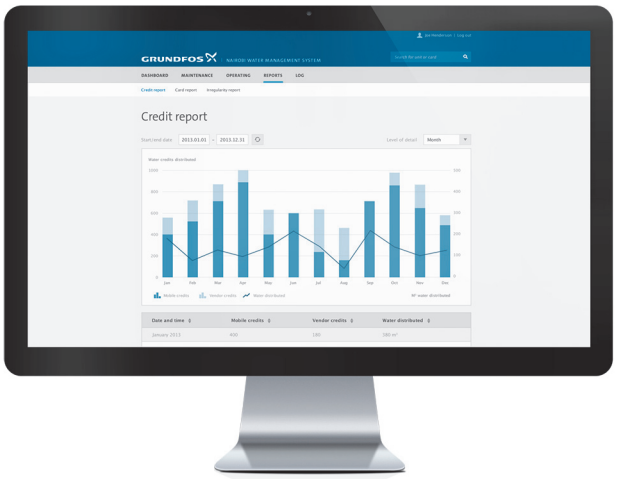
WMS

Water management system for AQtap



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Original installation and operating instructions

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1. Introduction

This manual describes how you can make the most of Water Management System (WMS) when operating one or more AQtap and aqTOP units, hereafter called dispensers. The WMS can connect to a dispenser and get operational status and a Transaction log that enables you as a user to manage the dispenser remotely.

The first part of the manual describes some common scenarios you will find useful while the second part describes in more detail how each screen in WMS works.

2. Terminology

2.1 Dispenser and group

The administrative units, the aqTOP cannot be connected to a water supply and dispense water. As this is the only difference between the aqTOP and the AQtap, we will not treat the aqTOP separately.

- **Online**: A dispenser is an online dispenser if it has a direct connection to WMS. Please see chapter *4.1 Adding a dispenser to WMS* for instructions on how to do this.
- **Offline**: An offline dispenser has no direct connection to WMS. It is still possible to describe the dispenser in WMS and to upload data from such a dispenser into WMS.

Each dispenser belongs to a specific group. The groups isolates the data of different owners from each other and restricts mobile payment to specific currencies. If you have access to several groups from the same user, the system will display a list of available groups to choose from when you have logged in. To switch group, you must log out and in again.

The cards in your starter package is associated with a specific group. The association transfers to any dispenser or Smartcard they are initializing.

2.2 Credits and water

The main purpose of WMS is to register the flow of credits and water in the dispensers.

We use water tapping for expressing any outlet of water from a dispenser. We will also use expressions of water dispensed or water sold to describe water tapping.

We use credits to manage selling of water. It is mandatory to let a local currency equal one credit and then adjust the water price accordingly. This provides transparency of transaction to the end user and makes it easy to administer. For purchase of credits using mobile payment, the system only supports one currency per group and the price is fixed to one water credit per local currency unit.

Water price is the going rate of how many credits are needed to tap one litre of water. The price can be set directly on the dispenser with a ServiceCard or through WMS, see chapter *7. Managing water price*.

2.3 Cards

Cards are associated with a specific group and will only function on a dispenser belonging to the same group as the card.

To operate the dispenser there are four card types:

- **Admincard:** This card is for an administrator for creating cards and for creating credits on a VendorCard at a dispenser.
- **Servicecard:** This card is for a service technician for service and commissioning of a dispenser. In can also be used set the dispenser water price and to dispense water during service.
- **Vendorcard:** This card is for a street vendor for distributing credits and for selling water on cash basis. The card can hold a limited amount of credits for credit distribution and water selling. More credits can be added by transfer from an AdminCard or from the WMS, see chapter *6.2 Adding credits to Smartcards*.
- **Watercard:** This card is intended for the end user and can be used for tapping water at the dispenser. One WaterCard can transfer credits to another WaterCard.

2.4 Transaction log > Operation

The following transaction types exist:

- **No changes:** The Smartcard was removed from its dispenser slot without performing other actions.
- **Water dispensed:** The Smartcard was used for dispensing water.
- **Credits withdrawn:** Credit was drawn from the Smartcard to be added to another Smartcard.
- **Credits deposited from card:** This Smartcard received credits from another Smartcard.
- **Credits deposited from WMS:** This Smartcard downloaded credits at a connected dispenser.
- **Smartcard activated:** This Smartcard was initialised for use.
- **Smartcard blocked:** This Smartcard was blocked permanently (erased).
- **Water price changed onsite:** This ServiceCard was used to set the dispensers water price.
- **Water price changed from WMS:** The water price was set by WMS.
- **Power on:** The dispenser was powered on.
- **Firmware changed:** The firmware version in the dispenser changed.
- **System event**: A warning / alarm occurred or disappeared (AQtap firmware version 224 or higher).

3. Commissioning (getting started)

3.1 WMS for the first time

To use the WMS, Grundfos will need to associate your e-mail account with the group of your starter package. You must provide your start package salesperson with your e-mail address and the group identifier of the starter package, as this is the unique identifier of your group ownership. The salesperson will then contact the Grundfos back office who will make the registration in the WMS. When this is completed, you will receive an e-mail notice with a link you can use for self-registration and later on system login.

The first time you try to log in, you will be requested to open an account with Grundfos. Your account login will identify and authorize you towards Grundfos and provide access to your WMS group and the associated dispensers.

Note

WMS can be found on the link:
https://auth.grundfos.com/watermanagement/
This is also where you perform the registration of your account.

3.1.1 Buttons in WMS

The following buttons are used in this manual:

Home

Update

Bar

Connecting

3.2 Self-registration process

1. You must login to access the WMS. At the Login screen, you can register using the "Sign up" link to register yourself or use your registration email and password to login.
   The Self-registration screen asks for some basic information from you.
   – **Email:** The email address you have provided to the salesperson. This is your Grundfos user name, which is also your identity in WMS. The user name can also be used for other Grundfos online services.
   – **Password:** Type your preferred password. The password needs to be at least 8 characters long. The password quality ranking must be strong to be accepted. A mix of upper-case letters, lower-case letters, digits and other symbols is considered stronger.
   – **Repeat password:** You must retype the password in the Repeat password field.
   – **Firstname:** Your given name
   – **Lastname:** Your family name
2. You must also read and agree to Grundfos privacy policy to submit the registration
3. Finally, you must confirm your new account before getting access to WMS. By now, you should have received an e-mail with a confirmation link from Grundfos. Open the e-mail and use the link to activate your account.

You are now ready to use WMS. Click the Grundfos logo on the You must confirm screen or use the WMS access link again to enter the WMS.

3.3 Selecting a group

If you have access to more than one group the first task when logging into WMS is always to select the group you want to work with. To change group, use the Admin role link next to your name in the upper right corner and log in again.

Note

To access multiple groups simultaneously, you must use the browser "In private" / "Incognito" function or use another browser brand (e.g. Chrome or Firefox) to access another group.

4. Managing dispensers

4.1 Adding a dispenser to WMS

WMS will for security reasons, not accept communication from any un-configured dispenser.

To add a new dispenser go to Settings > Dispensers. On the Cluster / Dispenser list screen there is a button for creating a dispenser.

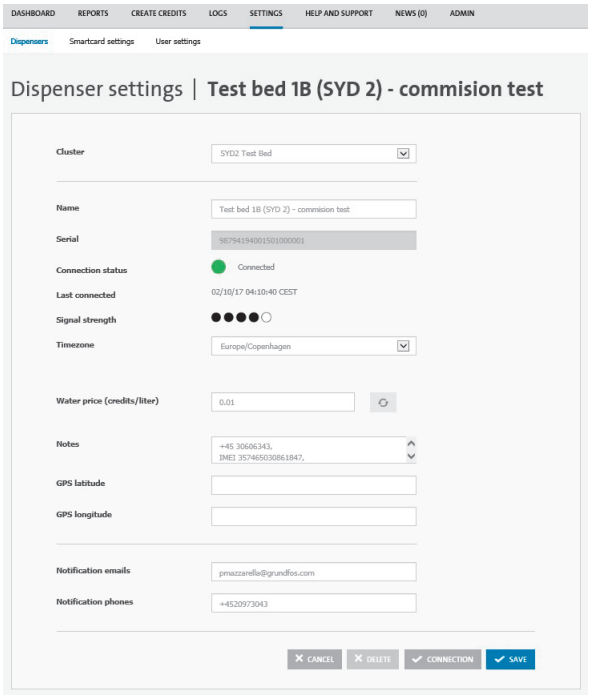

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Fig. 1 Settings > Dispensers

The dispenser record receives an id at creation.

If you name the dispenser this is what you will see in lists and reports. The name could be the address of the dispenser, the placement community name or something else that makes sense to you.

The name is optional and is changeable at any time.

WMS will display the id instead of the name if no name is given.

If you desire to show the dispenser on the Status map, you can set the geographical location of the dispenser by entering the coordinates (as decimal numbers) in the latitude and longitude fields., see chapter *13.7 Status map*.

You can use standard map services to find the location:

- **Bing Maps:** www.bing.com/maps. Find the location of the dispenser and right-click with the mouse and you can see the geo-location.
- **Google Maps:** www.maps.google.com. Find the location of the dispenser and left-click with the mouse. The pop-up shows the geo-location.

Note that in the map applications, the location is given as two decimal numbers, latitude first, longitude second.

You can set the water price on this screen, but to update the price on the dispenser, the dispenser must be on-line and you must press the "Update" button to change it.

Note A price change in WMS will not be effective until the dispenser contacts WMS the next time.

You do not need to set the price right now. The first time the dispenser is connected the price on the dispenser will automatically be saved.

Setting a price of 0 will make water free for anyone with a usable WaterCard or VendorCard.

The Settings screen also contains fields for sending notifications of warnings and alarms by e-mail or by text message. This subject is covered in section *13.12.3 Dispenser settings (sub-screen)*

4.1.1 Connection settings: Connected dispenser

Note The SIM card must already be installed, and the dispenser must be powered before creating the AQtap in WMS. This ensures, that the connecting sequence is not unnecessarily prolonged.

