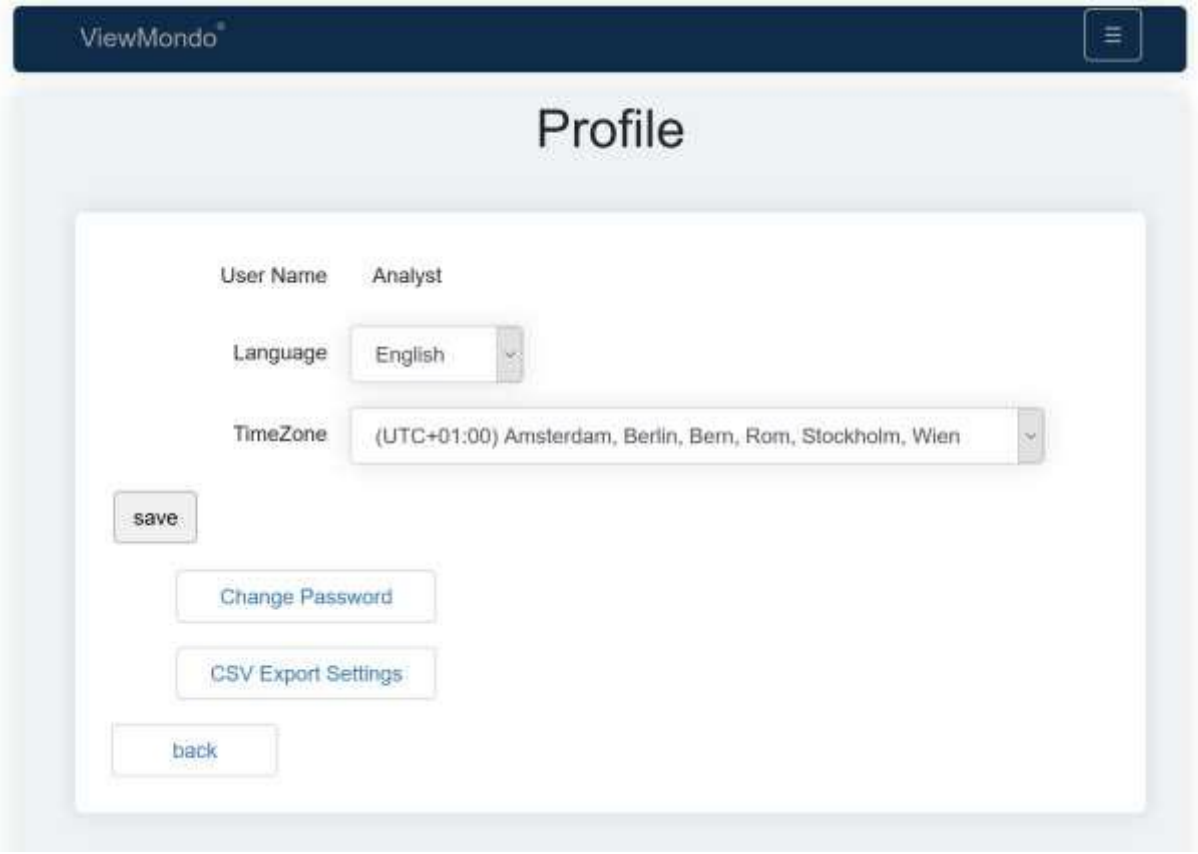
Clicking on a “station” (leave in the tree view) will open the corresponding station display (see 6.1 Station).

one station assigned to the user).

If the tree view is minimized, it can be shown by clicking on the button on the left side of the window.

4.1 Profile

Various attributes for the current user can be set in the user profile:

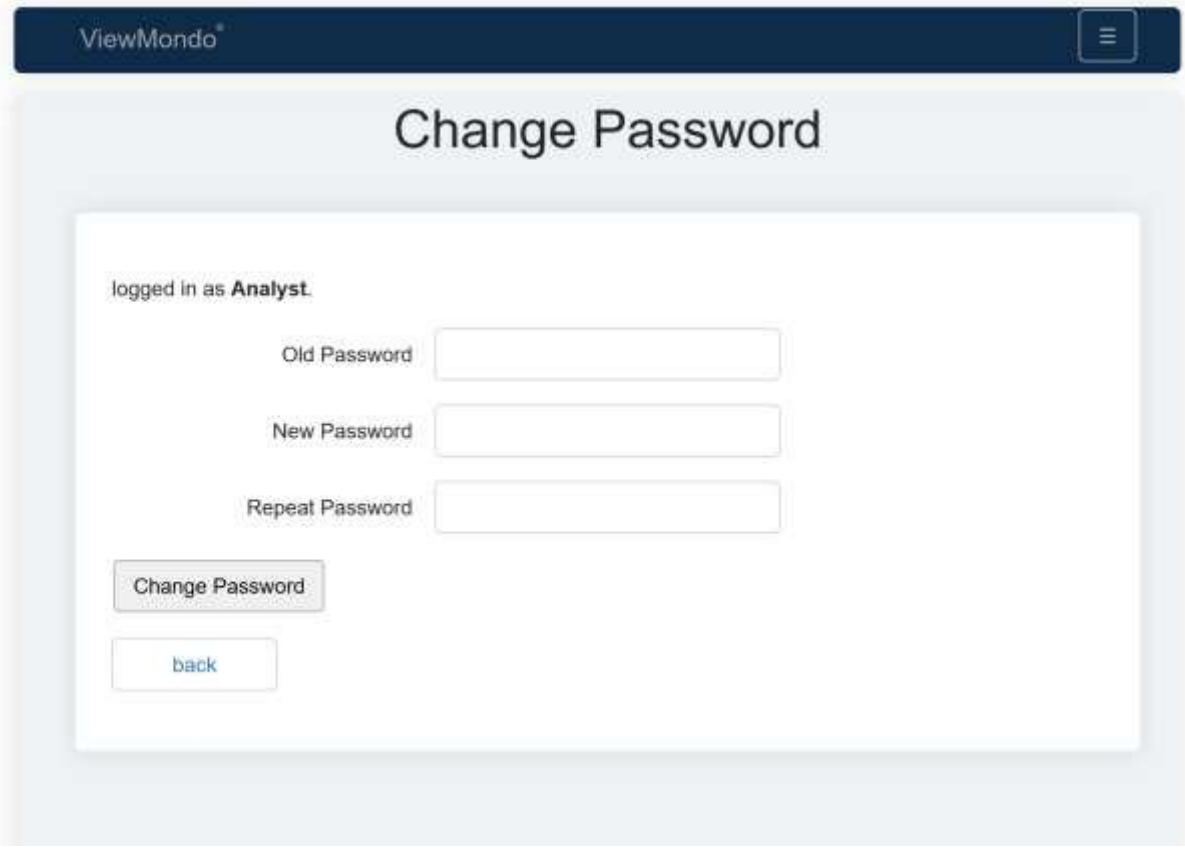


Language sets the user interface language. Note that changing the language will log off the user.

TimeZone: the user's time zone. All timestamps for measure values are formatted based on the user's time zone.

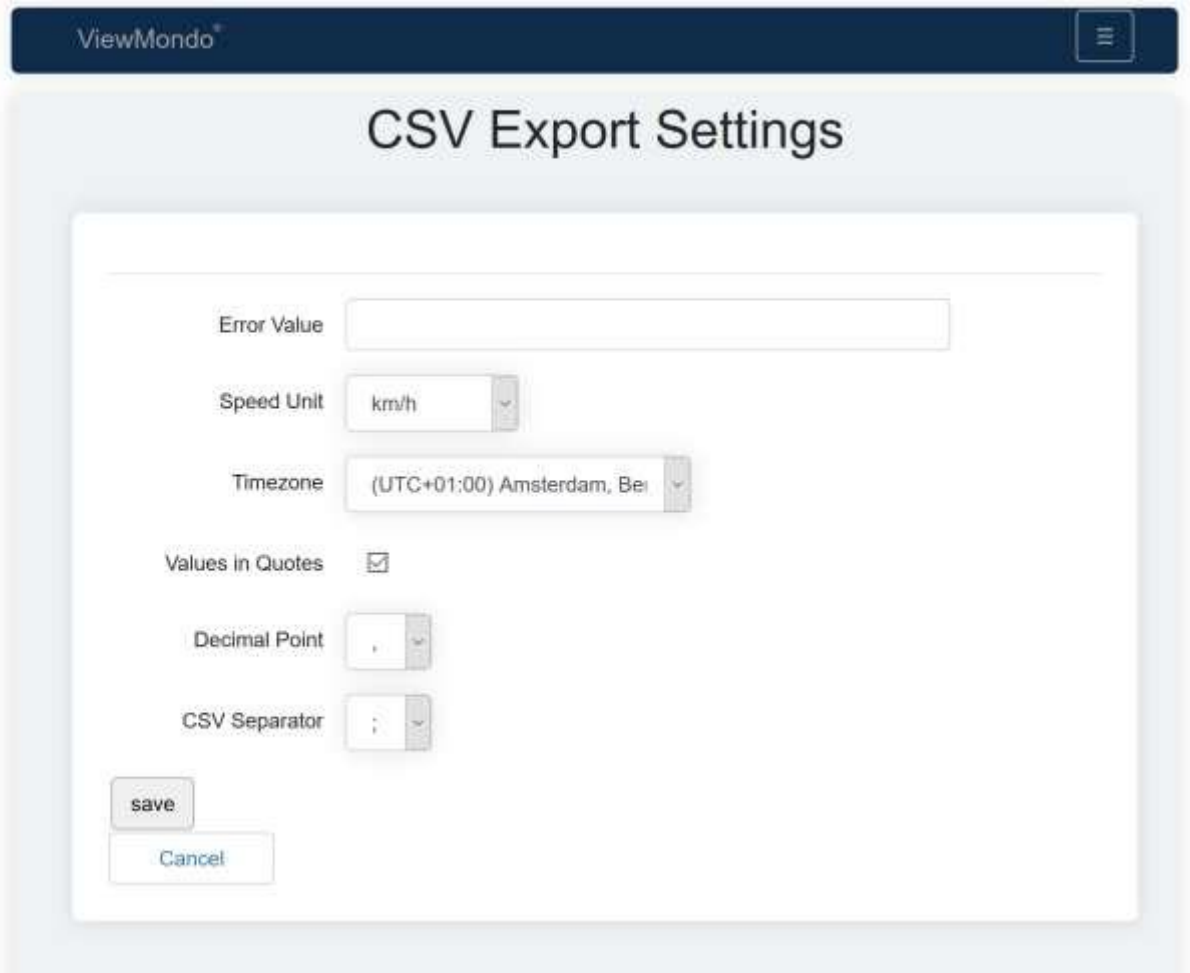
4.1.1 Change Password

Here, a user can change his/her password:


ViewMondo
Change Password
logged in as Analyst.
Old Password
New Password
Repeat Password
Change Password
back

4.1.2 CSV Export Settings

Here, attributes for CSV Downloads can be set. CSV downloads are possible for measurement drives of mobile stations (see 6.4 Mobile Station Measurement Drives), or for the data shown on a Station Diagrams display (see 6.2 Station – Diagrams)



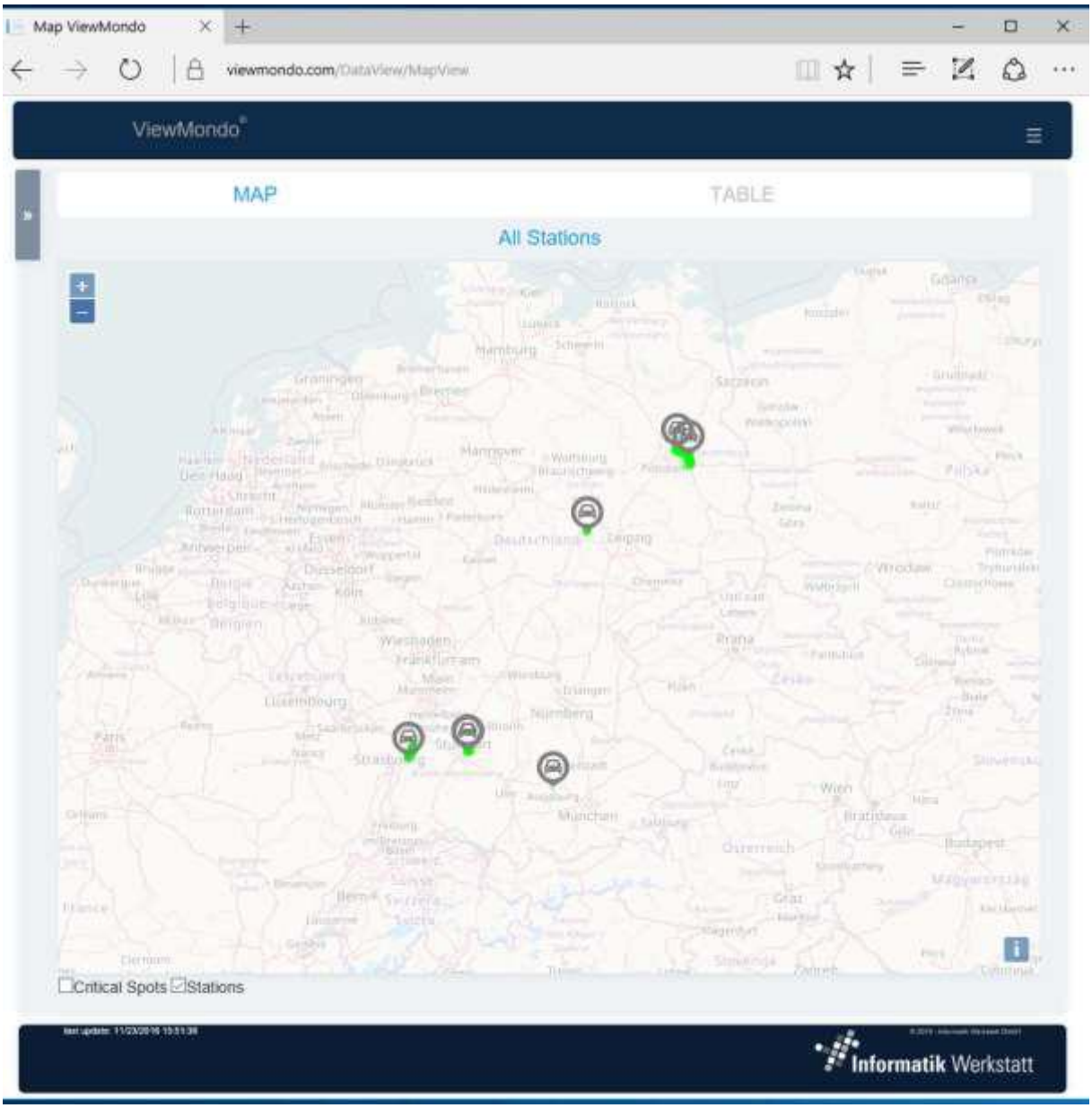
- **Error Value:** a string that should be written to the export file in case the measure value is an error value.
  Note: [error] will be replaced by the actual (UMB) error code (e.g. Error 0x36)
- **Speed Unit:** (for mobile stations) unit for speed (km/h, mph or m/s)
- **Timezone:** Timezone for which the measurement timestamps should be formatted
- **Values in Quotes:** all values (cells) will be put in quotes (“”)
- **Decimal point:** the decimal point
- **CSV Separator:** the CSV separator

5 Group Display

After logging on (if more than one station is configured for the user id), or after selecting a station group from the navigation tree view, all stations (that are in the selected station group) shown on a map display.

On all "group display" pages, a menu bar with items "Map" and "Table" is shown below the title bar, which allows to switch between the map and table display for the stations in the respective group

5.1 Group – Map

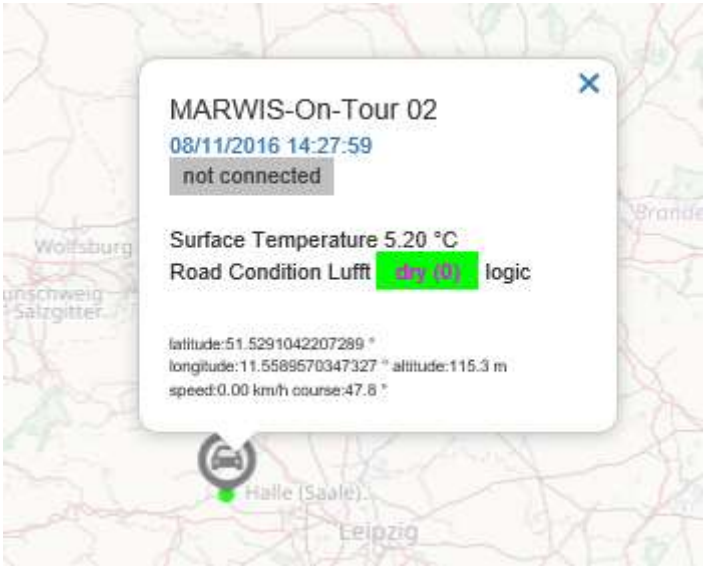


The group map shows all (mobile and stationary) stations assigned to the user. The color of the station icon indicates the status for the station.

- Green: connected, or "ok" (no errors)
- Gray: inactive or not connected

- Orange: (stationary) station outage
- Yellow Green: connected/ok, but a sensor channel reports error
- Light Green: connected/ok, but a sensor channel reports a non-plausible value
- Yellow: a warning condition
- Red: an alarm condition

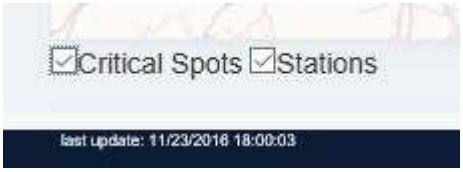
Clicking on a station icon will show the station status and the latest measure values for the respective station.



Clicking on the date/time within the pop up text will link to the station – current values display (see 6.1 Station - Current).