To connect a dispenser to WMS, you must install a valid SIM card in the dispenser and enter the dispenser phone information in WMS. This is done at the Connection settings.

Note

It is necessary to purchase and install a SIM card from an approved local telecommunications provider.

Requirements:

- The telecommunications provider must be on the telco-list for the installation country.
- The card must support data transfer (2G).
- The card should have a traffic plan covering at least 20 MB data per month.

Press the Connection button on the Settings screen to reach the Connection settings screen.

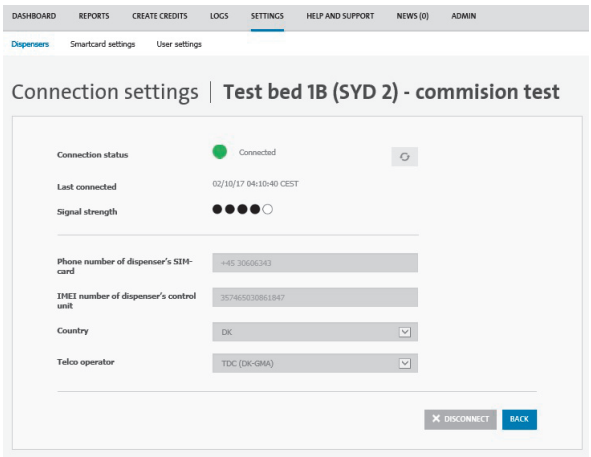

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Fig. 2 Settings > Dispensers > Connection

The necessary information is:

- **Phone number:** The phone number of the SIM card you installed in dispenser.
- **IMEI number of dispenser's control unit:** The IMEI number of the dispenser, which can be found in the documentation of the dispenser or on the dispenser itself.
- **Telco operator:** The name of the telecommunications company supplying the SIM card. Only Grundfos approved companies can be selected. Choose a company on the list for the country where the dispenser is installed. If none of the listed companies provide coverage of the area where the dispenser is installed you must contact your Sales and Service Partner for support.

Note If no telco is listed for your country or if the listed telco's are unusable, please contact the AQtap supplier on the matter.

Pressing Save & connect, initiates the connection setup. The SIM card must already be installed and the dispenser must be powered, otherwise the connection might have to be restarted.

First time connection can take several hours depending on connection quality. Indicators inside the dispenser indicates if data connection is available.

To check the status, reload this screen or use the Dispenser settings screen, which must also be reloaded, to view status changes.

4.1.2 Connection settings: Non-connected dispenser

A non-connected dispenser is a dispenser with no direct connection to WMS. Create it in the same way as a connected dispenser, but ignore the Connection settings screen. To make an already connected dispenser into a non-connected dispenser, use the Disconnect button on the Connection settings screen.

Log data from the dispenser can be added using the Grundfos PC-tool for AQtap (separate product) and then using the File upload feature, see chapter*13.11 File upload*.

The non-connected dispenser will be displayed with a grey icon on the Status map if a location is given.

It is not possible to manage water price from WMS or to download credits to a card, on a non-connected dispenser.

4.2 Organizing dispensers (clusters)

To avoid having all the dispensers in a group in one big pool, WMS provides a concept of clusters, which allows you to organize the dispensers in a group according to your needs.

Some ideas for organizing dispenser in clusters:

- By shared geography, e.g. country > county > city > district; this enables overview of where water is used
- By responsibility, e.g. a cluster with all dispensers falling under operational responsibility of "Peter Smith"; this enables an easy overview of the operational status for an administrator concentrating on a set of dispensers.
- By business sponsor/investor; enables easy reporting to sponsors and investors

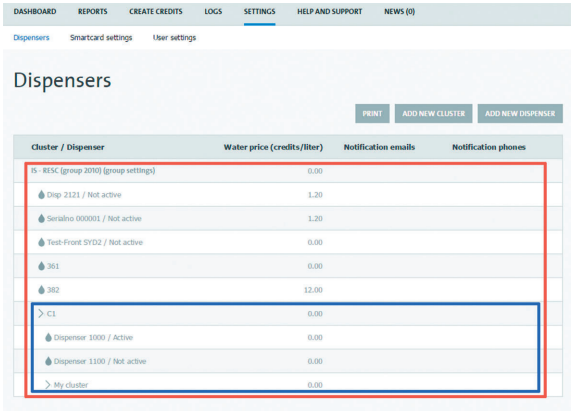

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Fig. 3 Settings > Dispensers > Clusters

To place dispensers in clusters, you must first create the cluster by pressing the Add new cluster on the Dispenser settings screen, enter the cluster name and default water price. Secondly, you can select the cluster in the drop-down list at the top of the Dispenser settings screen. On the Dispensers overview screen, you will see the dispenser "below" the chosen cluster.

The cluster is usable for filtering a subset of the dispensers. See section *13.1 Common screen elements*

4.3 Decommissioning dispensers

Dispensers have a limited life span and will fail for good at some point in time. You might also sell a dispenser that you no longer need, or maybe you just take it out of use. Decommissioning in WMS consists of taking the dispenser offline. The dispenser record and its data will persist; removing it completely is not possible.

Bringing a dispenser offline is a two-step process. From within the Connection settings screen you must first disconnect the dispenser by pressing the Disconnect button - this brings the dispenser in a temporary offline mode. You can now delete the connection by pressing the Delete button - this clears the connection data and brings the dispenser in offline mode. The dispenser may still be brought online again, but that requires a repetition of the original connection process. IMEI, phone, and telco information must be provided again at such time.

Note Dispenser records must not be reconnected to a different dispenser. The system might start to overwrite old transactions and thus ruin existing data. A future WMS version might enforce that this does not happen, but currently it is not possible to validate the identity of a dispenser.

A non-connected dispenser does not by itself generate any data, so you need not do anything to decommission.

All the historic data collected in WMS will still be available for reporting and analysis. WMS does not delete anything.

Note Tip: Consider moving an old dispenser to a separate cluster for "old" dispensers to make navigation among active dispensers easier.

4.4 Event reporting

In addition to the Reports and Logs that are available within WMS, there is also a possibility of receiving daily notification on warnings and alarms occurring on connected dispensers.

To subscribe on the daily notifications, add your email or phone number in the Notification fields on the Dispenser, Cluster or group settings screen. Multiple people can subscribe, just add the contact data separated by comma "," in the fields. Subscribing on cluster or group level will subscribe to all dispensers on the selected level and all levels below in the hierarchy.

5. Managing users

5.1 Adding more users

You are yourself in charge of granting access to colleagues to WMS. You can also later revoke access permissions.

To add a user you go to Settings > Users:

1. Select the button Add new user.
2. Enter the user information:
   - **Type:** Whether your colleague is allowed to, make changes (set to The dispenser {0}, is disconnected), or only allowed to view (set to Dispenser events).
   - **User name:** You colleagues email address to be used for login.
   - **Name:** The name displayed to your colleague when logged in
   - **Language:** The initial application language, English or French.
3. Press Save to create the user in WMS. Your colleague can now log in, in the same way as you do. If necessary then he or she must go through the same registration process you came through when logging in the first time.

5.2 Removing users

When a user no longer should have access to WMS then you can delete the user from the list of users on the User settings screen Settings > Users.

The user will still have his / her login but will no longer be able to access your group.

If the user has access to other groups, the user will retain access to those groups.

5.3 Changing users

A group administrator can only add or remove other users to the groups they administrate. Each user is responsible for doing language and name changes if that is necessary. To change the login e-mail, add the user again with the new name (and delete the old one if desired).

6. Managing cards and credits

In this section we will describe how you can manage cards and credits from WMS.

All operations on a dispenser involving any card are saved in the Transaction log, see *13.8 Transaction log*. This log is also where WMS gets its knowledge of existing cards. A card that has never occurred in a Transaction log uploaded either from a connected dispenser or with the PC tool is unknown to WMS and treated as non-existing.

It may be an advantage to name specific cards to make the management process easier. For example, you could name a VendorCard after the vendor that actually owns the card.

Note: Tip: Use the search field to find a specific card by id or by name. If you have named the card after the holder you may simply write the holder's name and click on the "Search" icon, to find the card you are looking for.

You can name any card known by the WMS. It may not be possible to know all users of WaterCard but you are likely to know who carries your AdminCards, ServiceCards and VendorCards.

You name a card by entering the screen Settings > Smartcard settings. Here you can enter the card number and give it a name. Remember to press Save when done.

Once WMS knows a card, you can be named or rename it at any time. If you wish to remove the name of a card, you simply remove the contents of the field and press Save.

6.1 Blocking cards

If you get a report that a card is abused you can permanently disable the card. This is the block card function.

You block a card on the Smartcard settings screen (Settings > Smartcard settings). When you check the box for block card and press Save the card will be permanently disabled when in contact with a dispenser. To find a specific card, you can use the search function and click on the card line in the Search results.

Note: Blocking a card cannot be undone!

Card blocking list updates occur on the dispensers when they are otherwise in contact with WMS. Because of this, some delay are to be expected and the blocked card is usable until it is used on a dispenser with an updated blocking list.

6.2 Adding credits to Smartcards

You can give credits to VendorCards and WaterCards from WMS. Go to the Create credits screen.

Write the name or id of the card and enter the number of credits to be added to the card, press Save to continue. If there already are credits available for download on the card, WMS presents a list of the previous, un-downloaded, credit creations, press Save again to accept anyway. When finally accepted, the credits will be available for download next time the card is used on an online dispenser.

The carrier of the Smartcard must place the card on an online dispenser and use the request credits function to get the credits from WMS. WMS keeps track of download attempts and the transaction in the Transaction log.

If a download request fails, usually because the card carrier decided not to download anyway. The Transaction log will show the attempt, but 0.0 credits downloaded. This releases the credits for another download attempt. The dispenser will also generate a warning to indicate the mishap. The Service log will show this warning, see section *13.9 Service log*.

To find out which credit creations that actually are downloaded you can go to the Credit log screen and see the history of credit creations and downloads from WMS. Go to Logs > Credit log.

6.2.1 Deleting credits

User created credits can be deleted, if they are not yet downloaded and if no download are in progress. Go to the Credit log screen (Settings > Credit log) and mark the credits you want to delete (one or more lines) and press Delete selected to remove the credits.

If a request is in progress, you cannot remove the credits. The credits could already be transferred to the card. Therefore, WMS will reserve them until the download is confirmed or rejected.

7. Managing water price

You can change the dispenser water price locally using a ServiceCard on the dispenser, or from WMS. The dispenser must be online to change the water price from WMS.

When a dispenser makes contact with WMS any price change made from within WMS are written to the dispenser. If the price have not been set in WMS, the actual water price is instead written to WMS.

Note: Changing the WMS price will not have immediate effect on the dispenser. Price changes from WMS only takes effect on the dispenser when initiates communication for other reasons.

To set the price on a connected dispenser, go to the Dispenser settings screen, enter the new price (water credits per litre) and press the Update waterprice on dispenser button to queue the price change.

The price can be set for a complete group or cluster in one action. Go into the appropriate Settings screen and set the price. When you press the Update waterprice on dispenser button price is set on all dispensers in the cluster. If you have set a mark in the Update water price on sub-clusters?, the price will be set on all dispensers and clusters in the selected part of the cluster hierarchy.

Note: Note that the price actually only exists on the individual dispensers. Setting or keeping a price on Group or Cluster level is only for the convenience of setting price on many dispensers in one action.

8. Transaction log

The Transaction log is a record of everything that has to do with cards on a dispenser. If your AQTAP has firmware version 244 or higher installed, the Transaction log will also contain alarms and warnings.

The Transaction log update attempt occurs after 25 transactions on the dispenser, on credit download attempts or at least once every 24 hours. The update is however depending on the communication availability, meaning that signal issues can delay the update and missing data allowance on the SIM card plan will stop all update attempts.

See chapter *13.8 Transaction log* for more detail on the Transaction log and the data it provides.

9. Service log

You can use the Service log to view the alarm history, warning history and key dispenser operational data.

The log switches between two modes depending on the current breadcrumb filtering. In the general mode, a list all alarm/warnings registered in the selected period are displayed as well as the dispenser hardware counter sums for each alarm or warning type. In the single dispenser mode, the log also displays a graph with the alarm and warning timings, the daily water distribution, and pressure and supply voltage measurements. The latter are single point measurements, taken when the dispenser already communicates with WMS. As the measurement always occurs at communication, this also gives an indication of how often the dispenser is in contact with WMS.

See chapter *13.9 Service log* for more detail on the Service log and the data it provides.

For an in-depth coverage of warnings and alarms on dispensers and how to remedy these please refer to the installation and operation instructions of AQtap, which can be found on the link: http://net.grundfos.com/qr/i/98804958

10. Credit log

The Credit log shows how credits has been created and transferred from WMS to cards via dispensers.

There are three possible ways to create credits:

- **AdminCards:** Any credits transferred from an AdminCard to a VendorCard or WaterCard, will in essence be new credits in the system as the AdminCard draws from its own infinite credit supply. The Credit log will display Admincard and the card number in the Created by column.
- **WMS Administrator:** An Administrator, but not a Reader, can use the Create credits function to transfer credits to a VendorCard or WaterCard. The Credit log will display WMS and the user name in the Created by column.
- **Mobile payment:** A cardholder with a mobile wallet subscription, can use his wallet to create credits for download on his cards. The Credit log will display MPS and the transaction ID (mobile phone) in the Created by column.

11. Finding things

In the search box (upper right corner on the screen) you can enter an id or a name of a cluster, a dispenser, or a Smartcard.

Click on the "Search" icon to begin searching.

The search result is displayed as a list with the matching id/name and the type of what was matched.

Depending on type you will be taken to different screens:

- **Cluster:** Cluster settings screen
- **Dispenser:** Service log for dispenser
- **Smartcard:** Smartcard settings

12. PC Tool and WMS

You can use the PC-Tool for retrieving transaction data from any dispenser. It does not matter if the dispenser is online or offline, but unless an offline dispenser is brought online, PC-tool is the only way to get the log into WMS.

This is a three step procedure:

1. Connect (physically) the PC with PC-Tool to the dispenser.
2. Use the PC-Tool retrieve the Transaction log data and store it on the PC in a log-file.
3. Use the File upload function to store the data in WMS.

Note

It is not possible to retrieve data from before the last dispenser initialization. If you decommission/recommission the dispenser using a ServiceCard, all previous data will be lost.

13. Screen reference

This section describes how each screen functions and what you see on the screen.

13.1 Common screen elements

13.1.1 Screen header

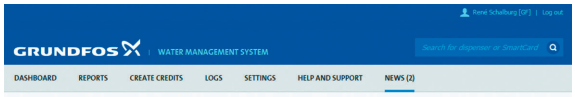

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Fig. 4 Screen header

The screen header is the same for all screens. It consists of the Grundfos logo and "Water Management System". If you press the logo you will automatically come back to the Dashboard screen.

In the top right hand corner you can see your name and a link to Log out. If you click your name then you will be redirected to your User settings screen see chapter *13.15 User settings*.

Log out will log you out of the system and you will need to log in and select your group again (if you have access to more than one group). Logging out is the only way to change which group you are working in.

The search function below your user name, allows you to search for clusters, dispensers, or Smartcards. You can enter either the id or the name of the item you are looking for.

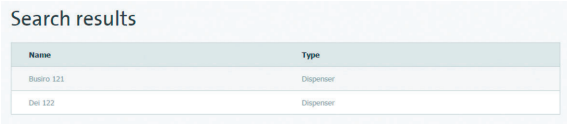

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Fig. 5 Search results

Select a line in the search result set to go to the relevant screen of the item you pressed. You will go to different screens according to type of search result:

Dispenser: The Service log

Smartcard: The Smartcard settings screen for that card

Cluster: The Cluster settings screen for the cluster

13.1.2 Breadcrumb

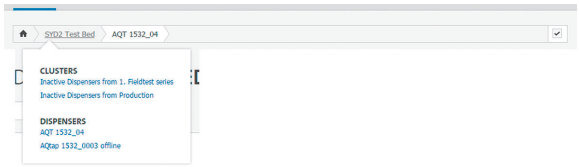

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Fig. 6 Breadcrumb

The breadcrumb appears on screens where filtering on clusters and dispensers is relevant. You use it to filter the information to the whole group, a cluster, or a single dispenser. Group or cluster filtering may optionally include sub-clusters. This can be set by using the checkbox to the right in the breadcrumb bar. Hover with the mouse over one of the clusters or the "Home" icon to see choices at that level and click on the icon or a name to select that one.

13.1.3 Screen footer

The screen footer contain two links:

- Legal issues: a link to the legal documentation for Grundfos WMS.
- Contact Grundfos: a link to contact Grundfos directly.

13.2 Menu entries

13.2.1 Dashboard

The Dashboard menu item takes you to the front screen of WMS.

13.2.2 Reports

The Reports menu item holds the built-in reports:

- **Water report:** Shows how water is distributed. It is possible to distinguish between small customers (low volume water dispensing) and large customers (high volume water dispensing).
- **Credit report:** The credit report shows how credits have been distributed to WaterCards from VendorCards or from mobile payment (if you subscribe to this service).
- **Smartcard report:** A report showing how individual Smartcards have been used.
- **Status map:** The status map shows the geographical locations of your dispensers and their last known status in WMS.

13.2.3 Create credits

The Create credits menu item accesses the screen where you can assign credits to a VendorCard or WaterCard.

13.2.4 Logs

The Logs menu item contains logs of various types.

- **Transaction log:** Shows all transactions known to WMS that has happened in a given time period.
- **Service log:** This log shows events known to WMS for a given time period.
- **Credit log:** A log showing all credit transactions made by mobile payment and assigned credits to VendorCards for a given time period.
- **File upload:** Allow you to perform upload of data retrieved by the PC-tool.

13.2.5 Settings

The Settings menu item leads to the available WMS settings.

- **Dispensers**: Contains screens for managing group, cluster, and dispenser settings including dispenser connection settings.
- **Smartcard settings:** Settings for cards. This is also where a cards may be permanently blocked (which cannot be undone).
- **User settings:** A list of known users in your group. You can add and delete users using this screen.

13.2.6 Help and support

The Help and support screen contains links to downloadable documentation (including this document) and contact information on relevant Grundfos offices.

13.2.7 News

The News screen contains active news items from the WMS backend administrators and operations. The number of active news items is indicated in the menu line, e.g. "News (2)" indicates two active news items.

13.3 Dashboard

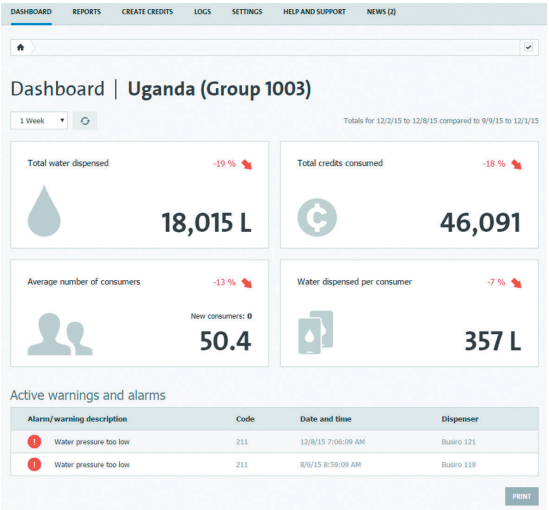

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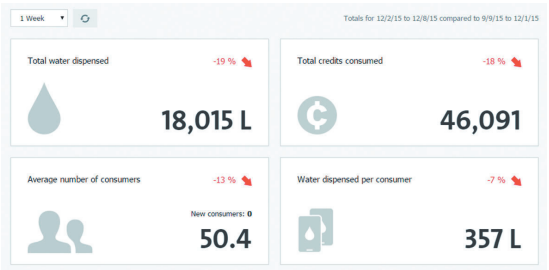
Fig. 7 Dashboard with KPI's and current issues

The Dashboard is the first screen you meet when you log in and selects a group (if you have access to a single group it will be chosen automatically for you).