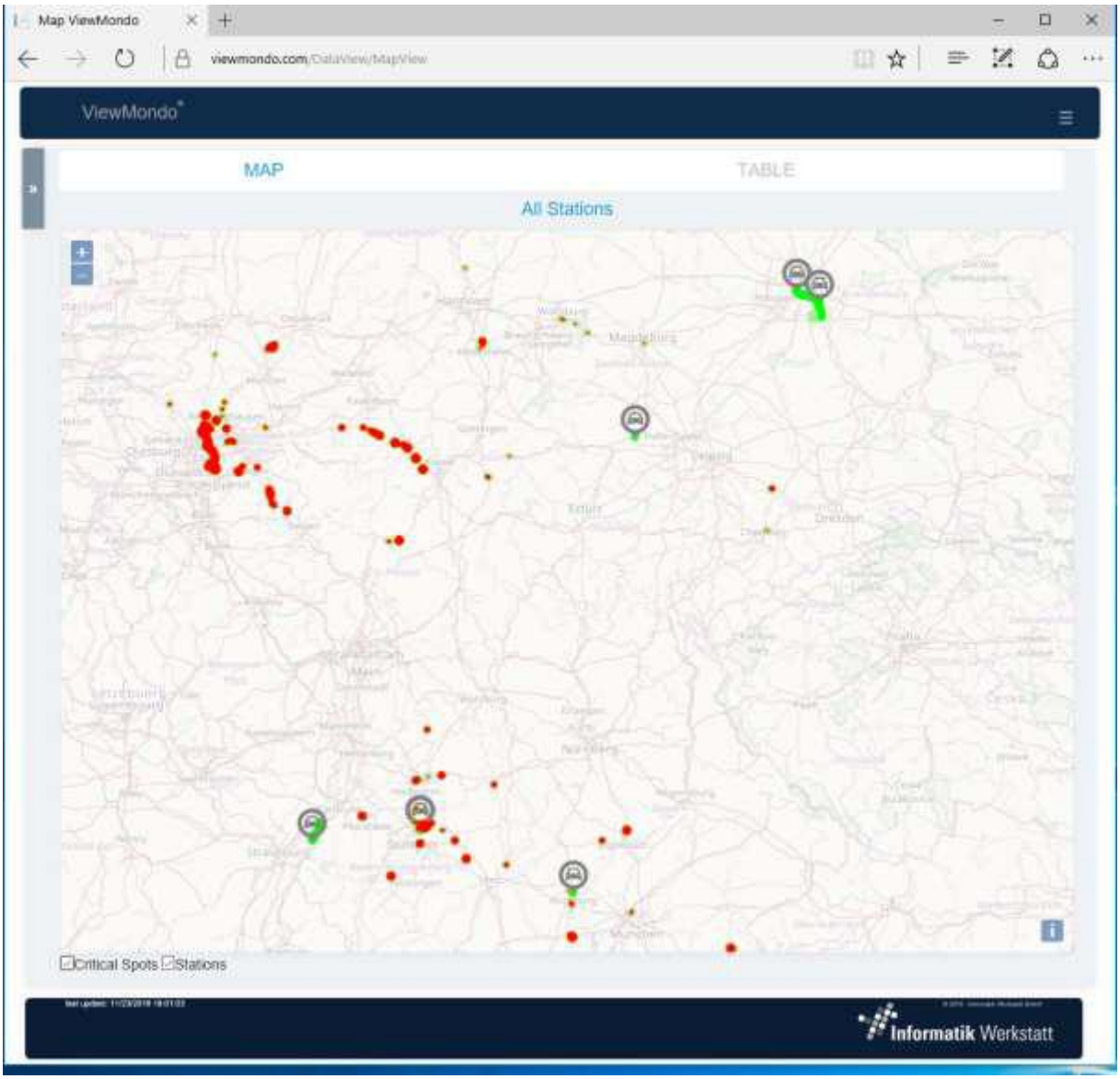
5.1.1 Critical Spots

Below the map are 2 check boxes – one labeled “Critical Spots” one labeled “Stations”.



These can be used to show different layers on the map.

When selecting “Critical Spots”, all available data for all stations shown on the map is cumulated to show a “heat map” display.

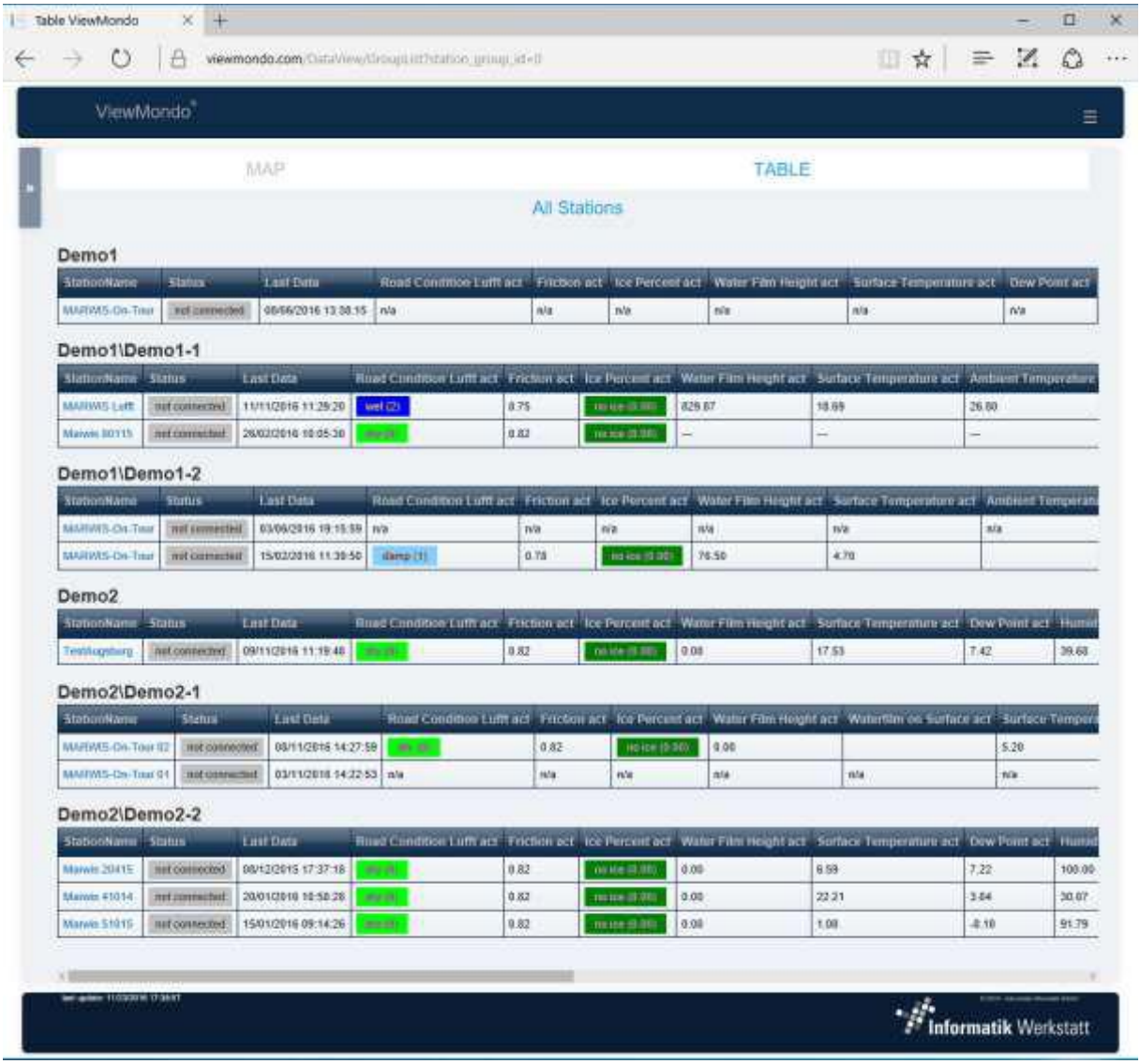


Note that clicking “Critical Spots” for the first time (in a browser session) might take a significant amount of time, since a lot of data might need to be processed. Clicking “Critical Spots” again will hide/show this layer.

Clicking “Stations” will hide/show the layer with the station icons (and trails of the mobile stations).

5.2 Group – Table

The group table display shows the station status (connected/ok/sensor error/warning/alarm etc.) and the most recent measure values from all stations of the selected station group and sub-groups in a table for each station group/sub group.



Clicking on the station name will link to the station – current values display (see 6.1 Station - Current).

6 Station Display

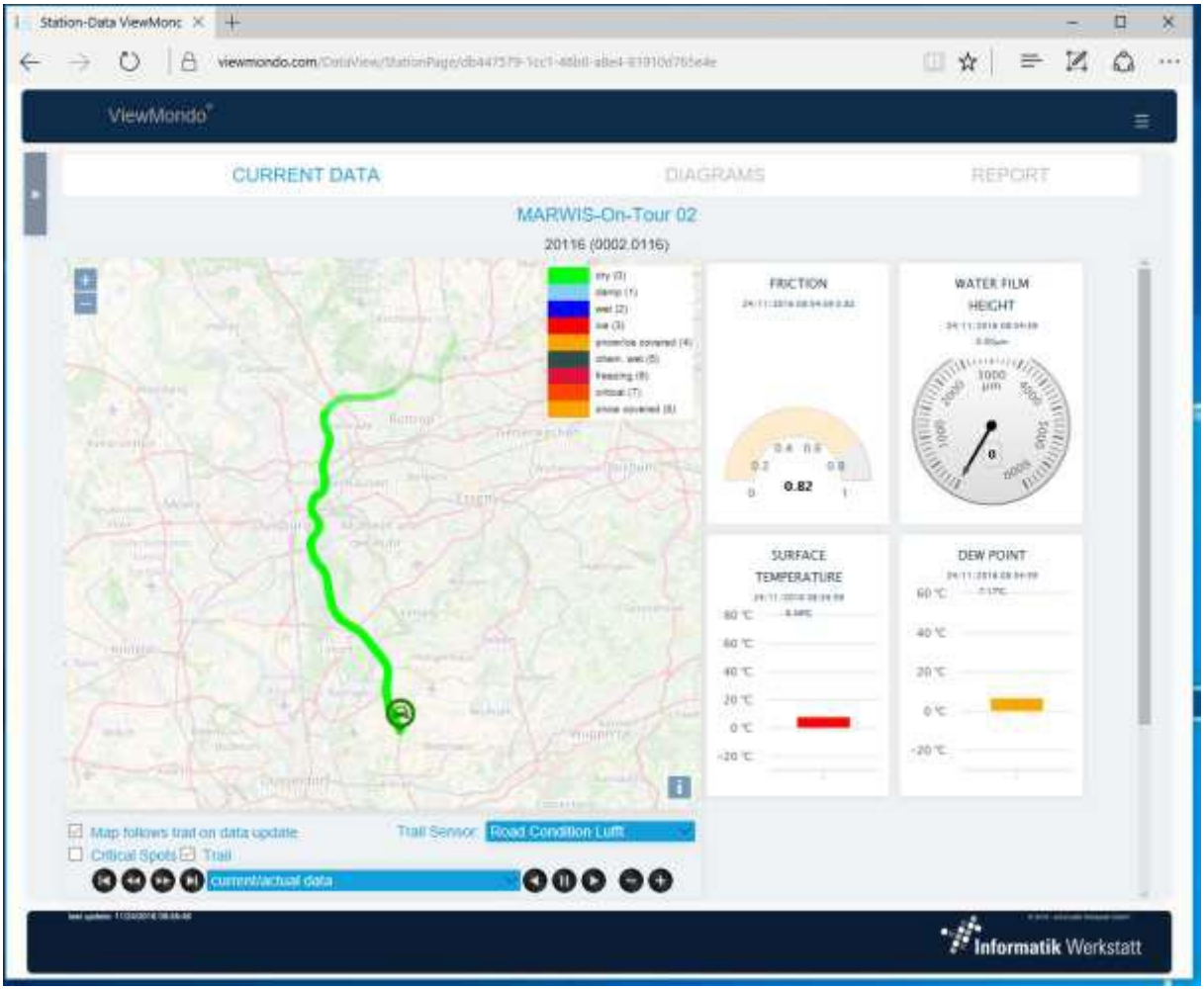
As for the group displays, a menu bar is shown below the title bar for all "station display" pages. The items on this menu bar are "Current Data", "Diagrams" and "Reports"

6.1 Station - Current Data

The current data display shows – on opening – the most up to date data for the selected station.

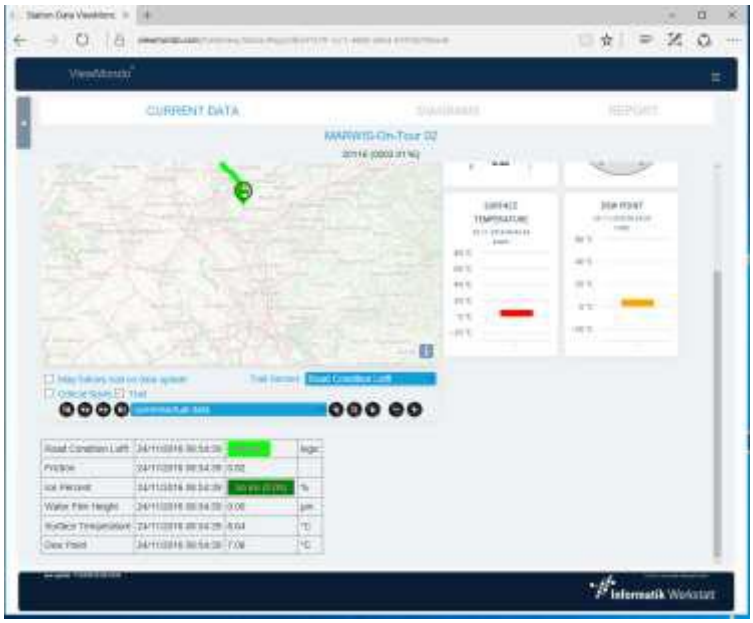
6.1.1 Current Data – Mobile

Mobile stations (Marwis) are shown on a map, with gauges to the right side of the map, and table(s) below the map.



Depending on the size of the browser window (or display of a smartphone or tablet), the gauges are shown in one to 3 columns on the right side of the map, or below the map.

Scroll bars allow to scroll within the gauge area (if needed), or down to the table(s) below the map.



6.1.1.1 Measurement Drives

ViewMondo detects "measurement drives" by analyzing the incoming data from a mobile station. If the time difference between 2 measure samples is longer than a pre-defined time (10 minutes), or the location distance between the samples is bigger than a pre-defined distance (2 km), a new measurement drive is created.

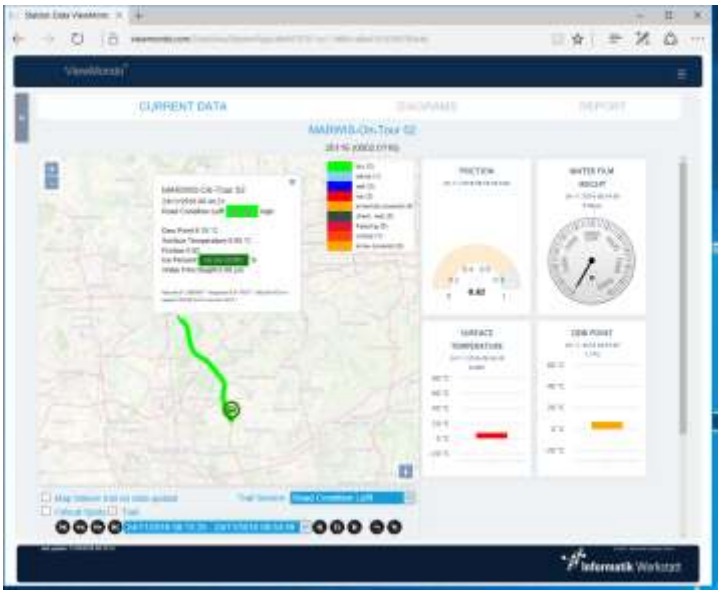
The **context menu** ☰ for the "current data" display of a mobile station contains a menu item "**Measurement Drives**", which allows you to manage your measurement drives (see 6.4 Mobile Station Measurement Drives).

Measurement drives are shown as a trail on the map. The color of the trail is derived from the measurement values of the selected "Trail Sensor".

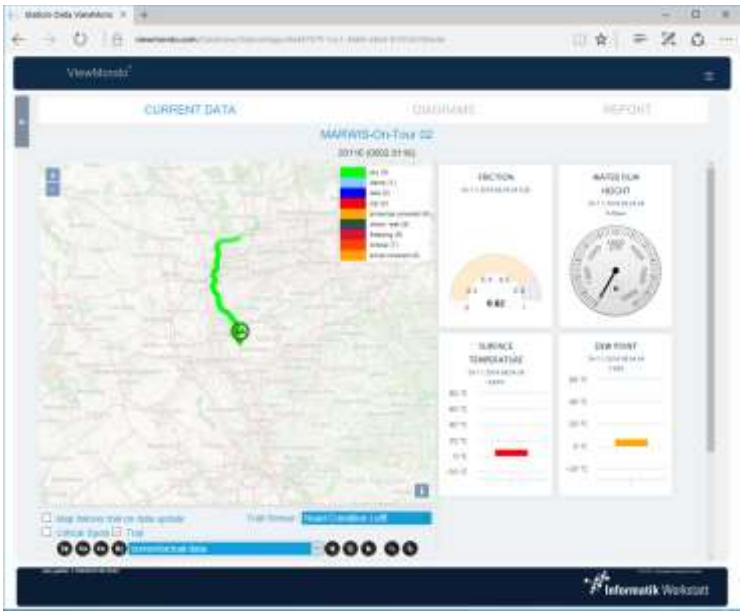
On the upper right corner of the map, a legend shows the color coding for the selected sensor channel.

The buttons on the upper left corner of the map allow zooming in and out. This can also be accomplished using the mouse "scroll wheel".

If the mouse pointer is "scrolled over" the trail on the map, data for this location/time is shown in a pop-up window



A “single click” with the mouse on the trail will “jump” to this location and time within the selected measurement drive, i.e. the gauges and the table below the map will show the measure values from the selected location and time, and the station icon will be moved to this location.

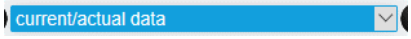


The controls below the map can be used to navigate forth and back from the selected position (see below).

A “double click” on the map will zoom in to the position selected by the double click.

The map can also be moved by clicking and dragging. Note that, if "Map follows trail on data update" is active, the map will re-center on the station icon position on the next data update.