The Dashboard consists of two parts. The upper part is a KPI dashboard where you find summery of the overall performance of your group. The second part lists the current active alarms and warnings known by WMS.

13.3.1 KPI's



TM06 6318 1116

Fig. 8 Alarm - KPI's

The KPI part consists of four tiles each showing one operational aspect.

The KPI values is restricted by the current breadcrumb selection and covers the time period displayed on the line below that.

Total water dispensed: Displays the amount of water that has been distributed in the period. The value and arrow in the upper right corner of the square shows the trend for the water distribution. The trend calculation compares the current period with an earlier period as shown above the tiles. The arrow indicates whether the trend is going upwards or downwards.

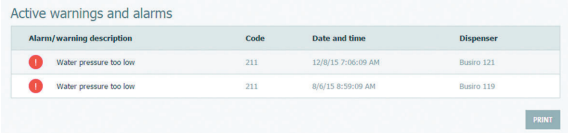
Total credits consumed: Similar to water dispensed, this tile shows the amount of credits used for water tapping in the selected period. It also has a trend indicator comparing the current period with earlier periods and an arrow indicates whether the trend direction.

Number of consumers: This tile shows the number of different consumers Smartcards used in the period. WMS assumes that one Smartcard equals one consumer. The trend indicator compares with previous periods as usual.

The tile also lists the number of new consumers, calculated as cards never seen before.

Water dispensed per consumer: This tile shows the average volume of water distributed per consumer in the period. The trend indicator compares this periods with the previous periods.

13.3.2 Active warnings and alarms



TM06 6320 1116

Fig. 9 Dashboard - Active warnings and alarms

The Active warnings and alarms is a list of current known alarms and warnings in WMS. The list is sorted with the newest first and the oldest last.

The list consists of four columns:

Alarm/warning description: An icon showing whether it is an alarm or a warning with the full text of the failure.

Alarm

Warning

Code: The code of the alarm or warning. This is the same number that is shown on the dispenser. See section *13.9 Service log*.

Date and time: The date and time when the issue was raised.

Dispenser: The name or id of the dispenser where the issue originates. For naming a dispenser see section *4.1 Adding a dispenser to WMS*

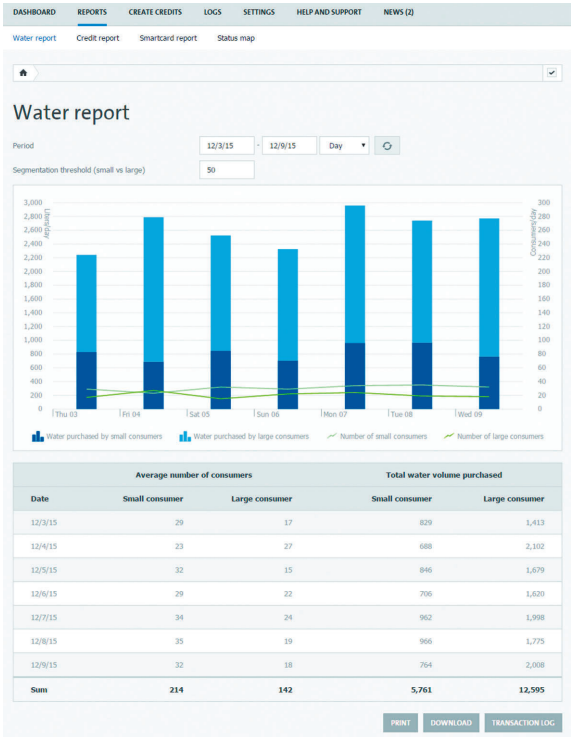
When you click on one of the lines in the list of Active warnings and alarms you are automatically brought to the Service log screen, see section *13.9 Service log*.

13.3.3 Screen options

Breadcrumb: The tile contents will be consistent with the breadcrumb filtering. Note the checkmark effect; if checked all dispensers "below" are included; if unchecked only dispensers directly placed in the selected cluster/group are included. The breadcrumb does not affect the issue list.

Period: The tile values are from the selected period. This period and the comparison period are printed above the tiles.

13.4 Water report



TM06 6321 1116

Fig. 10 Water report

The Water report provides a quick overview of the water distribution within a group or cluster, or for a single dispenser. The water shows the amount of tapped water the number of distinct cards used in tapping. Both values are summarized according the chosen granularity and may be further divided into small and large consumers according to the Segmentation threshold (small vs large) setting.

13.4.1 Screen options

You can filter the report by:

- **Breadcrumb:** Select group, cluster or dispenser for the usual filtering.
- **Start/End Date:** Select starting and ending date of the report. The dates are adjusted to full weeks, months or years depending on the granularity setting.
- **Granularity:** You can select the granularity of the report in the drop-down box to the right of the date selectors. Please note that the current version does not support more than 31 data items per screen. The granularity is automatically adjusted downwards if necessary.

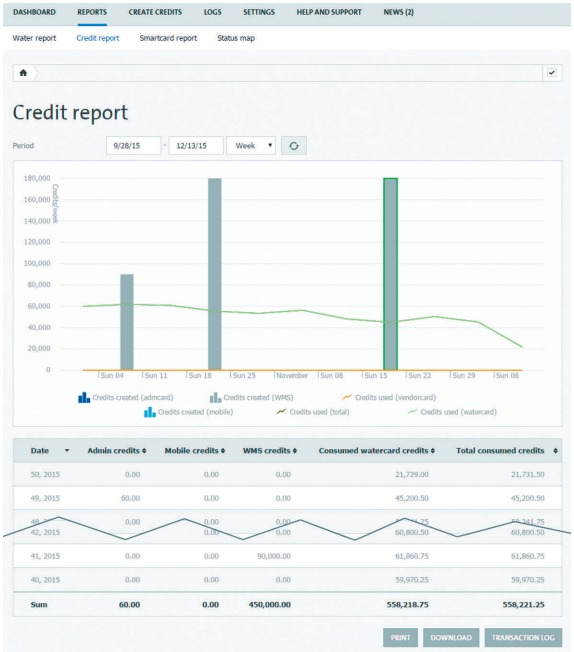
In addition, you can also specify a segmentation threshold to subdivide each value in small and large consumers:

- **Water volume purchased by small consumers:** Are the consumers with total water consumption per granularity is up to the chosen threshold.
- **Water volume purchased by large consumers:** Are the consumers with consumption above the chosen threshold.

Press the "Update" button to update the graphs.

Example: If the granularity is Week and the Segmentation threshold (small vs large) is set to 500 (L/week), the consumers with a water consumption of 300 L in a given week, will be listed as Small consumer in that week. If the same consumer dispenses 600 L of water in the following week, he or she will be listed as Large consumer in the second week, but still as Small consumer in the first.

13.5 Credit report



TM06 6322 1116

Fig. 11 Credit report

The purpose of the Credit report is to provide a view on credit creation in the system in the specified period. There are three sources of credits: Credits transferred from AdminCards to VendorCards or WaterCards; credits created by WMS Administrators; and credits created through mobile payments. The values originates in the Transaction log and reflects only credits transferred to Smartcards.

The report also shows the usage of credits in the period. The lines displays the consumption by VendorCards and WaterCards, in addition to the total consumption.

Displayed below the graph is a list of the values. Download the list by pressing the Download button.

13.5.1 Screen options

You can filter the report by:

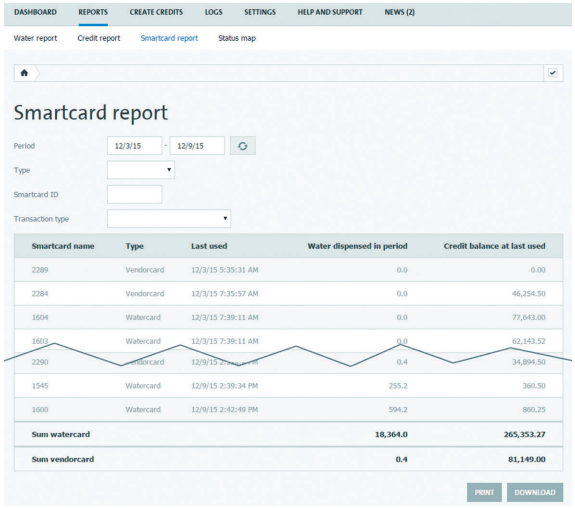
- **Breadcrumb:** Select group, cluster or dispenser for the usual filtering.
- **Start/End Date:** Select starting and ending date of the report. The dates are adjusted to full weeks, months or years depending on the granularity setting.
- **Granularity:** You can select the granularity of the report in the drop-down box to the right of the date selectors. Please note that the current version does not support more than 31 data items per screen. The granularity is automatically adjusted downwards if necessary.

Press the "Update" button to update the graphs.

13.6 Smartcard report

There are two screens of the Smartcard report. The front screen gives an overview of the VendorCards and WaterCards, which matches the selected filtering criteria. Clicking at a Smartcards line to go to the second screen with details of the selected card.

13.6.1 Smartcard report - front screen



TM06 6323 1116

Fig. 12 Smartcard report - front screen

For each Smartcard the list displays:

- **Smartcard name:** The name or id of the card.
- **Type:** Vendorcard or WaterCard according to card type.
- **Last date:** The date and time of the last usage in the selected period.
- **Water dispensed:** The total water consumption in the period.
- **Credit balance at last used:** The balance at the last used date and time.

13.6.2 Smartcard report - details screen

TM06 6324 1116

Fig. 13 Smartcard report - details screen

The table below the graph, lists credit movements of each card along with its water consumption as registered in the chosen period. Both value types are group wide summations on the selected granularity.

The graph is a straightforward representation of the table values with credits shown as bars and water tapping as a line.

Note

Tip: You can save the screen address for a quick link to the selected dispenser's data, but it will not preserve the current period selections.

13.6.3 Screen options

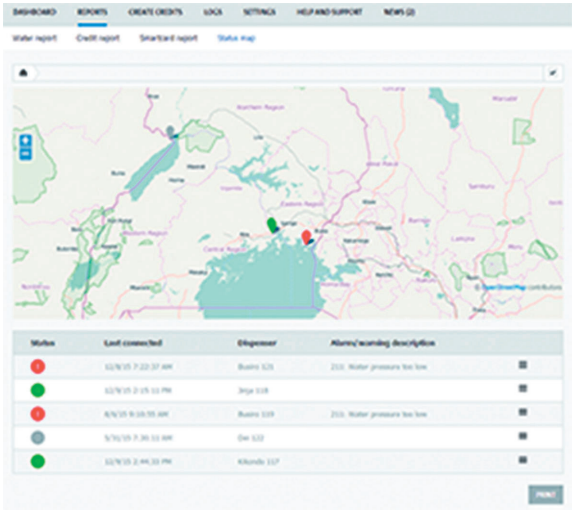
The report can be filtered by:

- **Breadcrumb:** Restricts the list to cards with transactions on a subset of dispensers.
- **Period:** The date interval specifies the date interval of the considered transactions.
- **Type:** Smartcard type filter. To display only one type of card, select VendorCard or WaterCard.
- **Transaction type:** Filter by transaction type. Leave the field blank to select all transaction types. Note that when selecting a specific transaction type then the latest use of that particular transaction type is shown.

Remember to press the "Update" button to refresh data when changing the filter.

13.7 Status map

The Status map is a display of the geographical locations of dispensers and their current status. A dispenser is shown, if it has a valid location specified in its settings. All dispensers will appear in the status list below the map regardless of location settings.



TM06 6630 1916

Fig. 14 Status map

The colors of the markers on the map indicates the operational status:

- **Green:** The dispenser is online with no warnings or alerts
- **Yellow:** A warning has been raised on the dispenser
- **Red:** An alarm is active on the dispenser. Alarms supersede warnings
- **Grey:** The dispenser is offline.

The list content is:

- **Status:** Same as map markers.
- **Last connected:** Date and time of last online connection.
- **Dispenser:** The dispenser name (or id if unnamed).
- **Alarm/warning description**: Number and description of the latest active alarm or warning.

Each line is a link to the dispenser Service log. The "Bar" buttons are links to the Dispenser settings.

13.7.1 Screen options

The map markers and the list below, can be filtered by the breadcrumb.

13.8 Transaction log

The Transaction log corresponds 1-to-1 with the cardholder actions on the dispenser. The shown transactions forms the source of all the reports, the dashboard and to some extend to the Credit log and the Service log graph.

Note The logs can only show records which have been uploaded to WMS. Either directly from an online dispenser or by usage of the File upload function detailed elsewhere.

You can obtain a few more log details by using the Download button on the screen.

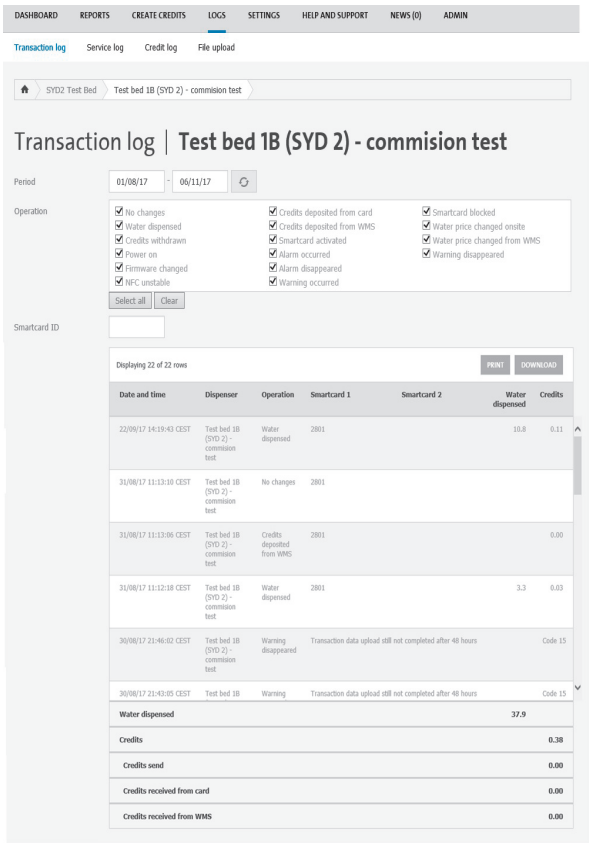


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Fig. 15 Logs > Transaction log

The Transaction log consist of:

- **Date and time:** The dispenser timestamp on the transaction. The time, given in UTC, according to the clock of each dispenser at recording time.
- **Dispenser:** The name/id of the dispenser.
- **Operation:** The transaction type, see below.
- **Smartcard 1:** Name/id/type of the primary Smartcard. The Operation directly pertains this Smartcard.
- **Smartcard 2:** Name/id/type of the secondary card. This card, if specified, facilitates the operation on the primary Smartcard.
- **Water dispensed:** The water amount, given in litres, dispensed in the transaction (only Water dispensed operation). At the bottom of the screen, you will find the sum of Water dispensed.
- **Credits:** The amount of water credits involved in the transaction. You will find the sum of the column at the bottom of the screen.
- **Transaction id** (only in download)**:** The dispenser transaction id for the operation. Note that transaction id's are reused on different dispensers. To identify a transaction uniquely, you will need to specify both dispenser id and transaction id.
- **Alarms and warnings** (only for firmware version 244 or higher): Alarms and/or warnings saved in the dispenser will be displayed with code and text description.

13.8.1 Operation/transaction types

Each listed entry will have one of the following transaction types:

- **No changes:** The card was removed without the cardholder performing other actions. This can be any card type. Any Smartcard.
- **Water dispensed:** The card was used to tap water. WaterCards, VendorCards, and ServiceCards. Note that a ServiceCard allows for water tapping, but does not consume any credits. You may consider this Non Revenue Water (NRW).
- **Credits withdrawn:** Credits were transferred from Smartcard 1 to Smartcard 2. AdminCards, VendorCards, and WaterCards. Transferring credits from an AdminCard, actually creates credits in the system. Transactions will appear in the Blocked when the transactions are uploaded from the dispenser to WMS.
- **Credits deposited from card:** Credits was transferred to Smartcard 1 from Smartcard 2. Valid credit recievers are VendorCards and WaterCards. See above (Credits withdrawn) for valid sources and receivers.
- **Credits deposited from WMS:** Transferal of credits, previously created in WMS, to a Smartcard by use of the credit download function. VendorCards and WaterCards. Credits transferred are created in the system. Transactions will appear in the Blocked when the transactions are uploaded from the dispenser to WMS.
- **Smartcard activated:** A Smartcard have been activated/initialized for usage in the group. An Admin card can activate any card type. A VendorCard can activate a WaterCard.
- **Smartcard blocked:** A card has been blocked. You can block any type of Smartcard.
- **Water price changed onsite:** The water price was set using a ServiceCard on the dispenser. Please note, there is no Transaction log entry indicating when the price was set by WMS.
- **Power on:** The dispenser was powered on.
- **Firmware changed:** The firmware version in the dispenser changed.
- **Alarm occurred/Alarm disappeared:** All alarms (both start and stop) are recorded in the Transaction log
- **Warning occurred/Warning disappeared:** Warnings (both start and stop) are only recorded once per day (or per power on/off cycle) in the Transaction log.

13.8.2 Screen options

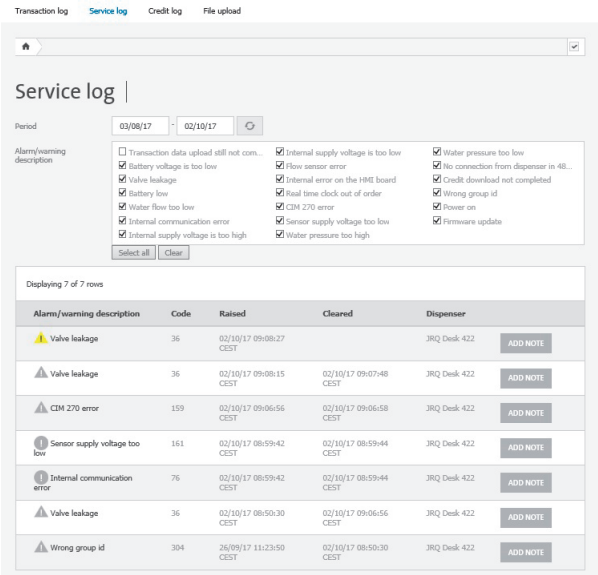
The report can be filtered by:

- **Breadcrumb:** Restricts the list to transactions from a subset of dispensers.
- **Period:** The date interval specifies the date interval of the considered transactions.
- **Transaction type:** Filter by transaction type. Leave the field blank to select all transaction types
- **Smartcard ID:** Filter to a single Smartcard. You can specify the full name (capitalization is ignored) or the Smartcard ID. Both Smartcard columns are used to match the selected card.

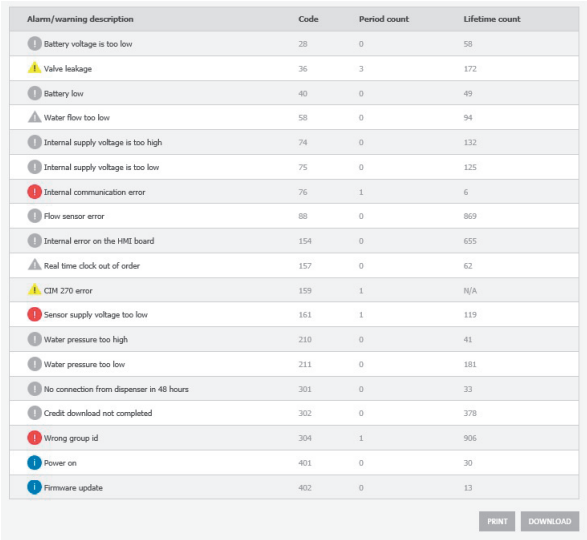
Remember to press the "Update" button to refresh data when changing the filter.