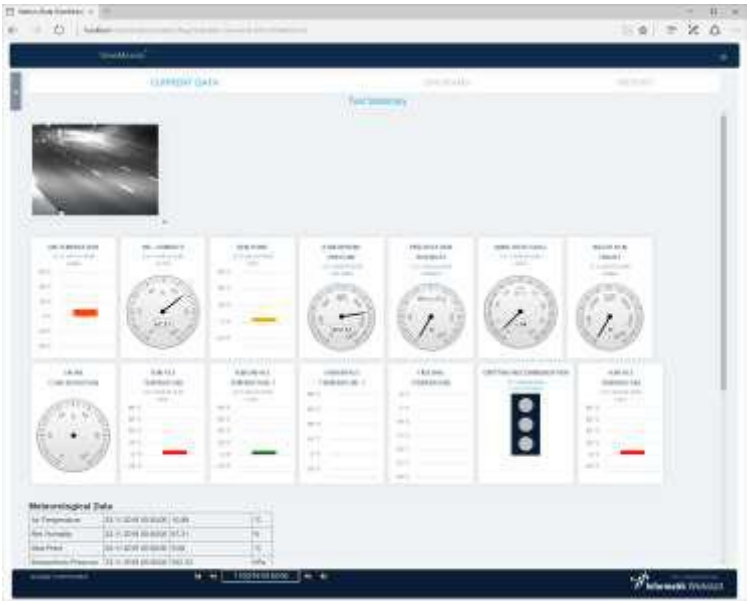
Below the map, you find following controls for the map display:

- Map follows trail on data update: if checked (which is the default), the map will automatically "follow" the vehicle, i.e. the vehicle will be centered on the map when data is updated.
- Trail Sensor: selects, which sensor data is used to create the color trail on the map
- Critical Spots: shows the "Critical Spots" heatmap layer for this station. Note: on first activation, all available data for this station is analyzed to create the layer, which might take a significant amount of time.
- Trail: show/hide the layer with the trail and the station icon
- Below this, the controls for selecting and playing back a measurement drive are located. A measurement drive needs to be selected from the drop down box in the middle in order for the controls to work. Navigating over time within the measurement drive will change the location of the station icon, and the gauges and table will show the respective values for this location and time.:
  - : show the start / first measure sample of the selected measurement drive
  - : show the previous sample within the selected measurement drive
  - : show the next sample within the selected measurement drive
  - : show the end / last measure sample of the selected measurement drive.
  - 

: select a measurement drive from the list of measurement drives (see 6.4 Mobile Station Measurement Drives).
  - : play back the measurement drive – in reverse direction
  - : stop play back
  - : play back the measurement drive
  - : slower playback speed
  - : faster playback speed

6.1.2 Current Data – Stationary

Data from stationary stations is shown in gauges, and table(s) below the gauges. Above the gauges one or more camera pictures can be shown.

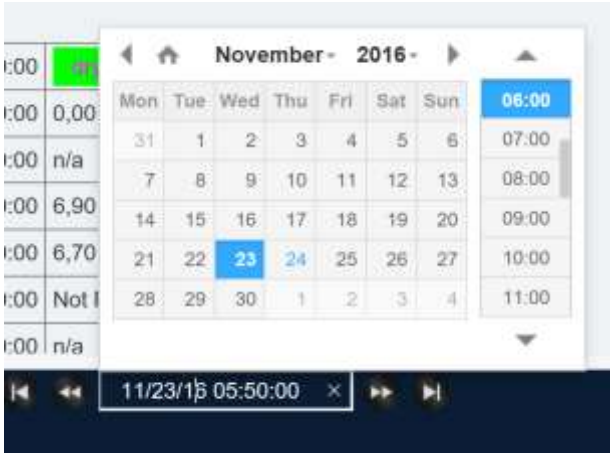


The camera image can be re-sized by "grabbing" the lower right corner of the image.

6.1.2.1 Navigating over time

The controls and the date/time picker in the footer allow to navigate over time or select a specific time to be displayed.

- ⏮: show the first available (oldest) measure sample for this station
- ⏪: show the previous available measure sample for this station
- 11/23/16 05:30:00 the currently selected time. A specific date and time to be shown can be selected by writing the desired value into this box. Clicking on the box will open a date/time picker control, so you can select the date and time from a calendar display:



- ⏩: show the next available measure sample for this station
- ⏭: show the last available (newest) measure sample for this station.

Selecting a time, or navigating over the time line using the buttons, will show the values for the selected time in all gauges and the table(s), as well as show the matching camera picture (if available).

6.2 Station – Diagrams

The stations data is shown in diagrams, and in a table below the diagrams. The time span shown is 1 hour for mobile stations, and 1 day for stationary stations.

The sensor data is shown in one or more diagrams, depending on the sensor equipment of the respective station.

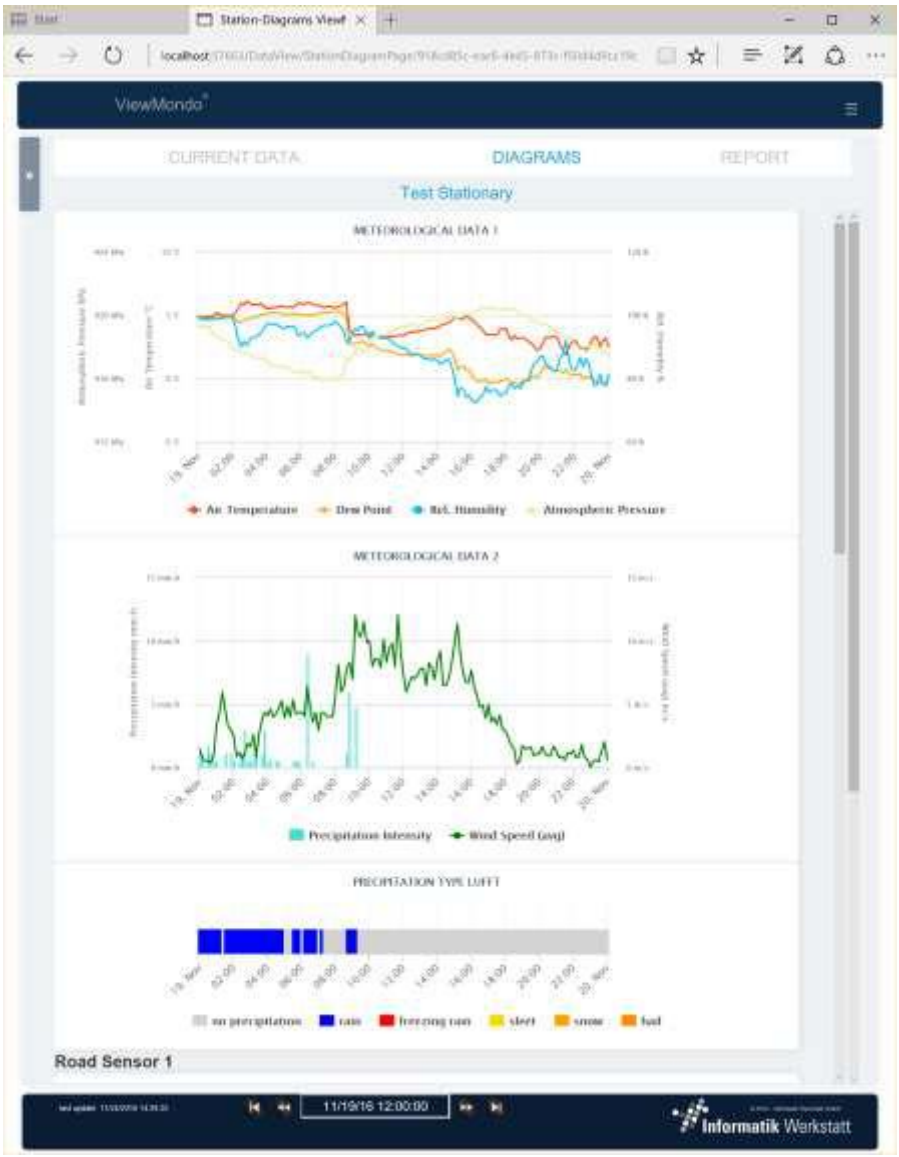
The **context menu** for the "diagrams" display contains a menu item "**Export**", which allows you to download/export the data shown on this page in CSV Format. The format details for this CSV data export can be set in the user profile (see 4.1.2 CSV Export Settings). If the station is a mobile station, the menu contains an additional menu item "**Measurement Drives**", which allows you to manage your measurement drives (see 6.4 Mobile Station Measurement Drives).

For mobile stations, all sensor channels – except the road condition – is shown in a single line diagram, followed by a "color code" diagram for the road condition.

Below the diagrams, a table with all measure values shown on this display is visible.

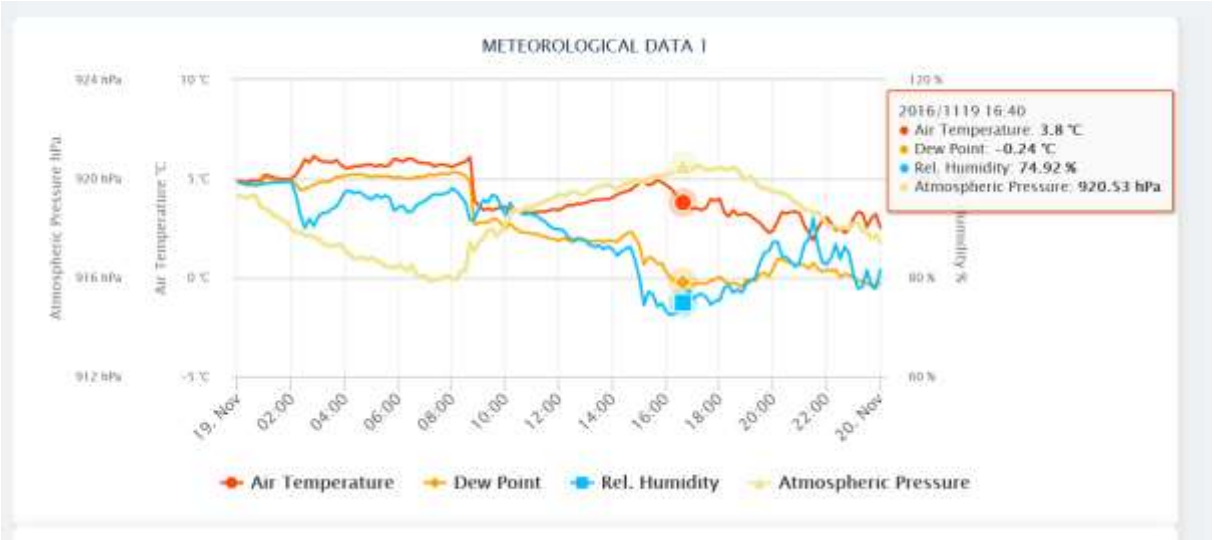
For a stationary station, the sensor channels are distributed over multiple diagrams, depending on the actual sensor equipment of the station.

In this case, the meteorological data (if available) is shown first, followed by the road sensor data.

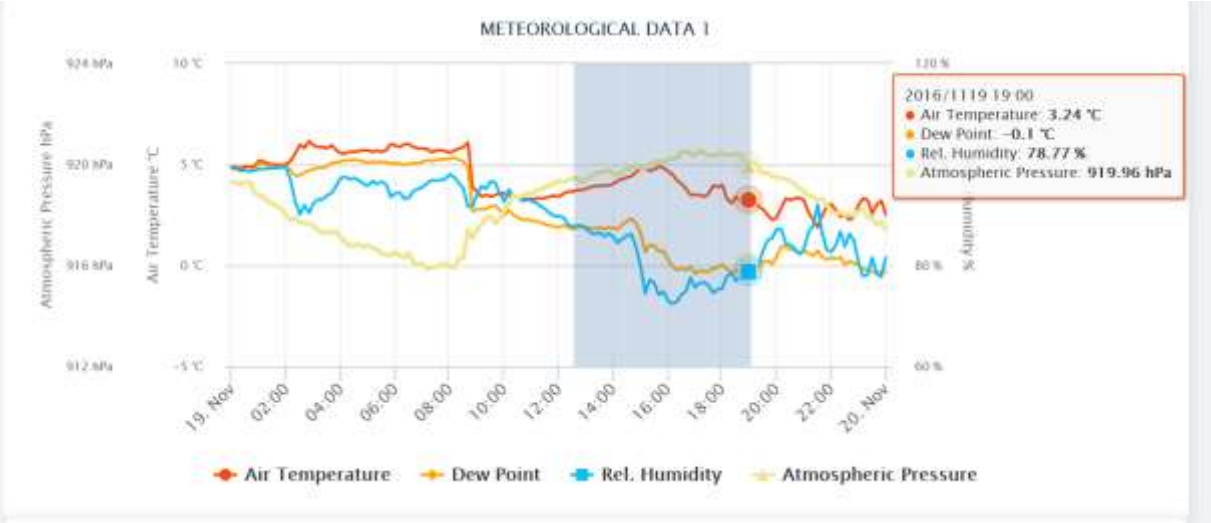


6.2.1 Diagrams

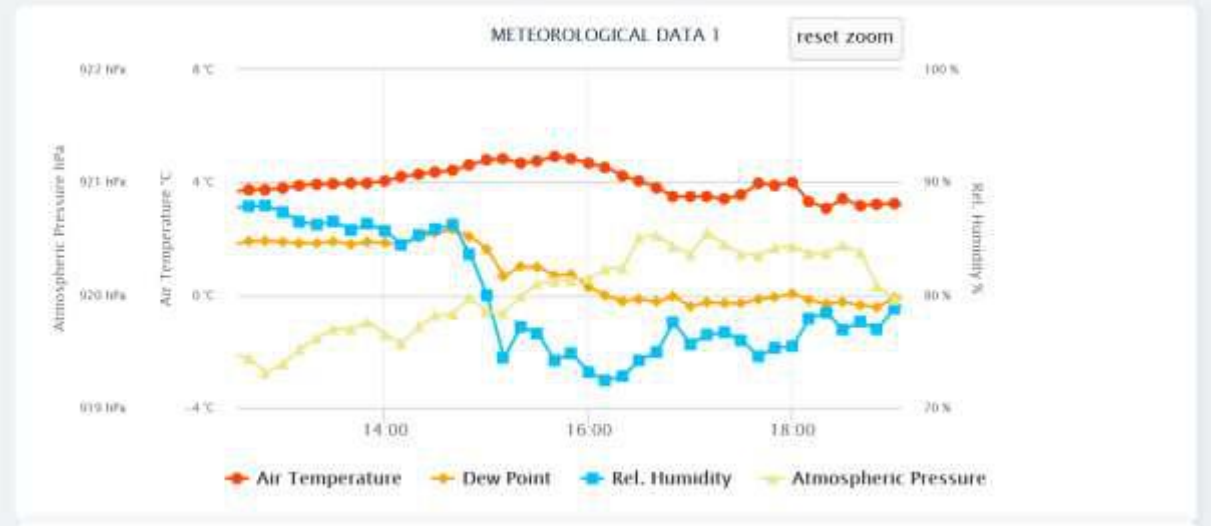
When moving the mouse over a diagram, the values at the time position of the mouse cursor are shown on the right-hand side of the diagram.



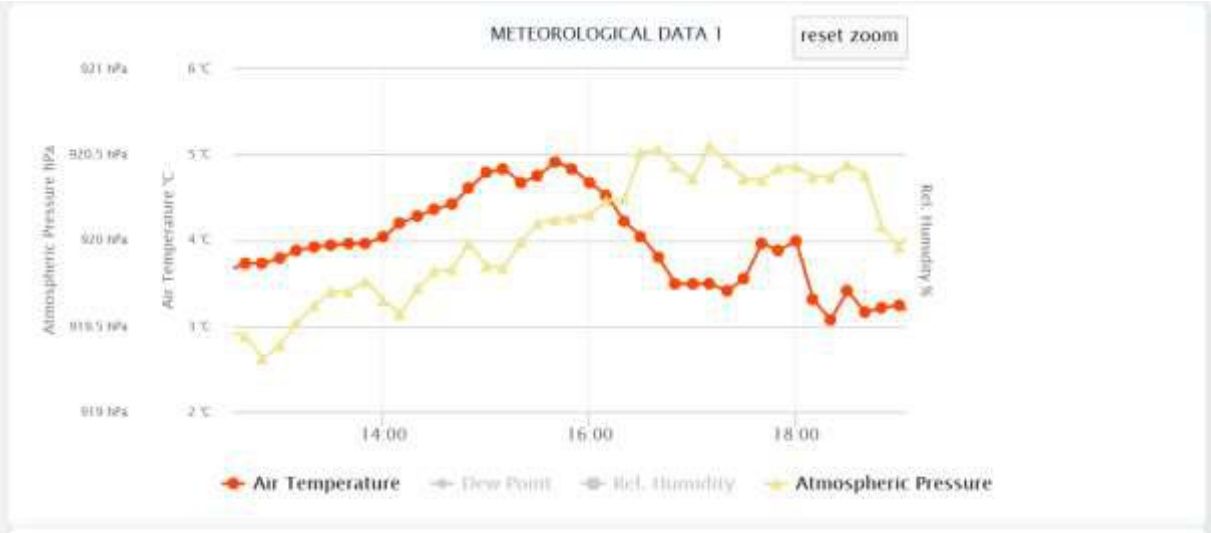
Selecting a region in a diagram will zoom into that area



A "reset zoom" button will appear, which can be used to reset the diagram x-axis.

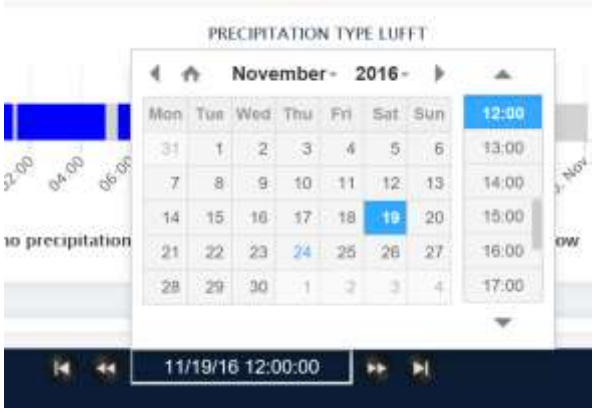


Clicking on the different sensors channel names below the diagram will hide/show the respective values from the diagram. Hidden sensor channel names will be shown in gray, and can be shown in the diagram by clicking on the name again.



6.2.2 Navigating over time

The controls and the date/time picker in the footer allow to navigate over time or select a specific time to be displayed.

- ⏮: show the first available (oldest) period (hour or day, depending on station type) for this station.
- ⏪: show the previous period for this station (one hour or one day back – depending on station type).
- 11/23/16 05:30:00 the currently selected period. A specific date and time to be shown can be selected by writing the desired value into this box. Clicking on the box will open a date/time picker control, so you can select the date and time from a calendar display. The day or hour (depending on station type) "around" the selected date and time will be shown:
- 

- ⏩: show the next period for this station
- ⏭: show the last available (newest) period for this station.

6.3 Station – Report

The report sections shows statistical data, alarm and outage events for a station

6.3.1 Statistics

The "statistics" section shows monthly statistical data for the station.

If applicable for the station sensor equipment, the "efficiency" for the road treatment is calculated by analyzing

- Hours < 0°C: total number of hours in the respective month with road temperature below 0 °C
- -> not dry: total number of hours with "non dry" road condition (and road temperature below 0°C - i.e. with potential for critical road condition).
- -> critical: total number of hours where the road condition actually was critical
- Efficiency: the percentage of "non critical" hours related to the "non dry" hours

In addition to this, minimum, maximum and average values for the given month and selected sensor channels are shown.

6.3.2 Alarm Events

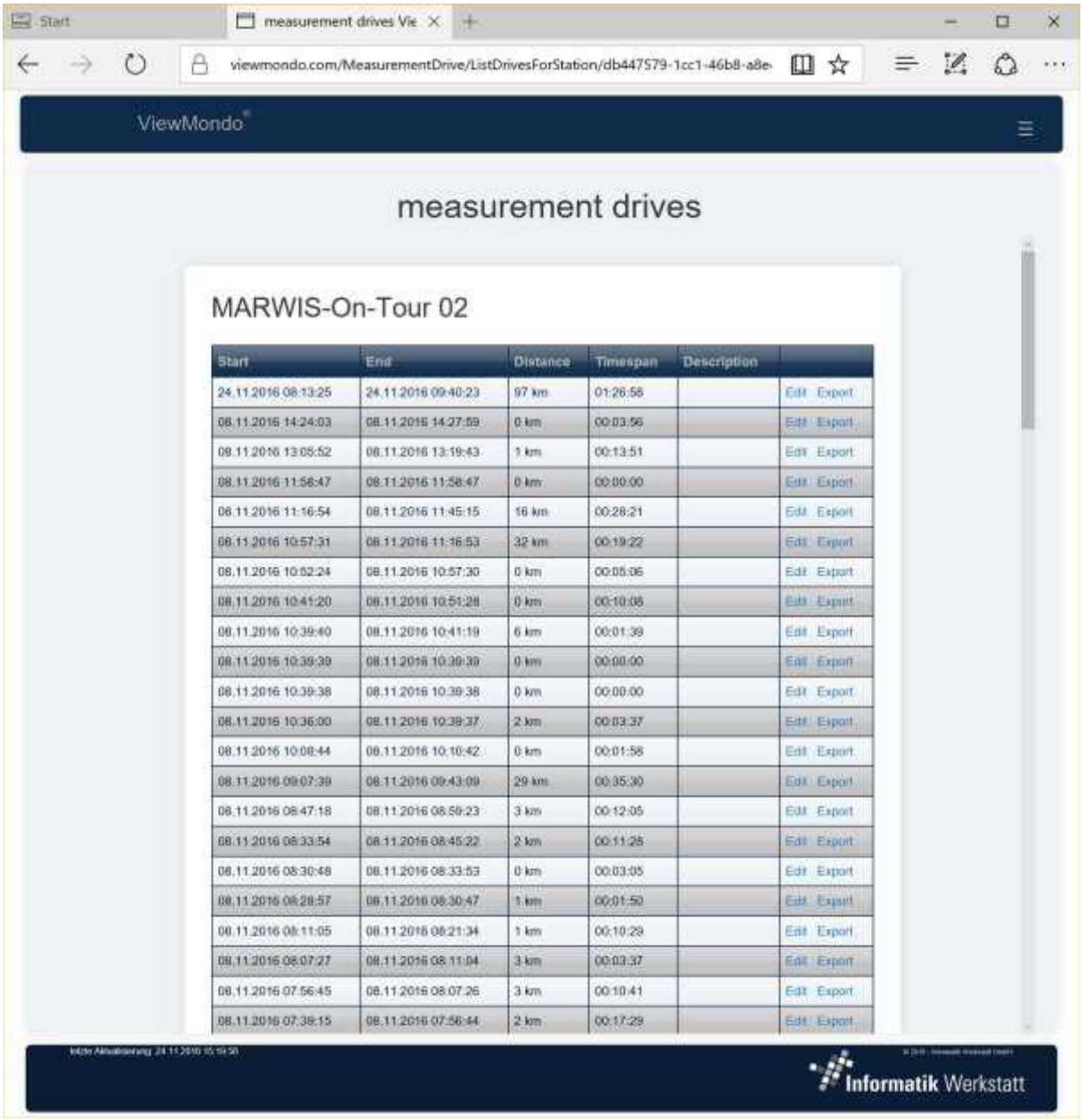
Here, a table with the alarm events stored for this station is shown (if any). See chapter 8.3 Alarm Settings for details on how to configure alarms.

6.3.3 Outage Events

Here, a table with the outage events for this station is shown (if any). Outage timeout (the time after which an outage event is created for a station if there is no new data) can be configured on the "edit station" settings – see chapter 8.2 Edit Station.

6.4 Mobile Station Measurement Drives

For mobile stations, the context menu item "Measurement Drives" on any of the station displays (current data / diagrams / report) will open a list showing all measurement drives for a station:

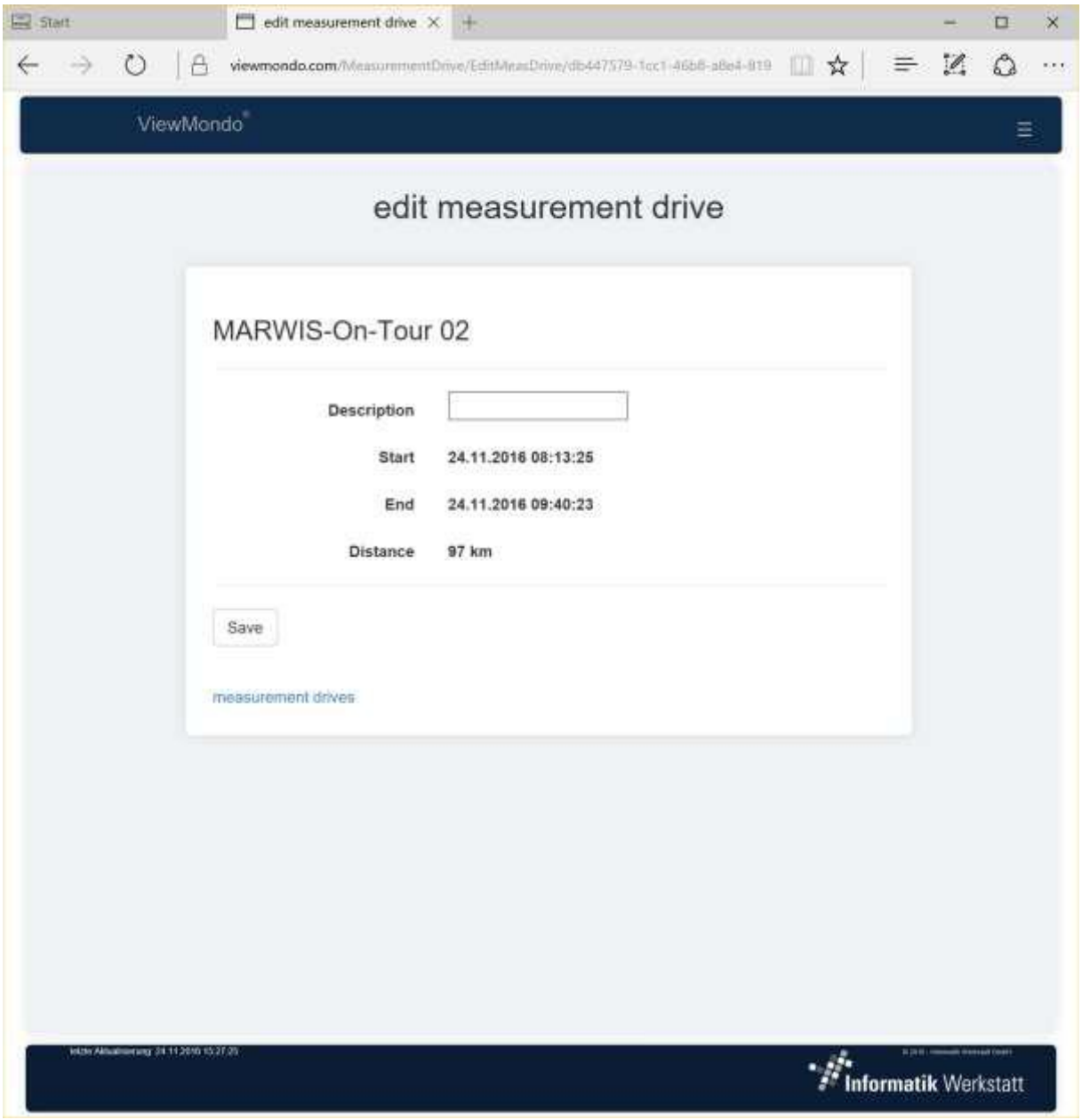


The station name above the list of drives will link back to the station "current data" display.

Start time, End time, travelled distance and the timespan covered by the respective measurement drive are shown.

The data for each measurement drive can be exported as a CSV file by clicking on "Export" in the respective row. The format details for this CSV data export can be set in the user profile (see 4.1.2 CSV Export Settings).

Each measurement drive can be edited to add a description (which will be shown in the drop down selection list on the current data display for the station) by clicking "Edit".


Start
edit measurement drive
viewmondo.com/MeasurementDrive/EditMeasDrive/db447579-1cc1-46b8-a8e4-919
ViewMondo
edit measurement drive
MARWIS-On-Tour 02
Description
Start
24.11.2016 08:13:25
End
24.11.2016 09:40:23
Distance
97 km
Save
measurement drives
Informatik Werkstatt

7 Optional / Additional Functions

7.1 SnowTam Workflow

The SnowTam workflow can be used to calculate and document the "runway condition code" status for runways. This additional function can be activated by the system administrator for a specific use. Additional menu items will show in the context menu of the station displays for the respective users.

A detailed description can be found in the respective document.

7.2 Gritting Recommendation

The "Gritting Recommendation" calculation can be activated for stations with the respective sensor. This model calculation is based on a paper published by the German "Bundesamt für Straßenwesen" (bast).

Input values are

- Air temperature
- Relative humidity
- Dewpoint
- Precipitation Type
- Precipitation Intensity
- Road Temperature
- Waterfilm
- Freeze Temperature
- Road Condition

Based on these values, and the "bast" paper, a gritting recommendation is calculated. The results are

- Gritting Recommendation: the general result of the model calculation. Possible values are
  - No recommendation: based on the data, no result can be calculated
  - Gritting detected: gritting was detected (and road temperature is higher than freeze point)
  - Preventive Gritting: road temperatures are falling, and conditions are "not dry", so there is a chance that critical road conditions might develop in the near future
  - Gritting: road condition is critical, gritting is necessary
- Gritting Recommendation Detail: a more detailed result. Possible values are:
  - No recommendation: based on the data, no result can be calculated
  - gritting was detected (and road temperature is higher than freeze point)
  - Preventive slippery frost: preventive gritting is recommended because slippery frost might develop soon
  - Slippery Frost: measure values indicate slippery frost
  - Preventive freezing damp: preventive gritting is recommended because freezing damp might develop soon.
  - Freezing Damp: measure values indicate freezing damp condition.

    - Preventive freezing wet: preventive gritting is recommended because freezing wet conditions might develop soon
    - Freezing wet: measure values indicate freezing wet condition.
    - Preventive ice rain: preventive gritting is recommended because freezing rain conditions might develop soon
    - Ice rain: measure values indicate ice rain condition.
    - Preventive snow fall: preventive gritting is recommended because snow fall might develop soon.
    - Snow fall: measure values indicate snow fall.
- Salt amount: recommended "dry salt" amount in g per m²
- Saline amount: recommended "saline solution" amount in ml per m²

Note that the model calculation does not utilize forecast information at the moment, so the "preventive" recommendations cannot be calculated.

7.3 Plausibility checking

Plausibility checking consists of a set of rules that are run against the measure values.

Since this processing is time consuming, and designed for a typical stationary station with road condition sensor and environmental data sensors, the processing is – for now – not applied to mobile stations. A separate set of rules for mobile stations might be added in the future.

The rules are based on a paper published by the German "Bundesamt für Straßenwesen" (bast), and are as follows:

Basic:

- Outage detection for station and sensor channels
- Value range checking – depending on sensor type of a channel

Differential:

- Maximum time a measure value for a sensor is allowed to be a constant value (e.g. precipitation intensity, if greater than 0, should not be the same constant value for more than 15 minutes).
- Maximum difference in value between 2 samples of the same sensor channel (e.g. air temperature between 2 samples (within 10 minutes) should not change for more than 2 °C

Cross Checking

This set of rules compares values from different sensors.

E.g.:

- If precipitation type is “rain” (liquid), and air temperature is below a given value (-5°C), precipitation type is not plausible.
- If road condition is dry, and water film is > 0, road condition and/or water film are not plausible
- If road condition is “damp” or “wet”, and water film is 0, road condition and/or water film are not plausible
- If precipitation type is “precipitation”, and precipitation intensity is 0, and humidity is below a threshold (60%) precipitation type ins not plausible
- If precipitation type is “no precipitation”, and precipitation intensity is > 0, and humidity is below a threshold (60%), precipitation intensity is not plausible
- If precipitation intensity is above a threshold (0.5 mm/h) and water film is 0, and humidity is below a threshold (60%), precipitation intensity is not plausible. If humidity is above a different threshold (78%), water film is not plausible
- If visibility is below a threshold (500 m), and precipitation is “no precipitation”, and humidity is “dry” (below 60%), visibility is not plausible

If a measure violates one of these rules, it is marked as “not plausible”. The value is still shown on the tables - with a remark that it is not plausible), but will not be shown in the gauges or diagrams.

8 User type dependent functions

There are 4 different user roles that can be assigned to a user:

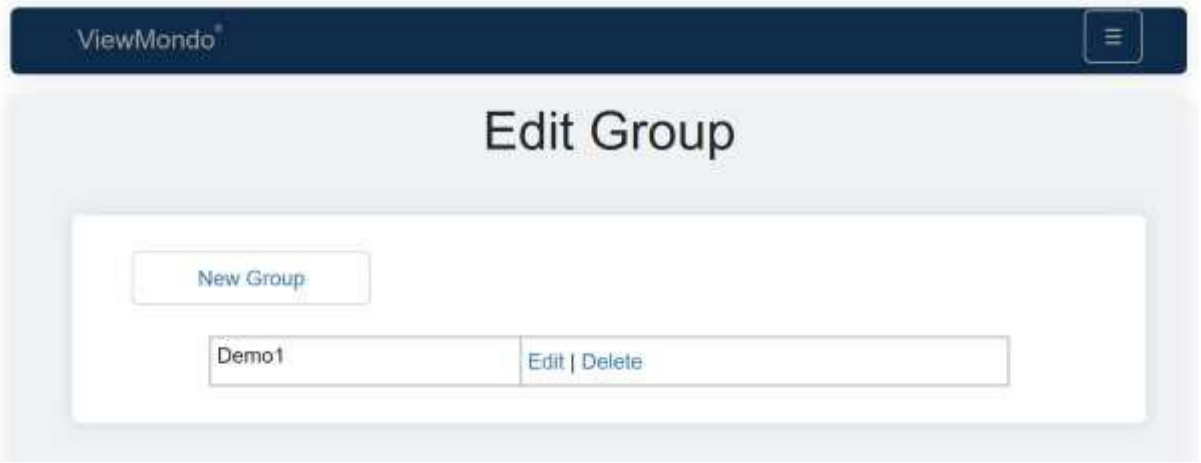
- Analyst: basic use type, can view and analyze data using all functions described above
- Device Administrator: in addition to the functionality available for an "Analyst", a "Device Administrator" can view/edit basic station settings like a station name.
- Group Administrator: in addition to the functionality available for a "Device Administrator", a group administrator can configure station groups and assign stations to groups.
- Administrator: in addition to the functionality available for a "Group Administrator", an "Administrator" can set up users and user groups, configure basic system settings, configure automatic export jobs, set up new stations etc. Please see the ViewMondo® Administrator's manual for details.

8.1 Station Groups

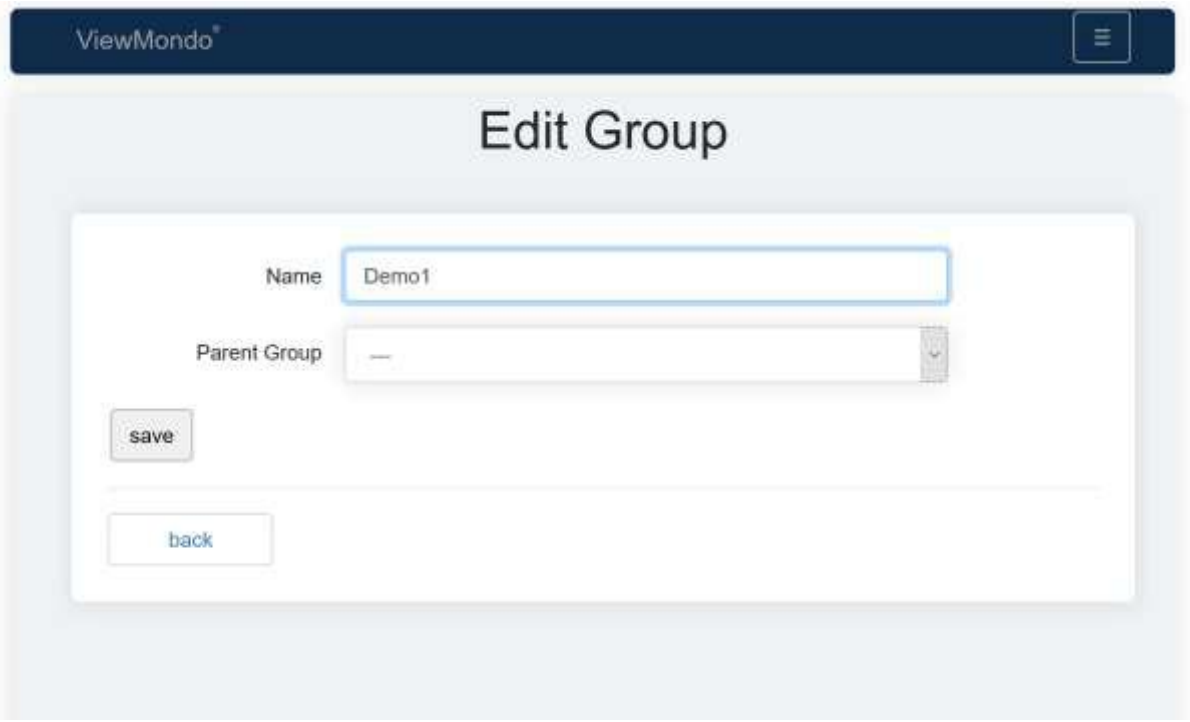
A user with group administrator role may set up station groups to organize the stations for the group. Stations will be shown in the group hierarchy on the tree view (see 4 Navigation Tree View), and for every station group a separate "Group Display" (see 5 Group Display) will be shown.

Station groups are user group dependent, so the group administrator configures this for all users of the respective user group. (Note: users and user groups are set up by the "Site Administrator". Please see the site administrator manual for details on this).