13.9 Service log

This screen shows the event counters (alarms and warnings) and individual uploaded events for the selected dispensers. The screen will not display the graph when the breadcrumb selects a group or a cluster.



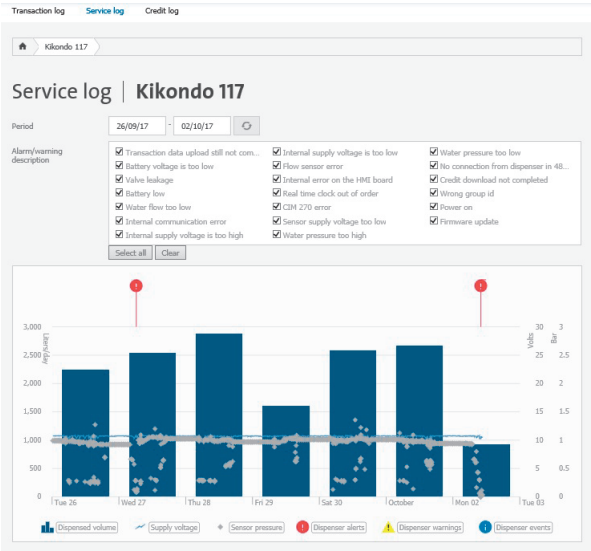
TM06 6327 4117



TM07 0071 4117

Fig. 16 Service log - group or cluster level

The screen will display the graph with the events and select sensor readings from the dispenser, when the breadcrumb selects a single dispenser.



TM06 6326 4117

Fig. 17 Service log - dispenser level

13.9.1 Screen options

The report can be filtered by:

- **Breadcrumb:** Restricts the list to transactions from a subset of dispensers. To display the graph, select a single dispenser.
- **Period:** The date interval specifies the date interval of the considered transactions.
- **Toggle chart data series:** Turn the charts data-series on/off.
- **Download:** Download sensor pressure and supple voltage to Excel.

13.9.2 Service log event codes

Event code	Text
015	Transaction data upload still not completed after 48 hours
025	Site acceptance test not completed
036	Valve leakage
040	Battery low
058	Water flow too low
074**	Internal supply voltage is too high
075**	Internal supply voltage is too low
076**	Internal communication error
084	SD card error
088	Flow sensor error
154**	Internal error on the HMI board
157	Real time clock out of order
159	CIM 270 error
161	Sensor supply voltage too low
210	Water pressure too high
211	Water pressure too low
301*	No connection from dispenser in 48 hours
302*	Credit download not completed
304*	Wrong group id

* The (*) marked codes originates from WMS and are detailed below. The remaining originates from the dispenser and are detailed in the AQtap installation and operating instructions.

** The (**) marked codes are replaced by event code 076 when using firmware version 224 or higher.

13.9.3 Service log entries generated by WMS

There are three Service log entries generated by WMS

Code 301 - No connection from dispenser in 48 hours: WMS will issue this warning if the dispenser have not made meaningful contact in a 48 hours period.

The warning is automatically cleared when connection is reestablished.

Some possible reasons for this warning may be:

- The SIM card plan is exhausted. The dispenser may initiate quite a lot of communication if the power or water supply is unstable. Verify that there is still data allowance available on the used SIM card.
- There is a problem with the phone number, IMEI number, or telco combination. Verify connection settings.
- The dispenser is outside network coverage. Check the Signal strength on the Dispenser settings screen.
- The dispenser has suffered a complete power loss. Verify power supply quality.
- The communications module on the dispenser is faulty and in need of service.

Code 302 - Credit download not completed: WMS will generate this warning, if a credit download is initiated and credits are available, but no credits are actually downloaded. This is purely informational and the Smartcard holder can reinitiate download at any time. The credits will be reserved as normal until the same dispenser reports what has actually happened the next time it uploads transactions. At this time, the warning will also be cleared again.

Some possible reasons for this warning may be:

- The request timed out as the dispenser was unable to get the response within 120 seconds of the request.
- The Smartcard holder decided to abort the download.
- There was not enough "space" on the Smartcard to retain the download credit amount.

Code 304 - Wrong group id: WMS will generate this alarm when a dispenser connection, is correctly configured for this group but identifies itself as belonging to another group.

Some possible reasons for this alarm are:

- The dispenser is actually commissioned with a ServiceCard belonging to another group. If correct ServiceCard have been used for dispenser commissioning, then the connection must be deleted in this group and recreated in the proper group. If a ServiceCard belonging to another group have been wrongly used - support should be contacted to remedy the error. Note that once a dispenser is recommissioned, it will no longer be possible to upload earlier transactions.
- This can occur when a dispenser comes online after a period of very low voltage (power failure or depleted battery). In such a situation, the communications module might send unreliable information due to too low power on the main electronics board. In this case the error will clear when power is fully restored and normal communication takes place.

13.10 Credit log

This screen lists the credit creation in the group. The log details the credit sources, destinations and creation timings. It can be used to track creation, but it is recommended to use the transaction log to verify actual Smartcard actions.

Note The logs can only show records which have been uploaded to WMS. Either directly from an online dispenser or by usage of the File upload function detailed elsewhere.

You can obtain a few more log details by using the Transaction log button on the screen.

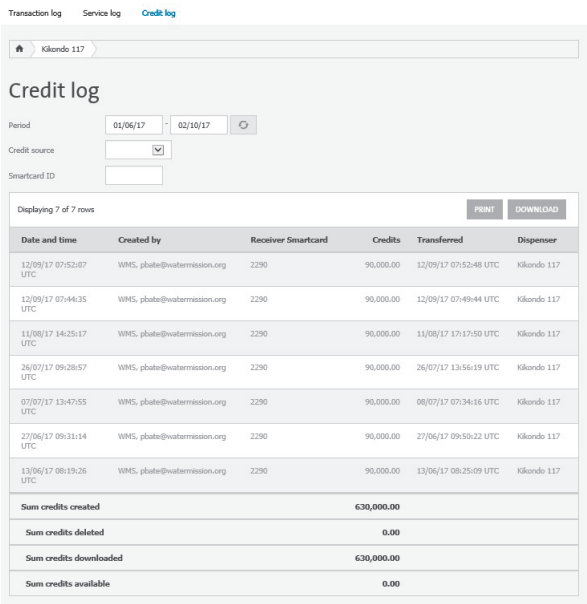


Fig. 18 Credit log

The Credit log consist of:

Date and time: This is the creation time of each record given in UTC.

Created by: This indicates the creation source, including the available source information. There are three possible creation sources:

1.**Admincard + Smartcard name/id:** Credits have been transferred from an AdminCard to a VendorCard or WaterCard. As credits are drawn from the AdminCard's infinite supply, they are essencially new credits in the group.

2.**WMS + administrator user name:** Credits has been created by a WMS administrator.

A WMS administrator can delete the credits admin unless they are reserved (by a download in progress) or already downloaded to a Smartcard.

3."MPS" + MPP + MPP transaction id + (phone number)": When credits are purchased using mobile payment (MPS) and subsequently downloaded to a VendorCard or WaterCard.

MPP: Mobile Payment Provider (EMI:Ericsson, TT:TransferTo)

Receiver Smartcard: The id or name of the VendorCard or WaterCard, which receives the credits.

Credits: The amount of credits created.

Transferred: The time of last transferal attempt. For deleted credits, the user name of the WMS admin performing the deletion will be listed here.

Dispenser: The dispenser of the last transferal attempt.

In the bottom of the report, the total credits of each source type is calculated.

13.10.1 Deleting credits

Credits created by a WMS administrator can be deleted, before they are downloaded to a Smartcard. To do this, click on the box (to the left) of the lines to be deleted and execute the deletion by pressing on the Delete selected button on the top line.

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13.10.2 Screen options

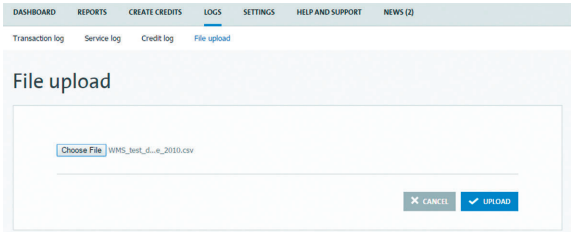
The log can be filtered by:

- **Period:** The date interval specifies the date interval of the considered transactions.
- **Credit source:** Filter by credits source. Leave the field blank to select all credit source types
- **Smartcard ID:** Filter to a single Smartcard. You can specify the full name (capitalization is ignored) or the Smartcard id. This is used to filter the receiver Smartcard only.

Note You can search for a specific phone number, AdminCard, or WMS administrator on the displayed list by using your browsers search function. Usually by pressing CTRL-F in the browser (on Windows).

13.11 File upload

This screen permits a WMS administrator to add file based Transaction log entries to the group. It is the only way to add transactions to WMS from an otherwise offline dispenser.



TM06 6329 1116

Fig. 19 File upload

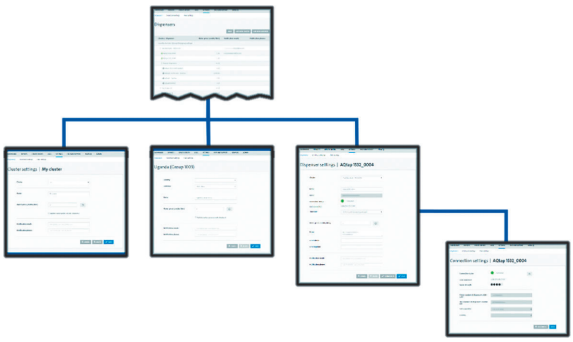
A usable file obtained by attaching a PC to the dispenser using a cable and the Grundfos PC-Tool for AQtap software to download the transactions from the dispenser.