Clicking the "Station Groups" menu entry will show all configured station groups:



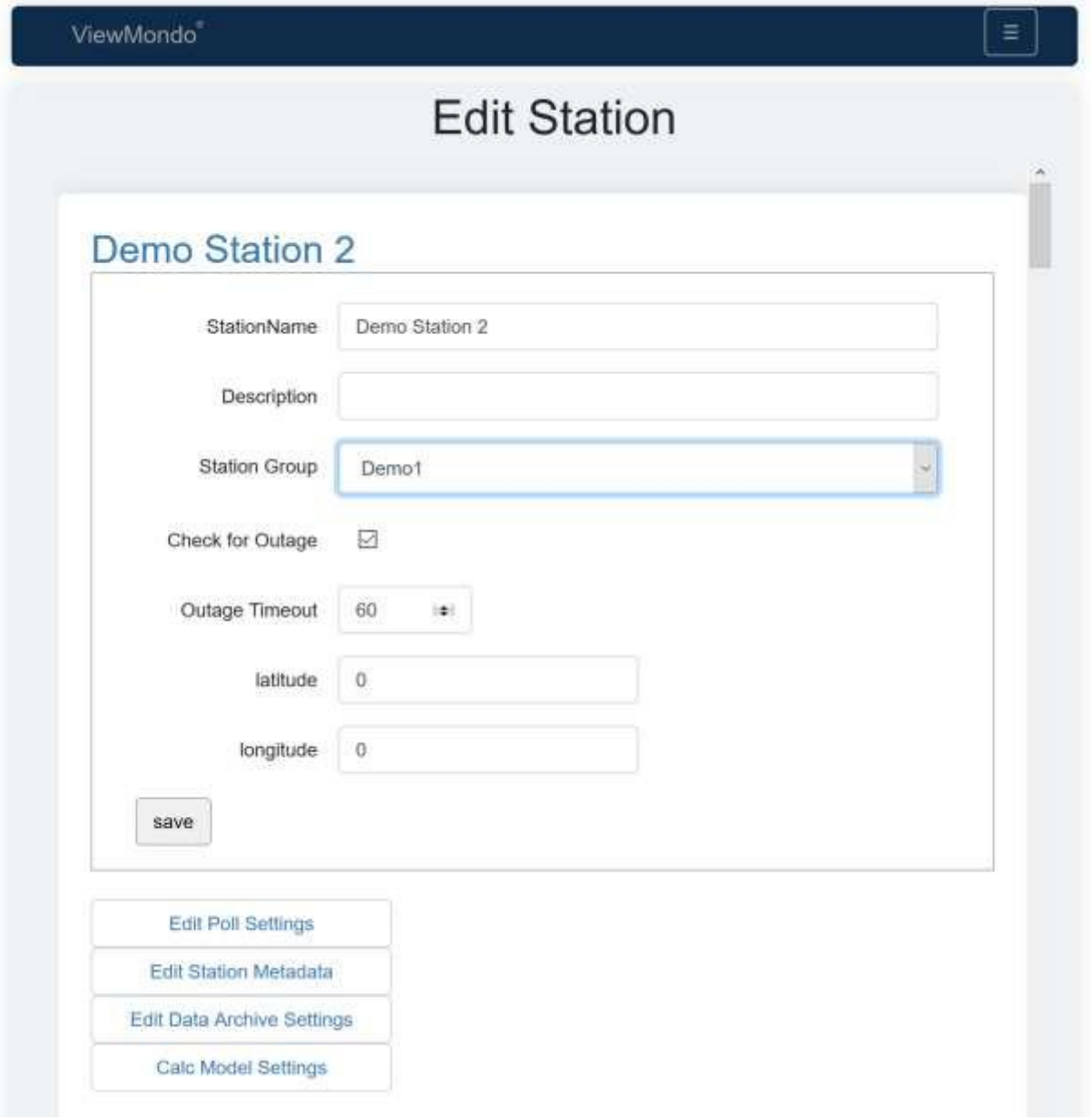
Editing an existing station group or creating a new station group will show the following screen:



A station group has a name, and might have a parent group – this defines the "station group tree" shown on the Navigation Tree View.

8.2 Edit Station

Stations can be edited by all users with "station administrator" or "group administrator" or "site administrator" roles.



Depending on the station type, various attributes can be edited here.

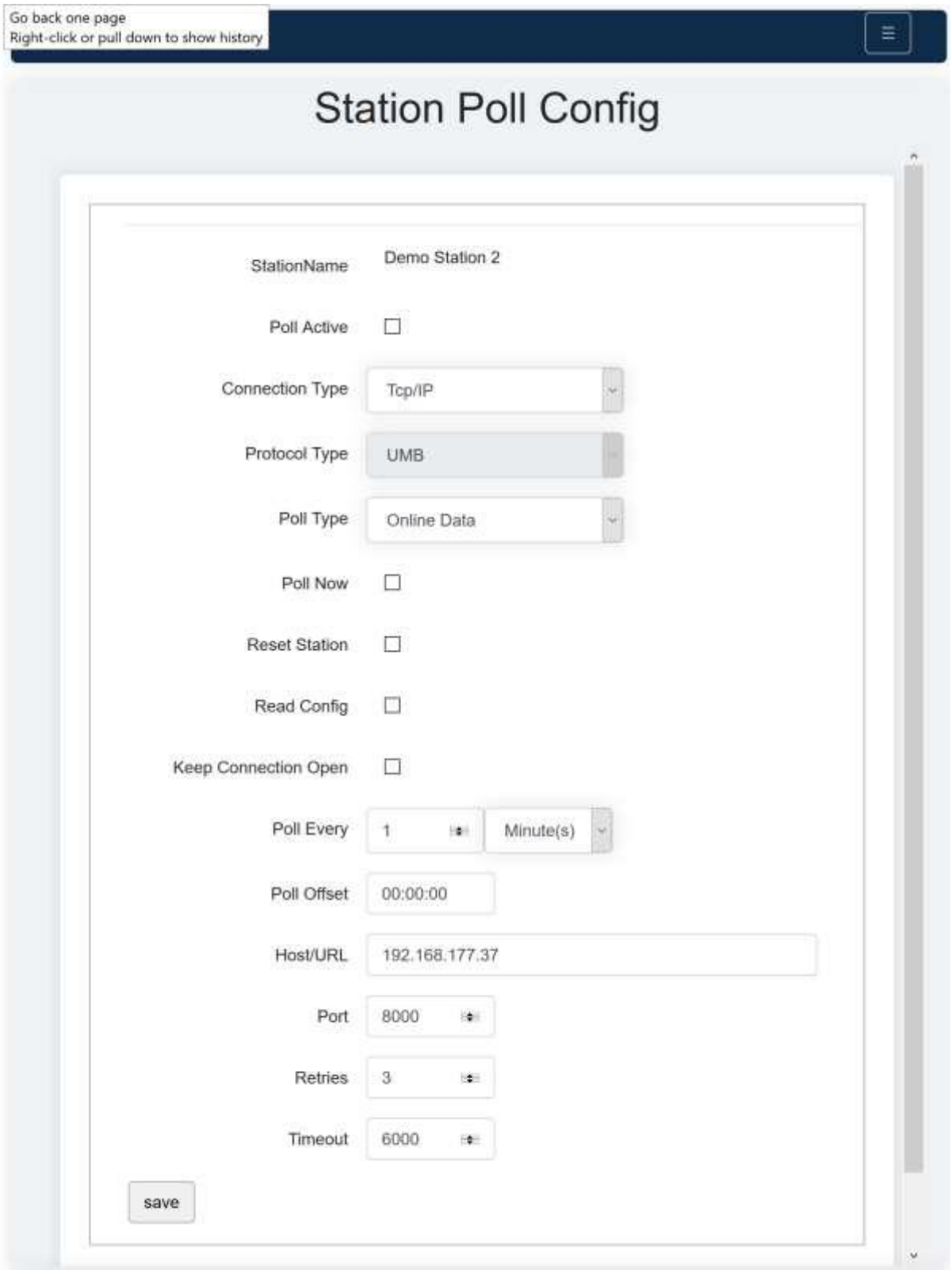
For Marwis type stations, the serial number, version information, last connected timestamp are shown.

The station group can be assigned.

Below this, the sensor channel information is shown. Inactive sensor channels are shown in gray.

For "Polled" stations, users with "device administrator" role can edit the poll settings of the station:

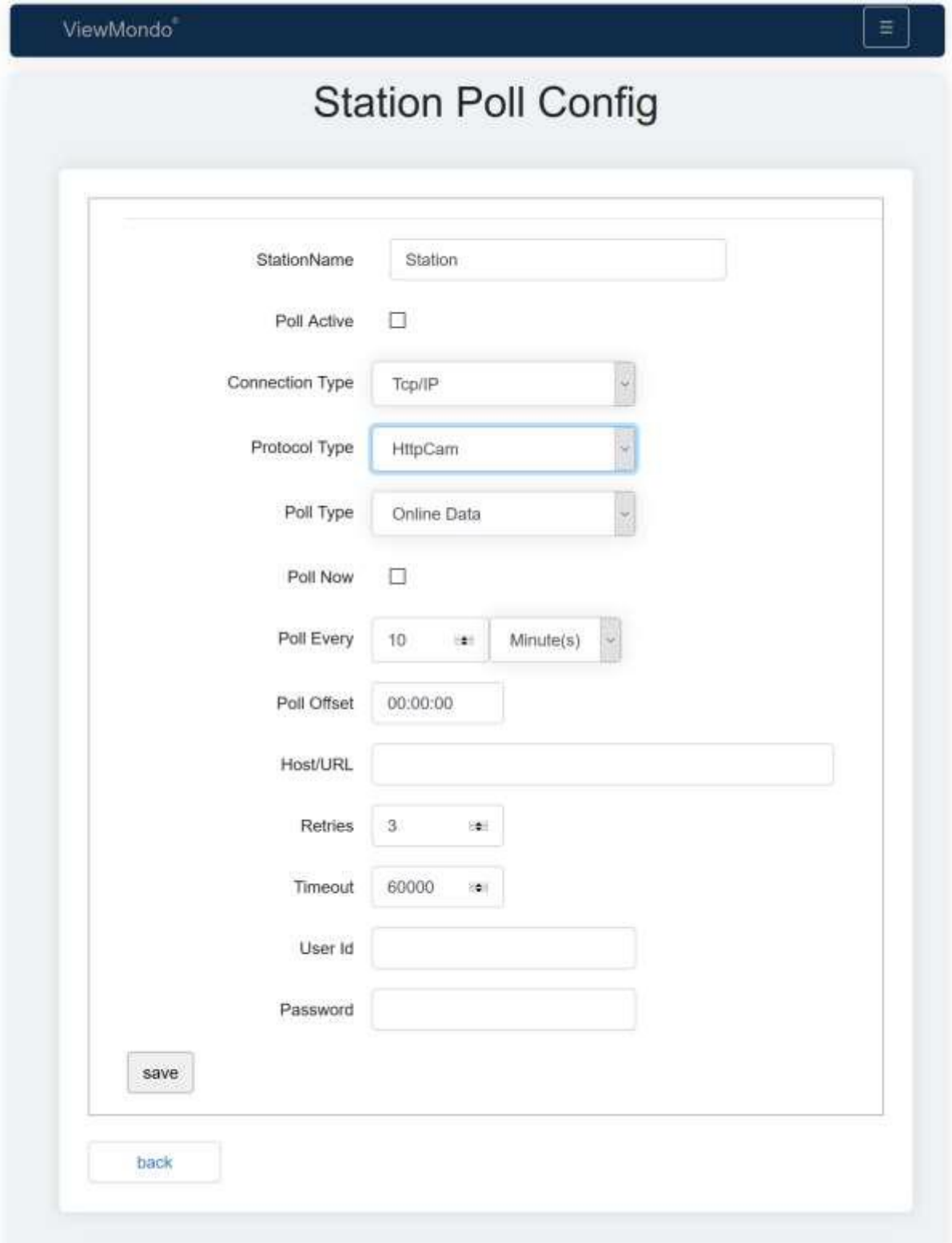
8.2.1 UMB Station



- Station Name: the name for the station
- Poll Active: polling is active/inactive
- Connection Type: the connection type (currently, only TCP/IP is supported)
- Protocol Type: the protocol type

- Poll Type: the data poll type (Online/Historical data, if supported by the protocol)
- Reset Station: reset the station on next poll (if supported)
- Read Config: read station configuration on next poll (if supported)
- Keep Connection Open: keep the connection (e.g. IP Socket) open between polls
- Poll Every: poll interval – poll every xxx minutes (seconds/minutes/hours…). Note: if possible, the time interval is calculated to be aligned to the hour (or day)
- Poll Offset: offset to be applied to the calculated poll time
- Host/URL: the ip address or DNS host name for the station
- Port: the IP Port
- Retries: communication retries on failure
- Timeout: communication timeout in ms

8.2.2 HTTP Camera Station

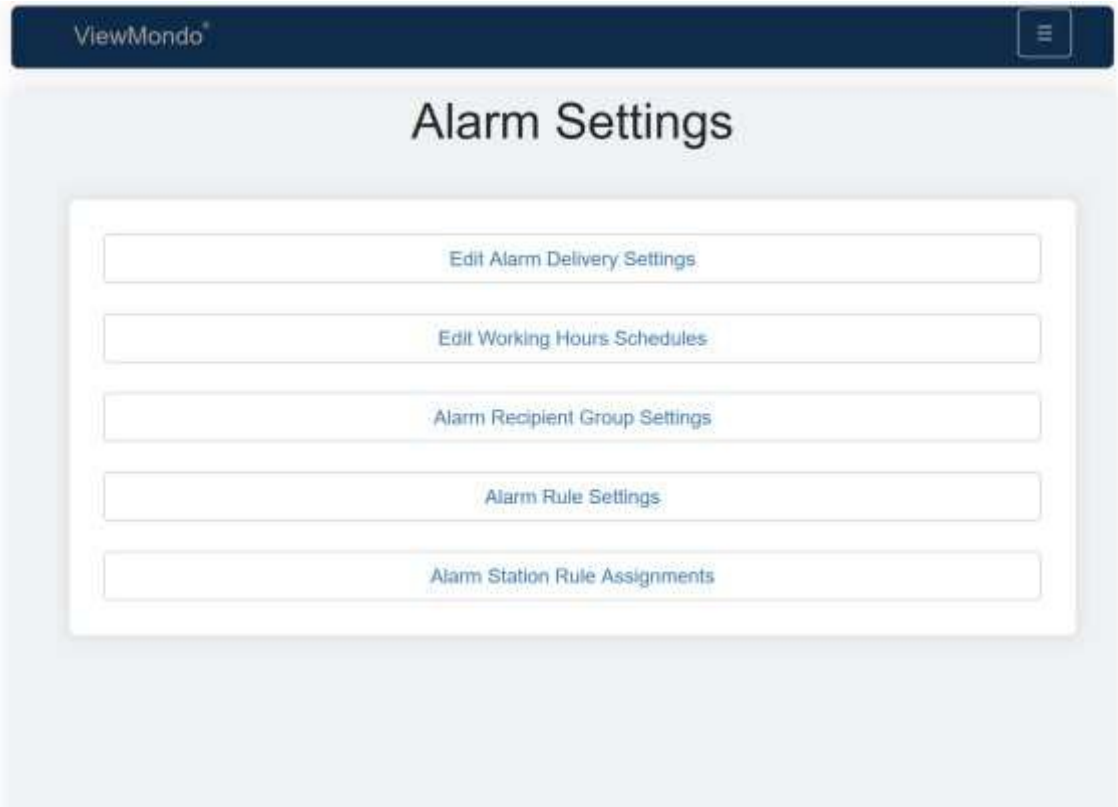


- Station Name: the name for the station
- Poll Active: polling is active/inactive
- Connection Type: the connection type (currently, only TCP/IP is supported)
- Protocol Type: the protocol type

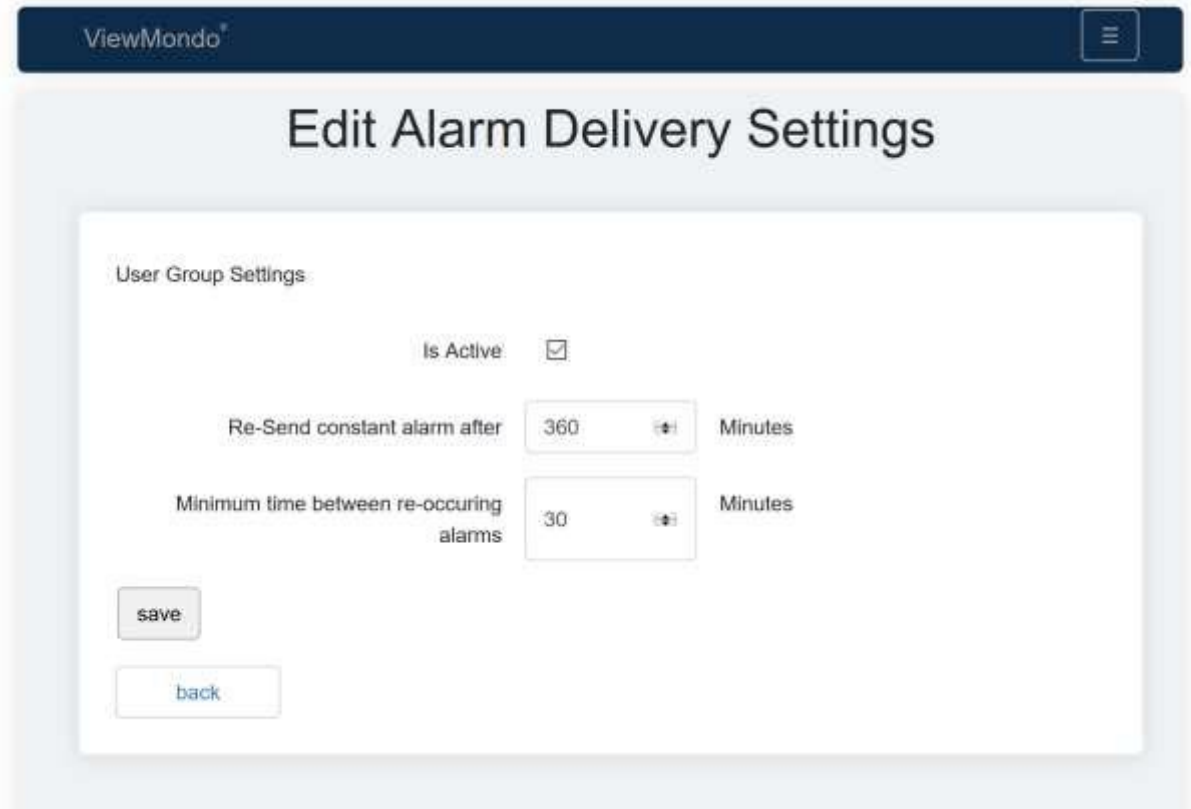
- Poll Type: the data poll type (Online/Historical data, if supported by the protocol)
- Poll Every: poll interval – poll every xxx minutes (seconds/minutes/hours…). Note: if possible, the time interval is calculated to be aligned to the hour (or day)
- Poll Offset: offset to be applied to the calculated poll time
- Host/URL: the complete URL to the camera picture, including (if necessary) the port e.g.: "http://www.camhost.com:20000/record/current.jpg"
- Retries: communication retries on failure
- Timeout: communication timeout in ms
- User ID: user id (if required) to log on to the camera server
- Password: the password (if required) to log on to the camera server

8.3 Alarm Settings

For "group administrators", "Alarm Settings" can be selected from the main menu



8.3.1 Alarm Delivery Settings

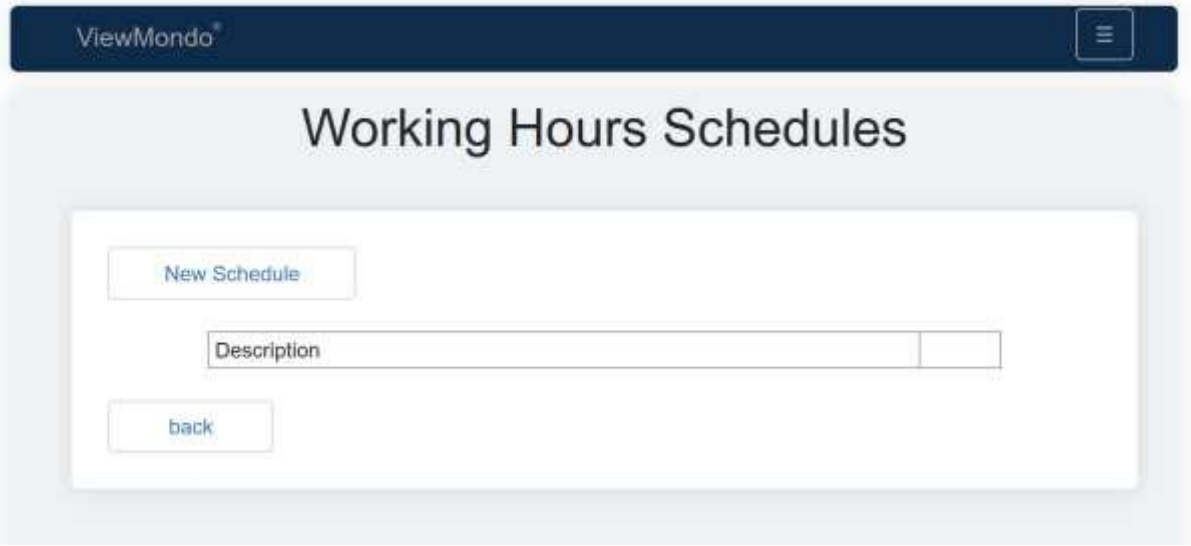


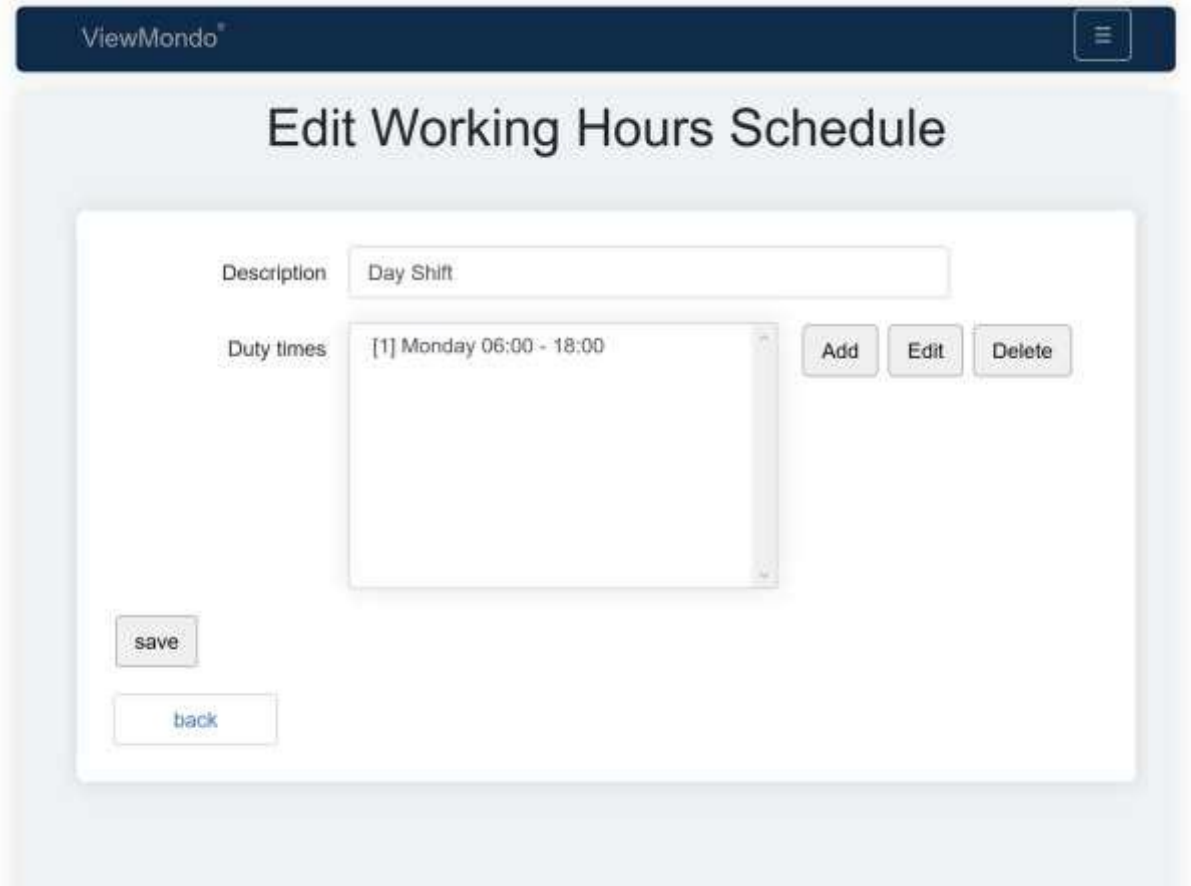
Alarm Delivery Settings control, when alarm emails are re-sent. These settings are configured on several levels. There are default settings for ViewMondo, which might be overridden by global settings (editable by the site administrator), which in turn might be overridden by user group settings – which might be overridden by settings for a specific station.

- Is Active: the settings are active, i.e. override the settings of the next level
- Re-Send constant alarm after xxx minutes: the time after which a constantly active alarm will be re-sent
- Minimum time between re-occuring alarms: the minimum time after which an alarm email is sent for the same alarm condition again, if the condition re-occurs (i.e. the alarm condition was cleared but then active again).

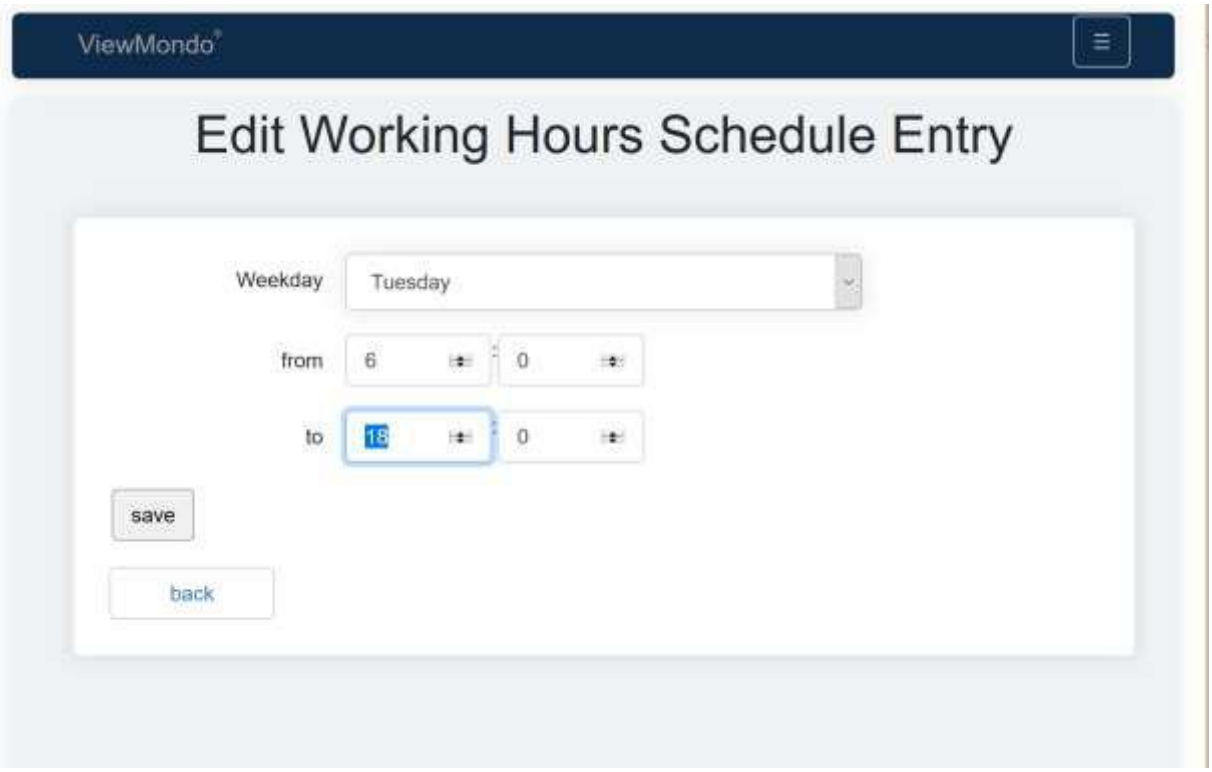
8.3.2 Working Hours Schedules

A working hours schedule controls, at which times an alarm recipient is active, i.e. will receive an alarm email.





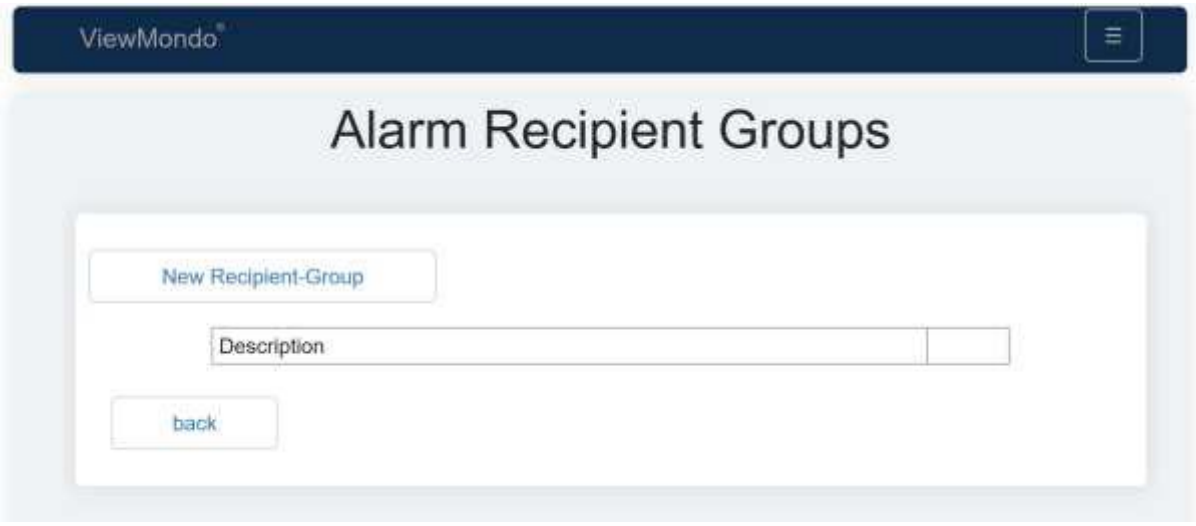
A working hours schedule is configured by adding "duty times" for the day of week and time at which the recipient is "on duty".

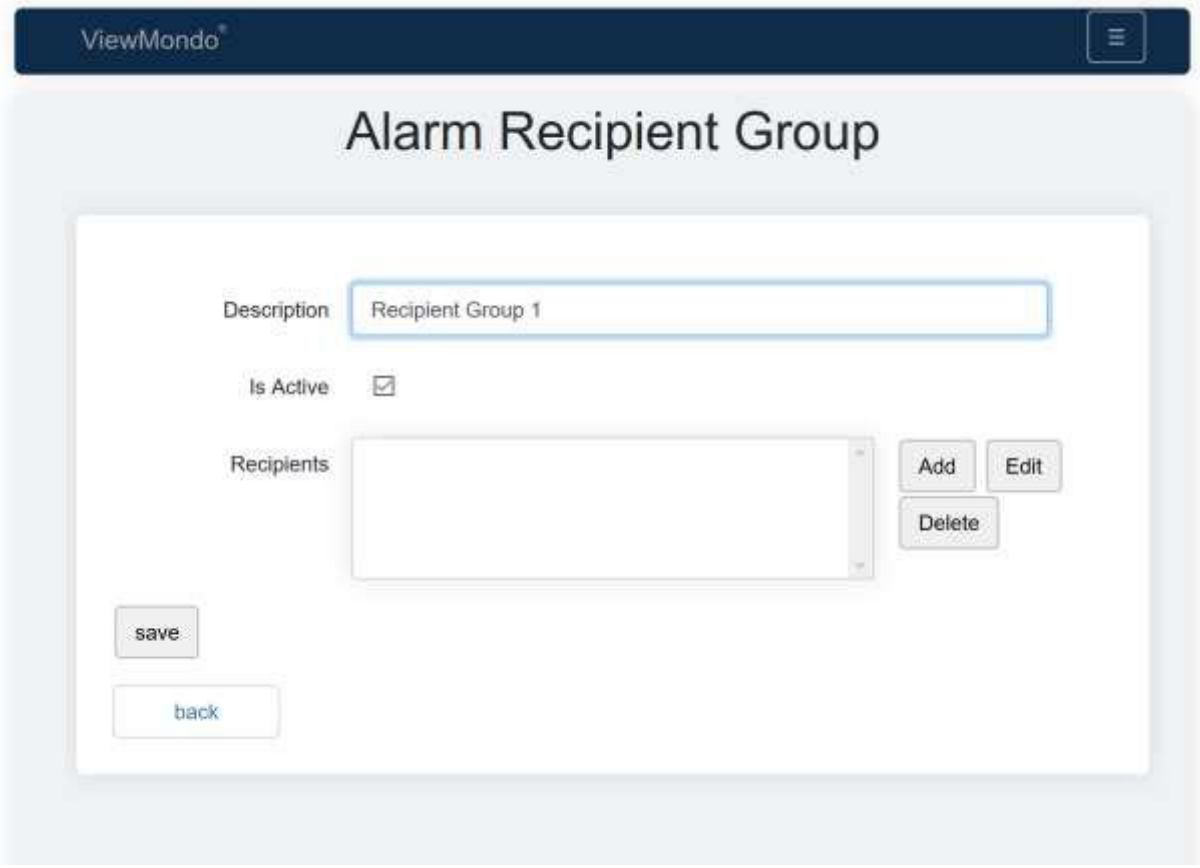


Note: "from" time must always be smaller than "to" time. You might have to configure multiple entries for the weekday for a "night shift" entry (e.g. Monday from 0:00 to 06:00 and Monday from 18:00 to 23:59 etc.)

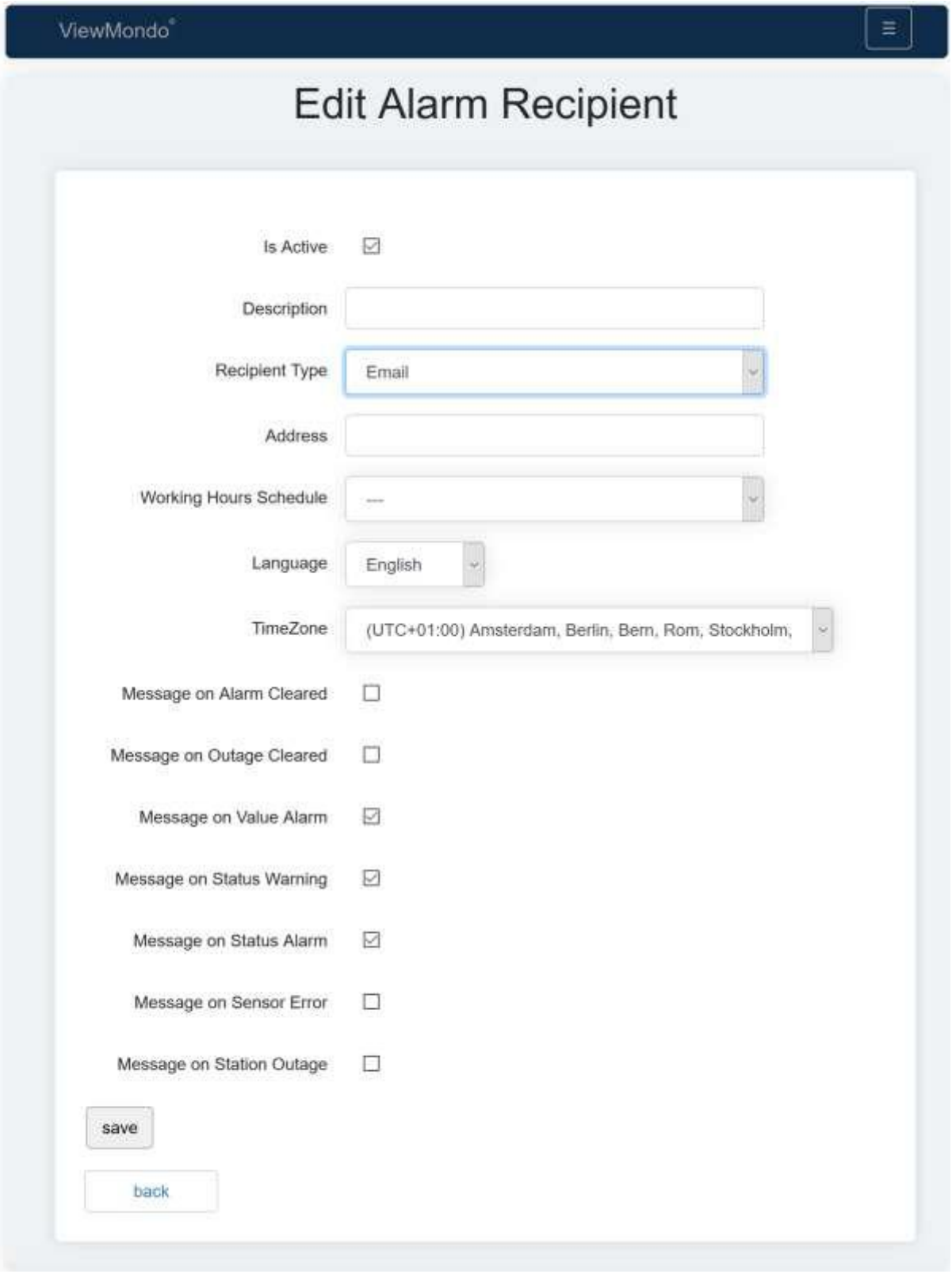
8.3.3 Alarm Recipient Groups

Alarm Recipient Groups are assigned as "alarm recipient" for an alarm rule and station. An alarm recipient group may contain one or more recipients