Place the file somewhere accessible to the computer you use for WMS and select it by clicking on the "Select File" button. If the provided file is successfully validated as a log file from a dispenser belonging to the group, the data will be added to WMS.

If the dispenser's serial number is matched to a dispenser record in the WMS group, the log data will be added to that dispenser. If the serial number match fails, the dispenser record will be created and transactions added to that one.

13.12 Dispenser settings

This is actually four different screens. The menu choice will bring you to the group overview screen. On the Group overview screen, select the group or a cluster to access the Group/cluster screen for the selection - or access the Dispenser settings screen by selecting a dispenser. From the Dispenser settings screen you can access the Connection settings by clicking the Connection button at the bottom of the screen.



TM06 6631 1116

Fig. 20 Dispenser settings screens

13.12.1 Dispenser settings (list)

The first Dispenser settings screen provides an overview of the group along with dispenser status indication, notification selection, and pricing.

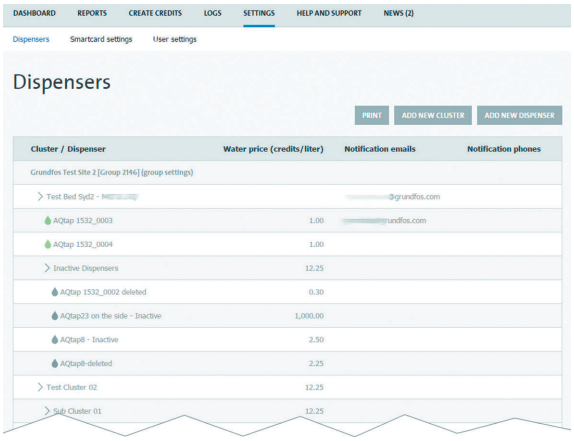


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Fig. 21 Dispenser settings (list)

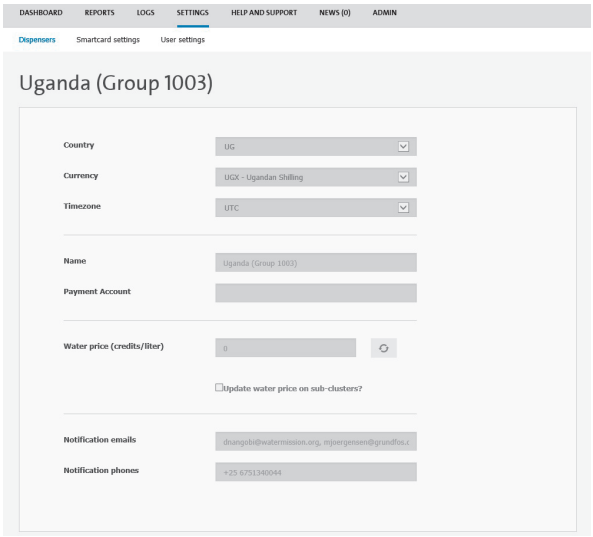
The rows of the list are all clickable and will lead to the Settings screen for the listed item.

Note The price on the group and the clusters are informative only! The price indicated on the dispenser is the water price in use.

Note The actual dispenser price is updated when the dispenser contacts WMS. There is no way to enforce an immediate price update.

13.12.2 Group/cluster settings

This is two nearly identical screens for managing groups and clusters. They have no subscreens.



TM06 6332 0418

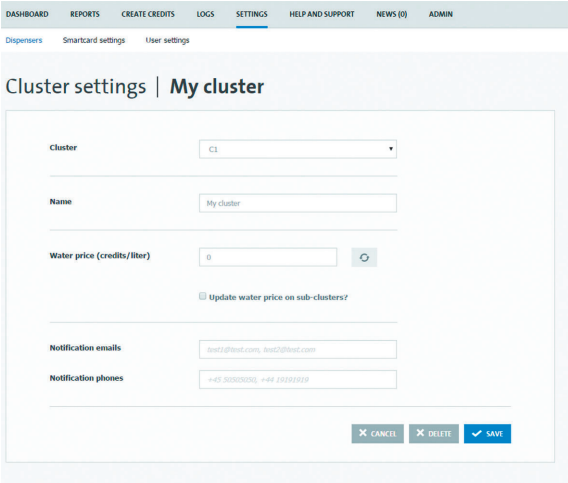
Fig. 22 Group settings

In addition to the common fields, the group settings have fields for Country, Currency and Payment account settings.

Country is mainly informative, but are also used as default country for Connection, see section *13.12.4 Connection settings*.

Currency is used to restrict the mobile payment to the selected country. This field can not be left open as WMS never performs any currency conversion. One of the selected currency will always be transformed into one water credit (1.00 currency unit = 1.00 water credit).

Payment account is used for the Mobile Payment System (MPS). Please contact CSU for further information.



TM06 6331 1116

Fig. 23 Cluster settings

The Cluster settings screen has one extra field.

Cluster is used to position the cluster in the groups cluster hierarchy. Leave this blank to place the cluster directly in the group "root". Changing this setting and pressing Save, will have effect for all users of the group as soon as their screen is refreshed. It will affect which dispensers are included in the breadcrumb filtering as both the old and new super group are affected (providing that "Include sub-clusters" is checked or implied in the breadcrumb)

The common fields (for groups and clusters) are:

Name is the group/cluster name appearing in lists and reports.

Water price (credits/liter), given in water credits per liter of water, is mainly informative. Pressing the "Update" button will update the price settings on all dispensers in the current group/cluster, including dispensers in sub-clusters, when the "Update water price in sub-clusters" mark is checked.

Notification emails can be used for specifying a (comma separated) list of alarm/warning notification email recipients (all dispensers at current level and below).

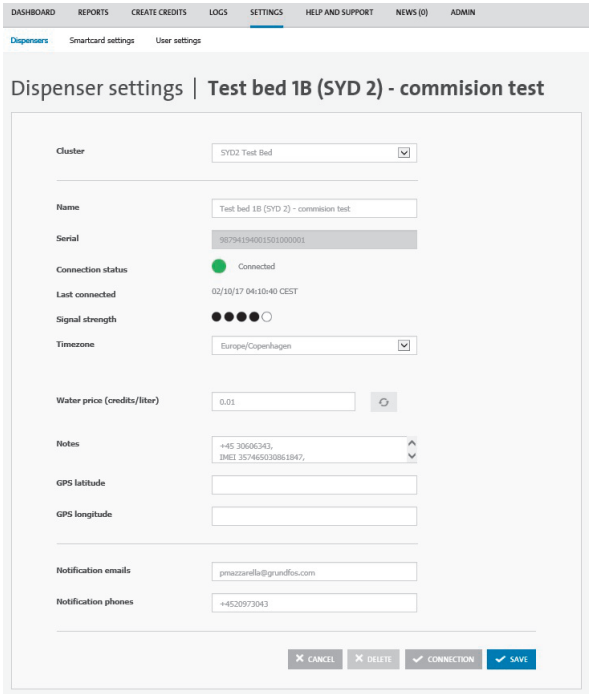
Notification phones can be used for specifying a (comma separated) list of alarm/warning notification SMS recipients (all dispensers at current level and below).

Remember to press Save to update.

A cluster can also be deleted when it does not contain any sub-clusters or dispensers. A group cannot be deleted.

13.12.3 Dispenser settings (sub-screen)

The Dispenser settings sub-screen holds the dispenser information which in part is similar to the Cluster settings screen. The screen also provides access to Connection settings (for that dispenser).



TM07 0072 4117

Fig. 24 Dispenser settings

The fields on this screen are:

Cluster is the dispensers place in the hierarchy. Leave empty to place directly in the group root.

Name is the name that appears throughout WMS. It defaults to the WMS dispenser id (which also appears in the browser URL on some screens).

Serial (read only) is the dispenser serial number as given by data upload whether manual from offline dispensers or automatically from online dispensers.

Connection status indicates the current state of the connection settings, i.e. you cannot see if the dispenser is currently communicating - only if it has been successfully configured! **Cleared** can be either Offline (no connection configured), Disconnected (connection configured but currently deactivated), In progress (connection configured and saved but not yet completely established), and Online (saved and established).

Last connected indicates the date and time of last connection (in UTC).

Timezone can be used for specifying a timezone for the dispenser. This will only be used to adjust the timestamps in the notification messages. All timestamps in WMS are otherwise given in UTC regardless of dispenser timezone or group country.

Water price (credits/liter), given in water credits per liter of water, is the last known dispenser waterprice. To change the dispensers water price, enter the new price and use the "Update" button. This will update the price at the dispenser the next time the dispenser is talking to WMS - usually within the next 1/2 - 6 hours with a good connection.

Notes is for any additional information you wish to store on the dispenser record. You can expand the text field for writing or seeing data, but it will shrink visually on next screen refresh (though the information you might have entered remains).

GPS latitude is for registering the dispensers north-south position on the Status map. Enter as decimal degrees with north being positive. E.g. Grundfos Cooperate office in Bjerringbro, Denmark is at latitude 56.3803.

GPS longitude is for registering the dispensers east-west position on the Status map. Enter as decimal degrees with west being positive. E.g. Grundfos Cooperate office in Bjerringbro, Denmark is at longitude 9.6688.

Note Tip: Map web screens will often allow you to find the latitude and longitude of a user placed marker. Try e.g. www.bing.com or maps.google.com.

Notification emails can be used for specifying a (comma separated) list of alarm/warning notification email recipients (for this dispenser).

Notification phones can be used for specifying a (comma separated) list of alarm/warning notification SMS recipients (for this dispenser).

Press Save to save any changes - this does not update the water price used on the dispenser.

Press the Update waterprice on dispenser button - to update the water price on the dispenser. This also updates other changed information.