Setting an alarm recipient group inactive will disable alarm delivery to all members of the group

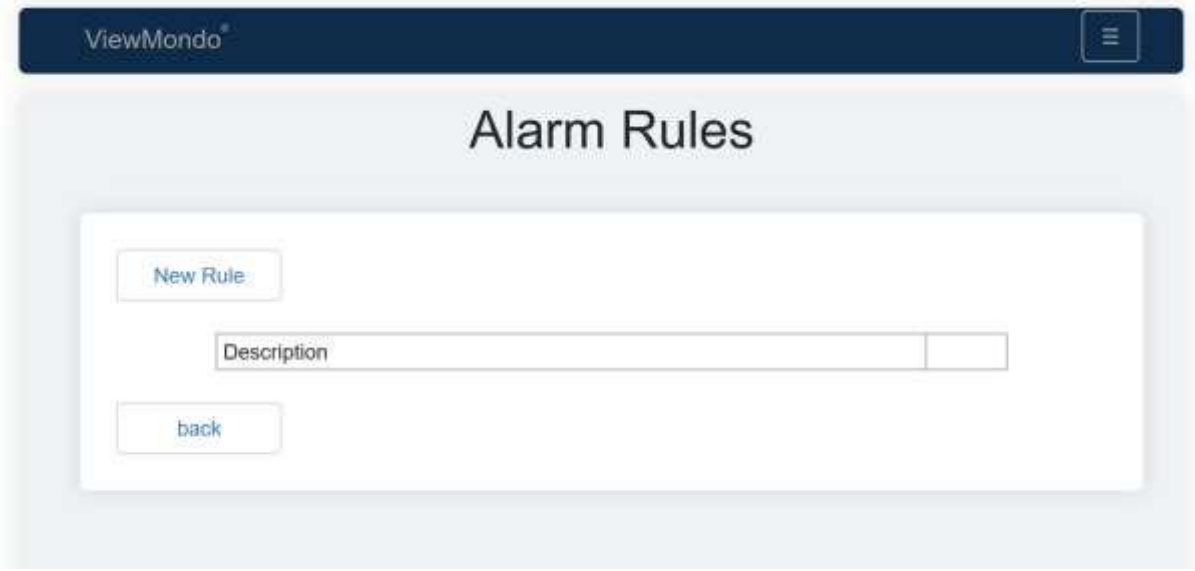


Following attributes can be set for an alarm recipient:

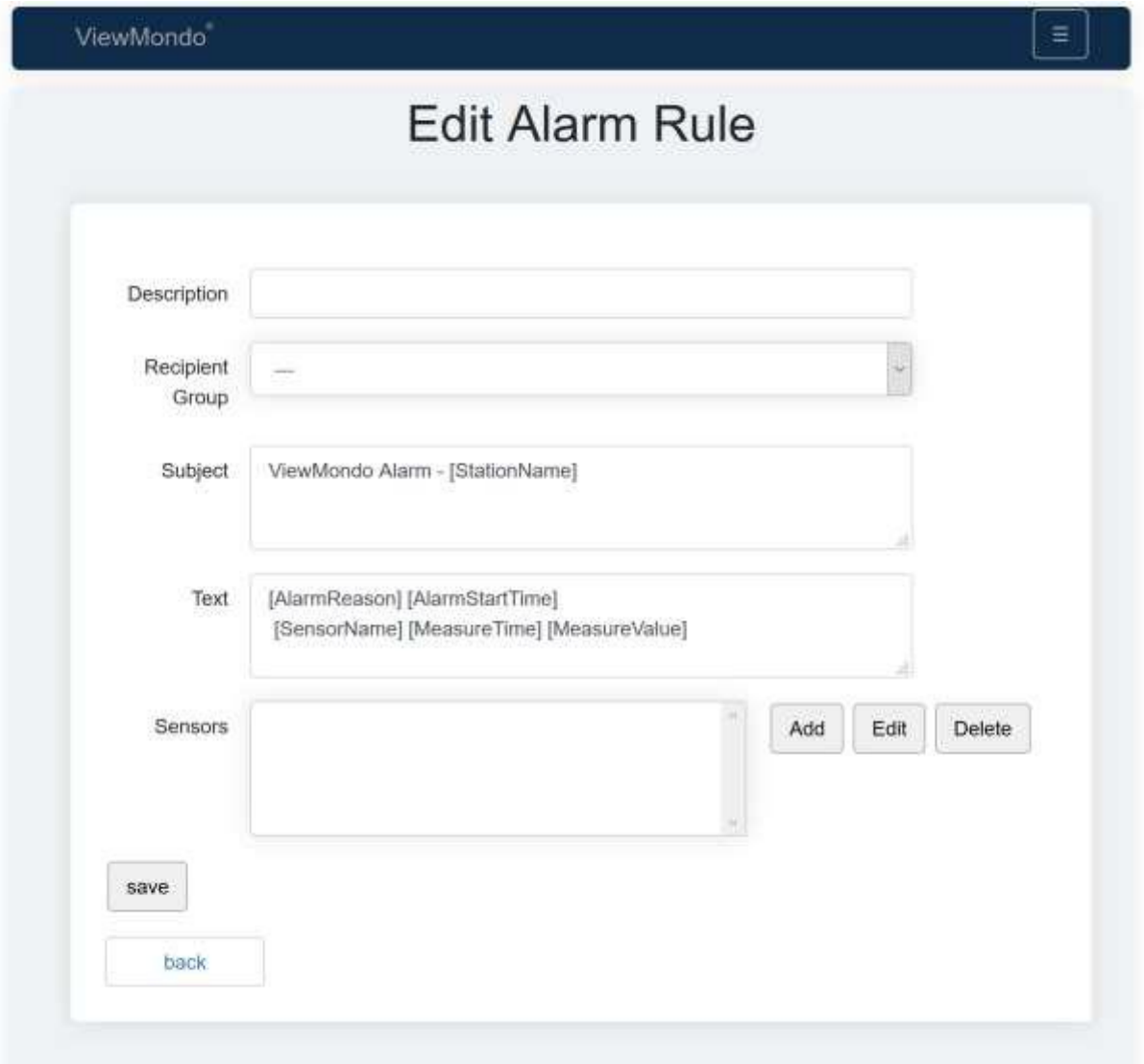
- Is Active: recipient is active (or not..)
- Desciption: Name or description for the alarm recipient
- Recipient Type: only Email is supported at the moment
- Address: the email address of the alarm recipient

- Working Hours Schedule: the working hours schedule for the alarm recipient. If no schedule is assigned, the recipient is always active
- Language: the language for the alarm recipient (used to translate some of the text elements of an alarm email)
- TimeZone: the timezone for the alarm recipient – used if a working hour schedule is assigned to calculate if the recipient is on duty
- Message on alarm cleared: send "ok" message if alarm was cleared
- Message on outage cleared: send "ok" message if station outage was cleared (i.e. communication with the station was re-established and outage condition was cleared)
- Message on alarm value: send email for alarm condition "alarm value" (value above or below a configured threshold)
- Message on status warning: send email for alarm condition "status warning", i.e. a coded value triggered a warning condition (see status mapping)
- Message on status alarm: send email for alarm condition "status alarm", i.e. a coded value triggered an alarm condition (see status mapping)
- Message on sensor error: send email for sensor error conditions
- Message on station outage: send email for station outage conditions

8.3.4 Alarm Rule Settings



Here, the alarm rules are configured.



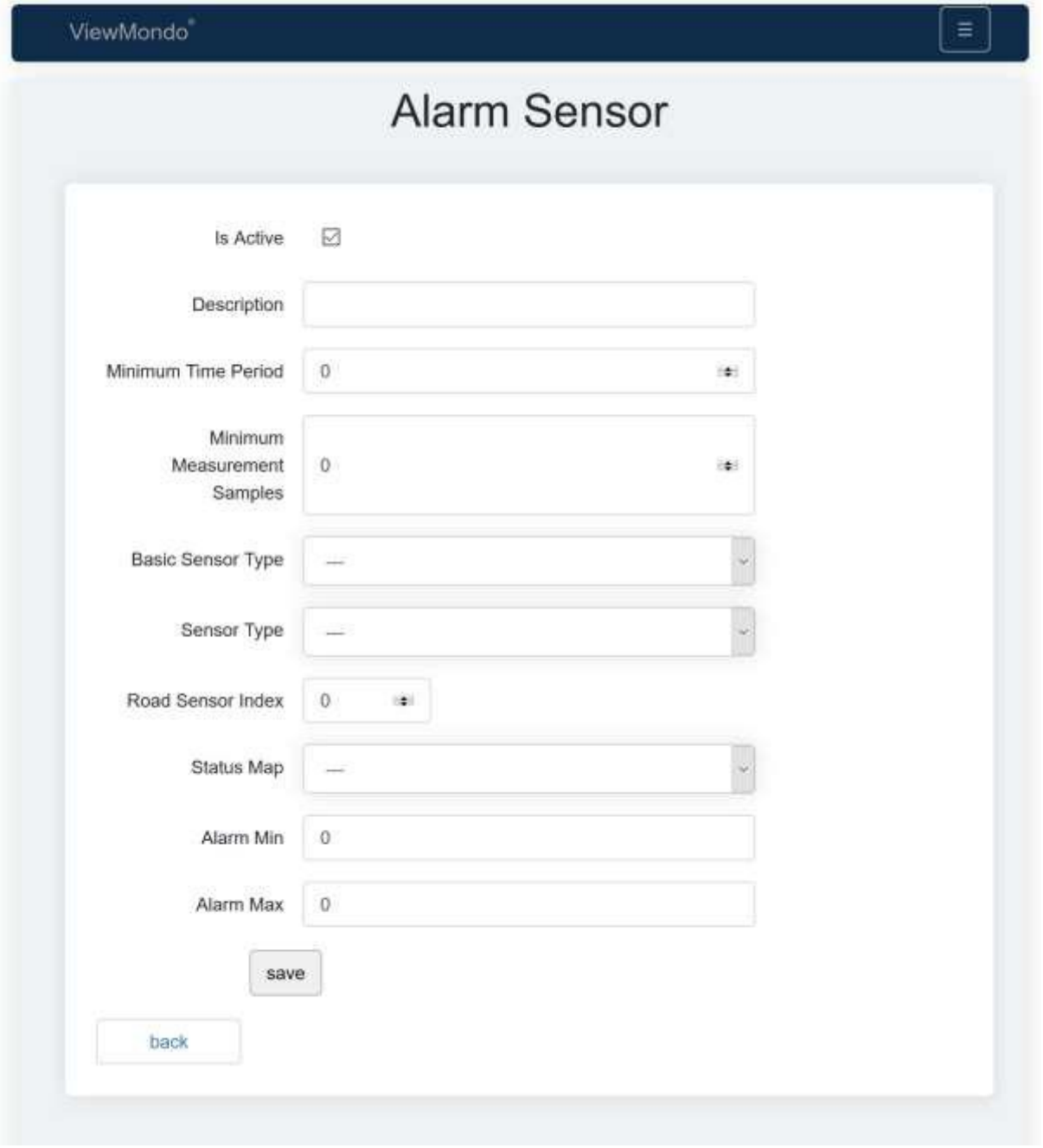
An alarm rule has following attributes:

- Description: the description for the alarm rule
- Recipient Group: the recipient group for this alarm rule
- Subject: email subject - might contain "tags" (in square brackets) that are replaced by actual values when the alarm email is generated – see below
- Text: email text – - might contain "tags" (in square brackets) that are replaced by actual values when the alarm email is generated – see below
- Sensors: one or more sensors can be added to an alarm rule. The settings for each sensor determine weather an alarm condition is active or not. NOTE: the settings for each sensor are calculated independently.

The tags that can be used (and will be replaced by the respective value when the email is generated) are:

- [StationName]: name of the station
- [SensorName]: name of the sensor channel
- [AlarmReason]: reason for the alarm (warning/alarm/sensor error/station outage..)
- [AlarmStartTime]: date/time when the alarm condition started
- [MeasureValue]: the measure value

- [MeasureTime]: the date/time for the measurement value



Each Alarm Sensor specifies, which conditions will trigger an alarm status. Alarm Sensor configuration is based on a "sensor type", not on a specific sensor. When an alarm rule is processed, and a sensor channel of a station matches the configured sensor type, the rule is applied.

- Is Active: this alarm sensor configuration is active
- Description: a description for this sensor rule
- Minimum time period: the minimum time period this condition must be active to trigger an alarm status

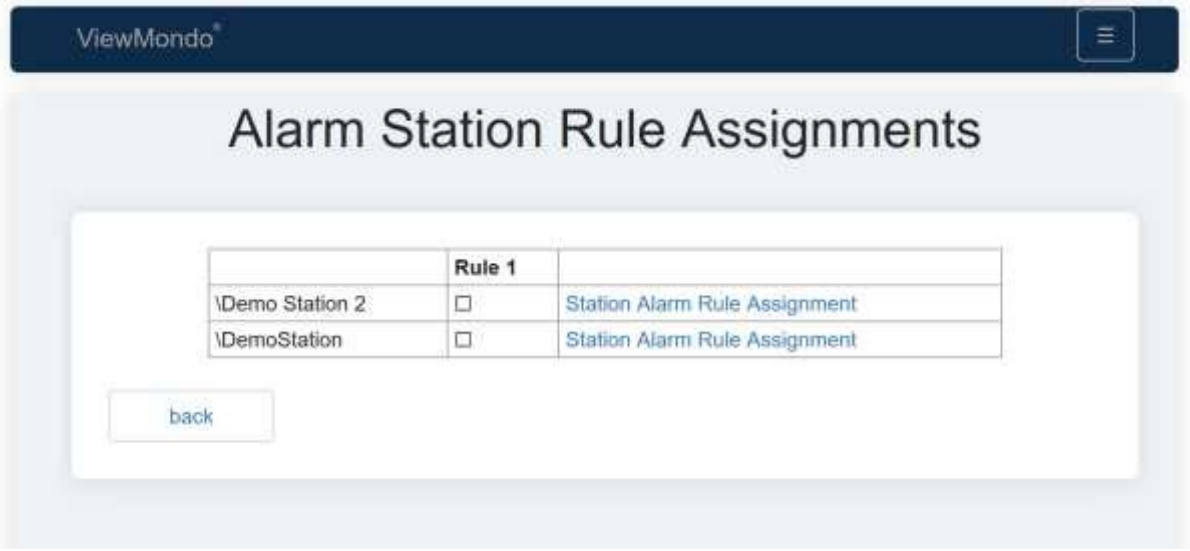
- Minimum measurement samples: the minimum amount of consecutive measurement samples that must meet the configured criteria to trigger an alarm condition
- Basic sensor type: the basic sensor type
- Sensor Type: the sensor type
- Road Sensor Index: the road sensor index
- Status Map: the status map used for "coded" values to match a specific code or value range with a warning or alarm condition.
  Note: pre-defined/default status maps are shown in square brackets. User group specific status maps are shown without brackets.
- Alarm Min: the lower alarm threshold. If a measure value is below this value, it is considered an alarm condition
- Alarm Max: the upper alarm threshold. If a measure value is above this value, it is considered an alarm condition

An alarm sensor rule is configured for a sensor type (as specified by either the basic sensor type or the sensor type and the road sensor index).

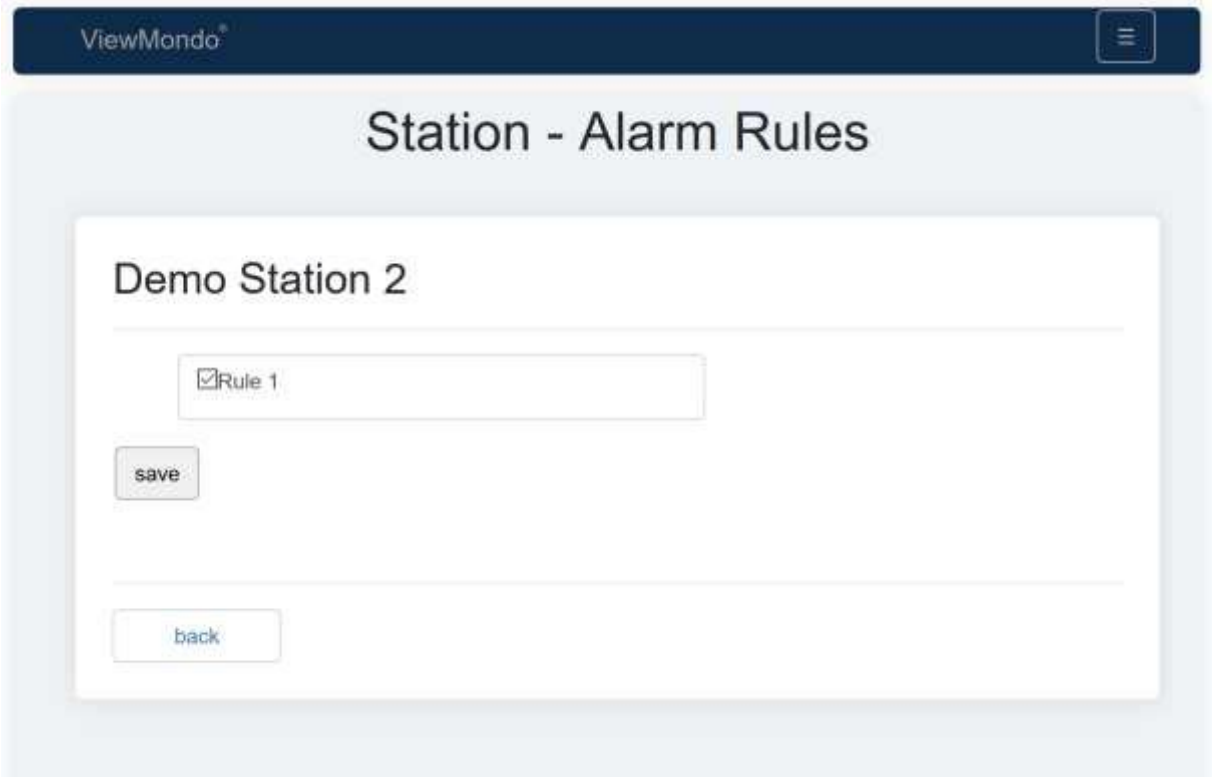
When an alarm rule is processed, the system checks if a sensor channel of a station matches the configured sensor type (see 9 Sensor Types – Template matching), the sensor value is checked against this setting.

If a status map is configured, the alarm condition is calculated based on the status map settings. Otherwise the value is checked against the configured Alarm Min and Alarm Max values. If the value is below Alarm Min or above Alarm Max, an alarm condition is set. Otherwise (if the value is between Alarm Min and Alarm Max), no alarm condition is set.

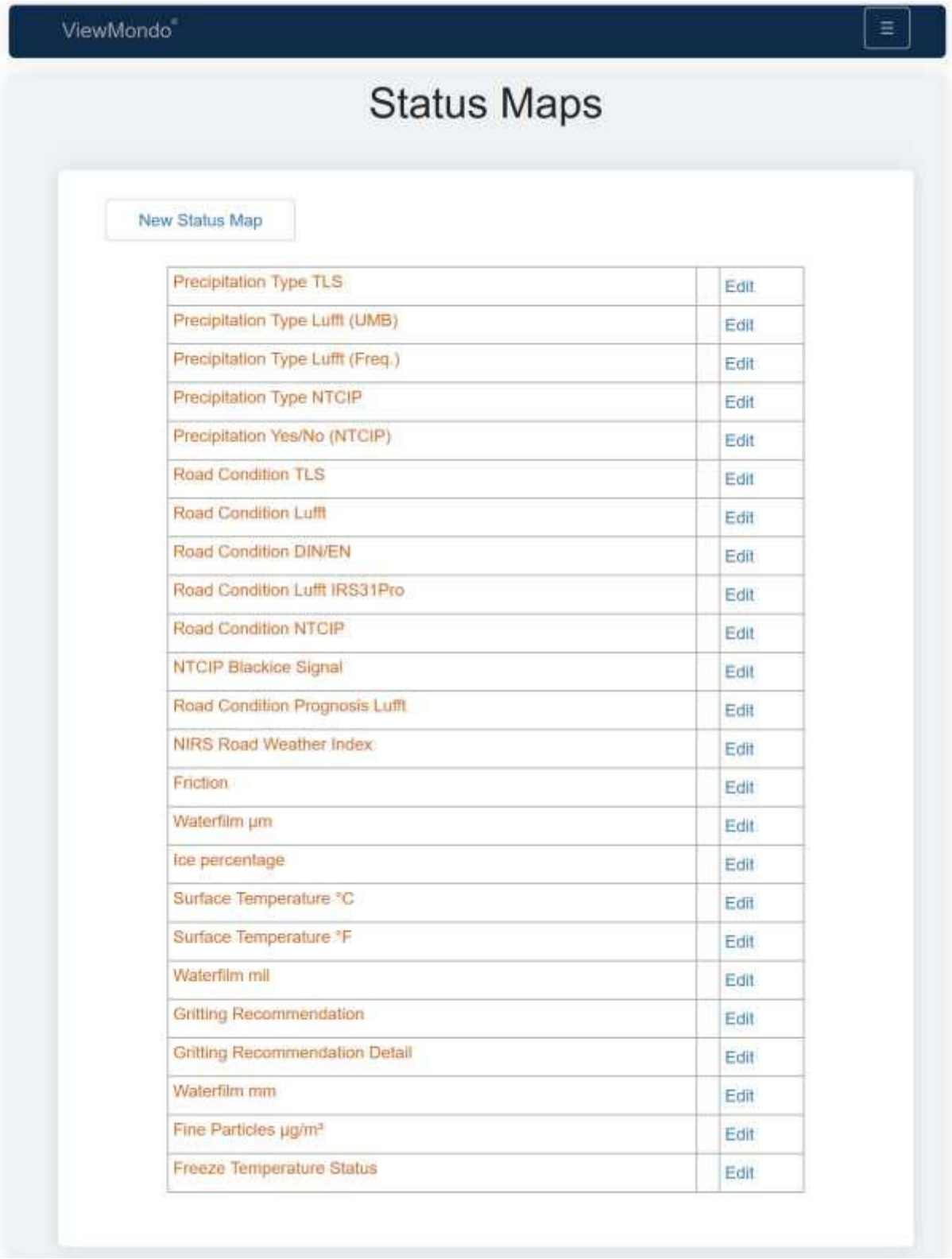
8.3.5 Alarm Station Rule Assignment



Here, alarm rules can be assigned to stations. Note: this table only shows an overview of which rules are active for which station. Click on "Station Alarm Rule Assignment" to select / activate the rules for the station.


ViewMondo®
Station - Alarm Rules
Demo Station 2
Rule 1
save
back

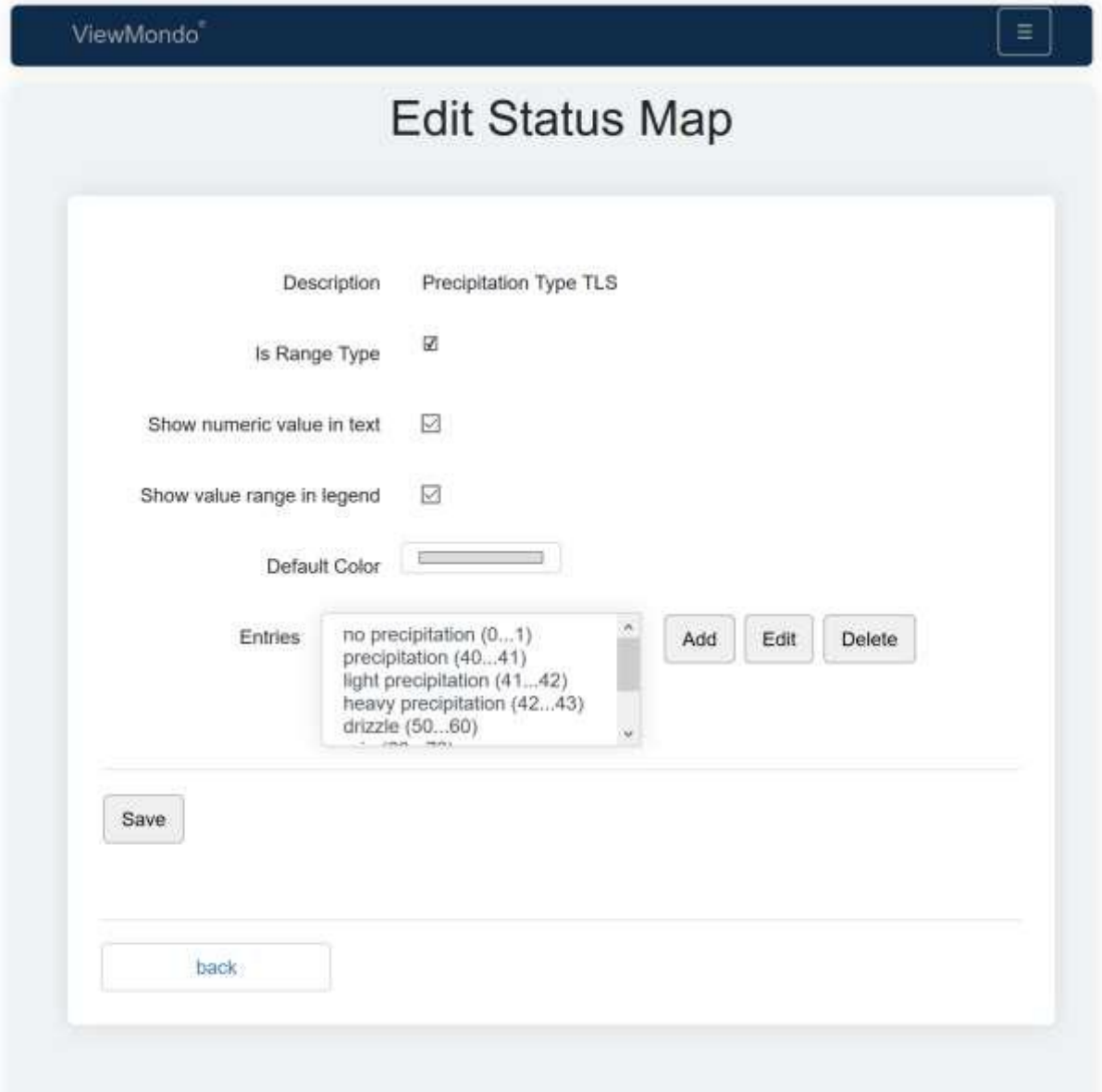
8.4 Status Mapping



Group Administrators can edit the pre-defined status maps for their group, or create new status maps.

Note: pre-defined status maps that have not been edited for the respective user group are shown in orange. Status maps that have been edited for the respective user group are shown in black.

When editing a pre-defined status map, a copy of this status map is saved to be used by the user group. It will be automatically used for the user interface (colors in the respective diagrams etc.) – but assignments to a specific status map in alarm rules (sensors) might need to be changed manually after a user group specific rule has been created.

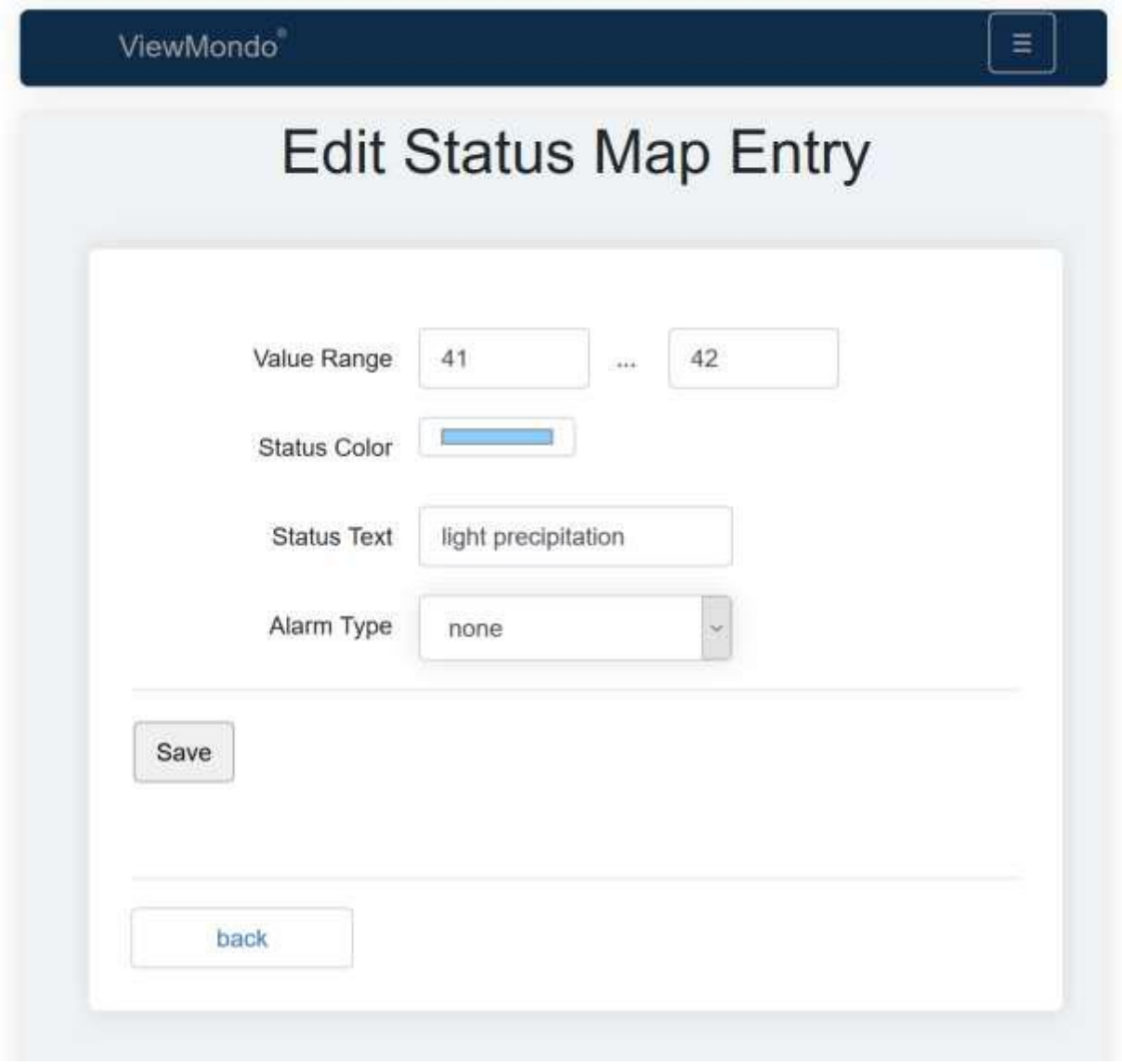


- Description: the description for the status map. Note: can not be edited for pre-defined status maps
- Is Range Type: specifies if the status map is a "range type", i.e. every entry in the status map table covers a value range, or not a range type, i.e. every entry in the status map is for a distinct value
- Show numeric value in text: show the numeric value in the text (e.g. in the tables)
- Show value range in legend: show the value range in the legend (color coded diagrams)
- Default color: the default color to be used if no entry matching the actual measure value can be found. Note: how this (html5) input field is shown

and handled is browser dependent. In some older browsers this might show as a text field showing the html color code. E.g. #DCDCDC). Up to date browsers will show the color and – when clicking on the color – some kind of color picker plugin.

- Entries: the table entries

8.4.1 Status Map Entry – range type



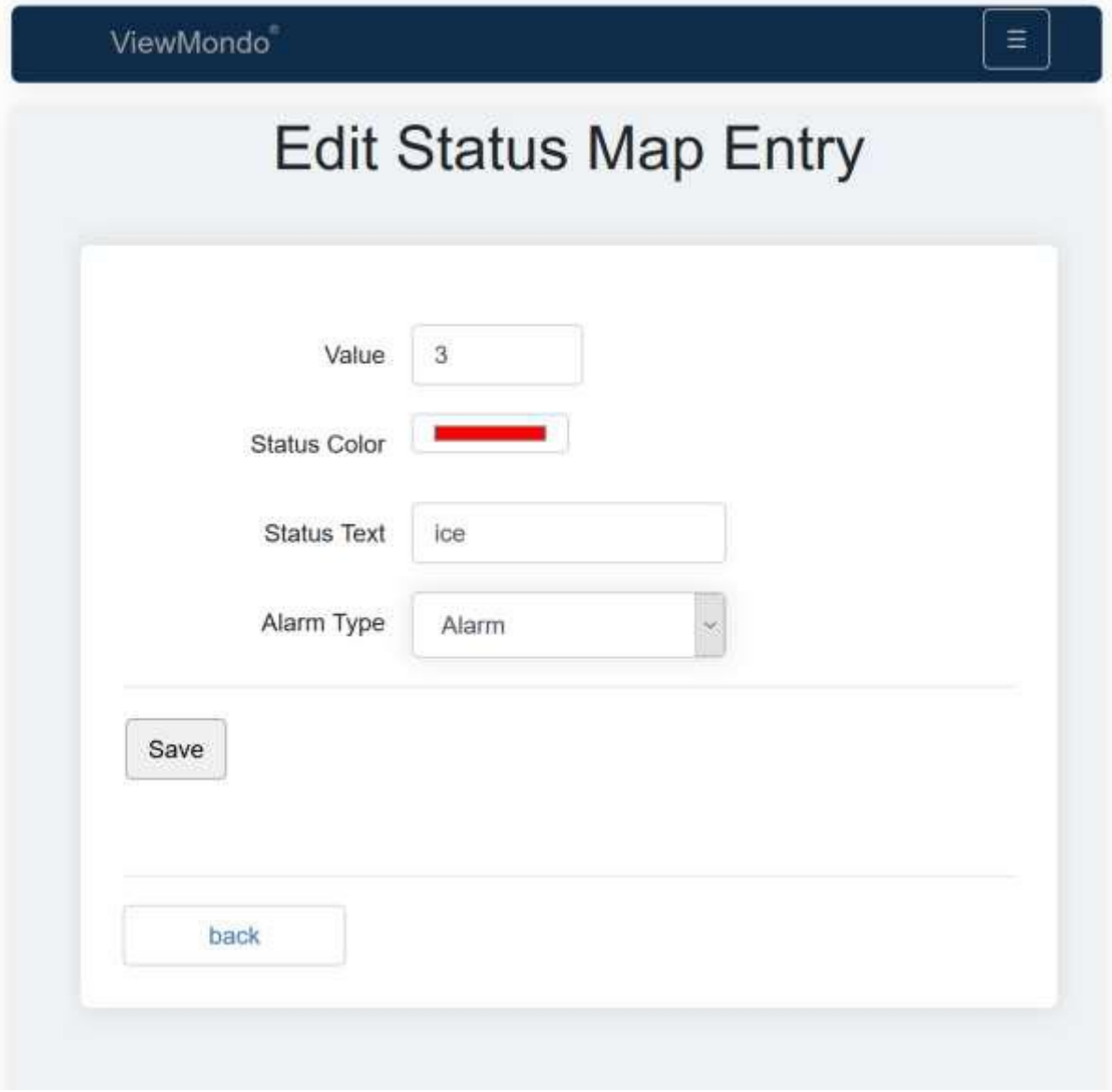
For "range type" status maps, a value range can be configured for each entry.

The value will be considered to be within this value range if

Range min <= value < range max

- Value Range: range min… range max values
- Status Color: the color to be shown if a value is within this range
- Status Text: the text to be shown if a value is within this range
- Alarm type: the alarm condition type if a value is within this range

8.4.2 Status Map Entry – discrete value



If the status map is a "discrete" (not a range) type, the actual measure vale (rounded and converted to an integer value) must match the configured value of the entry.

- Value: (integer) value for this entry
- Status color: the color to be shown if a value matches this entry
- Status text: the text to be shown if a value matches this entry
- Alarm type. The alarm type to be associated with this entry

Note: for the pre-defined status map entries, ViewMondo supports multiple languages, i.e. the "status text" is automatically translated. If the status text for such an entry is edited for the user group, the text will always shown as entered here, i.e. not being translated to other languages anymore (which should not cause any problems since this is user group dependent – unless there are users with different language settings within your user group).

9 Sensor Types – Template matching

Sensor types are used as templates throughout ViewMondo wherever a template is used to configure options, e.g. for alarm processing, or for export job templates.

A "**basic sensor type**" is a generic sensor type for a measurement parameter (e.g. air temperature) and is used if the actual unit or value range of a sensor channel does not matter. E.g. there is a basic sensor type "Air Temperature" which would match any air temperature channel (°C or °F), or there is a basic sensor type "Road Condition" which would match any road condition sensor, independent of the actual encoding (Lufft/NTCIP etc..).

A "**sensor type**" specifies the measurement parameter (e.g. air temperature) and a unit and possibly a valid value range, so unlike a "basic sensor type", the "sensor type" refers to a specific sensor type (as assigned to a device sensor channel) and is not generic.

In addition to the sensor type, there is a "**road sensor index**" to distinguish between multiple road sensors at a location. For environmental sensor channels (like air temperature or humidity), the road sensor index is 0. For sensor channels of a road sensor (e.g. surface temperature, freezing temperature, saline concentration and so on), the road sensor index is >= 1.

10 Change History

November 2016	P. Rau	Document created
June 2017	P. Rau	Added descriptions
July 2017	P. Rau	Added description for UMB/CAM Station settings
November 2017	P. Rau	Editorial Changes
April 2018	P. Rau	New screenshots to reflect changed layout for configuration dialogs. Alarm settings Status Mapping