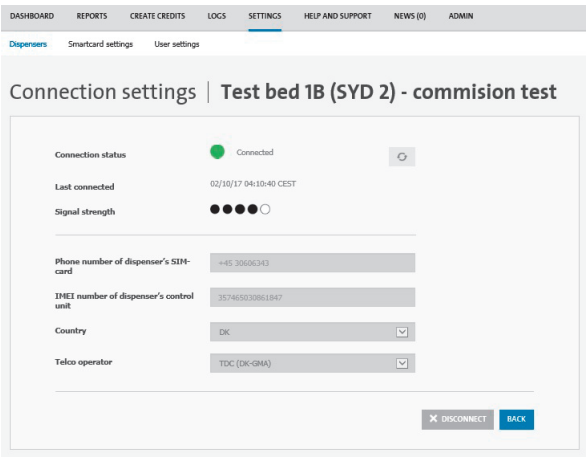
Press Connection to access the dispensers Connection settings sub-screen. This also saves any changed information as if Save was pressed, i.e. no price update on the dispenser.

Press Cancel to abort unsaved changes.

Press Delete to delete the dispenser record. This is only possible if no transactions or alarm/warning events has ever been stored in (uploaded to) WMS on the current dispenser.

13.12.4 Connection settings

From the Settings screen of a single dispenser, you can reach the Connection settings screen. Use the screen for managing the connection data and enable/disable the connection between a dispenser and WMS.

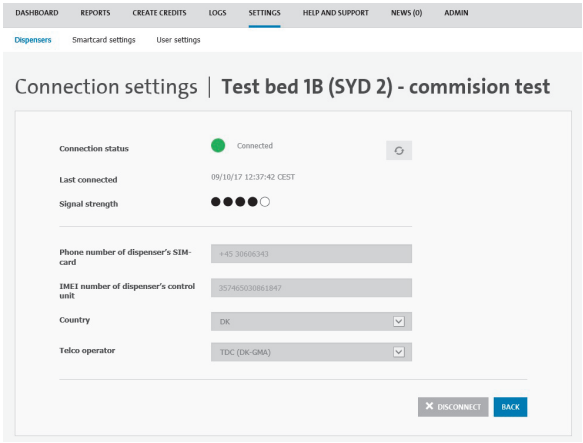


TM07 0073 4117

Fig. 25 Connection settings (disconnected)

The Connection settings screen can be in one four different modes corresponding to the dispenser status. The modes are partially in your control and gives different possibilities. They are:

- **Offline:** No connection configured, and WMS only stores the status (current mode) and last connection timestamp if previously online. Pressing Save & connect brings you to the next mode, In progress.
- **In progress:** Connection have been configured, and WMS is currently trying to establish the connection and update the communications module on the dispenser. When completed the status will become Connected and the mode will change accordingly. You can also abort and go to the Disconnected mode by pressing Disconnect from here.
- **Connected:** Connection have been established and communications module have been updated. The dispenser will regularly attempt to connect to WMS and upload available data. Press Disconnect to deactivate the connection temporarily and go to the Disconnected mode.
- **Disconnected:** In this mode, we have configured the connection but deactivated it. The dispenser cannot upload data automatically, but we retain all connection information. Press Save & connect to attempt reconnection or Disconnect to go back to the Offline mode.



TM06 6333 4117

Fig. 26 Connection settings (connected)

Note The mode will reflect the dispenser's connection status, but to update the status on screen, the screen must be refreshed.

To update the screen Mode/dispenser status you need to do at least one things:

- Press the "Update" button next to the status indication.
- Perform a browser screen reload, usually by pressing "F5" in the browser.
- Go to some other screen and return to this screen (or some other screen displaying) the status.

This only updates the browser windows that performs the reload, of cause.

You will quickly note that you can only change the field values when the mode is Offline or Disconnected. This to make sure you do not change them by accident.

The fields are:

Connection status (read only) shows the current status of the connection as known by WMS (Offline, In progress, Connected, or Disconnected). Use the buttons to change mode as explained above.

Last connected (read only) is the timestamp (in UTC) of the last known dispenser contact.

Signal strength (read only) indicates the signal quality at last dispenser contact (on a scale similar to the five bars on a mobile phone).

Phone number... is the mobile phone number of the SIM card installed in the dispenser. The number must include the country code given as "+code" ("not 00code") for the phone number. You can use spaces for formatting, they are ignored when dialing the number.

IMEI number of dispenser's control unit ... is the international mobile device identifier of the mobile device installed in the dispenser. The IMEI number listed on a label inside the dispenser. All 15 digits must be specified.

Telco operator is the operator of the installed SIM card. To make sure you are selecting the correct one, you should first select the correct country. If the operator cannot be found in the proper country, then the card is unsupported. Please contact your support or use a supported SIM card.

Country is informational and used to filter the telco list. Please use the filter to avoid selecting an operator entry from an unintended country.

The buttons on the screen vary according to the current connection status:

Update button next to the status indication, refreshes the screen discarding all unsaved changes. Always available.

Back brings you back to the Dispenser settings screen, changes discarded. Always available.

Save & connect saves the changes and initiates connection establishment (in progress state). This is available in Disconnected and Offline states.

Delete removes phone number, IMEI number, and telco operator information and brings you back to the Dispenser settings screen. The dispenser is now Offline and will not be able to update any WMS data while in this state. Previously uploaded data will be retained. This is available in Disconnected state only.

Disconnect will bring the connection in a temporary offline state but retain all connection information. The button is available in In progress and Connected states.

Note: The Dispenser Connection Settings need to be deleted, before the AQtap can be moved to a new Group ID.

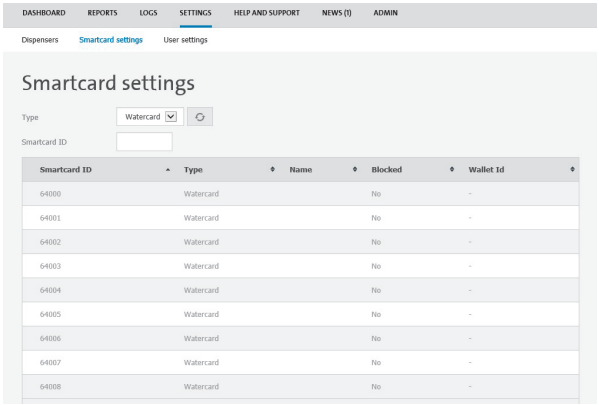
13.13 Smartcard settings

The Smartcard settings consists of two screens. The entry screen, is a list of all known Smartcards which can be used for overview and Smartcard selection. The second shows Smartcard details and allows for naming of Smartcards.

Note: If the search field is used to find a Smartcard, you can go directly from search results to the second Settings screen.

13.14 Smartcard settings - overview list

The first screen contains a list of all "known" (by WMS) Smartcards, i.e. those cards that have been part of a transaction, which has been uploaded to WMS.



TM06 6335 4117

Fig. 27 Smartcard settings - overview list

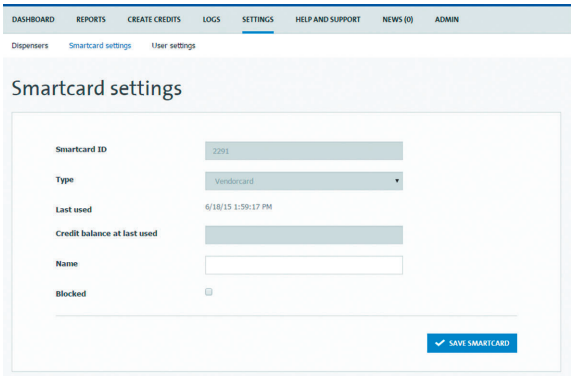
The list can be filtered by cardtype using the dropdown or typing a cardId.

The results can be sorted in different ways by clicking the small triangles in the right side of each column header.

Clicking on a Smartcard line, will take you to the settings screen for the clicked Smartcard.

13.14.1 Smartcard settings - single card

The second screen displays the card details as known at the newest uploaded transaction.



TM06 6334 1116

Fig. 28 Smartcard settings - single card

The fields are:

Smartcard ID is the global card identifier, normally also printed on the card.

Type is the card type. On of WaterCard, VendorCard, ServiceCard, or AdminCard.

Last used is the timestamp of the newest known transaction uploaded to WMS.

Credit balance at last used, is the cards key indicator at last used, see table below for details.

Name is the name given to the card by a WMS admin. Enter a text and press Save Smartcard to update the name.

Blocked is for card blocking, set the checkmark and press **Save Smartcard** to block the card.

Note: Card blocking cannot be undone. Once a blocked card is placed on a dispenser with an updated block list, the card will permanently be rendered useless.

The blocked card flag cannot be removed once checked and saved.

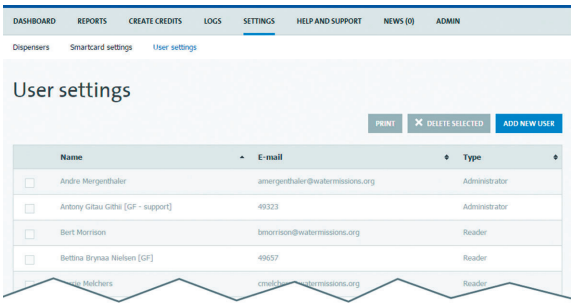
Smartcard type	Credit balance information
WaterCard	Credits available on card
VendorCard	Credits available on card
ServiceCard	Total water dispensed by card
AdminCard	Total credits created by card

13.15 User settings

You use the User settings screens to add and delete WMS users. The screens consist of an Overview list screen and a Create/edit screen.

13.15.1 User settings - overview list

This list shows all current users of the group. An e-mail address identifies each user.



TM06 6336 1116

Fig. 29 User settings - overview

Name is the name given on the Details screen. Across WMS a user can only have one name, i.e. if a member of several groups, the name associated with an e-mail will be shared between those groups. A user can change his own name on the User name details screen.

E-mail is the login name of the user. An internal Grundfos user might use a numerical id instead of a standard e-mail. It is not possible to change the e-mail.

Type is either Administrator or Reader. A Reader can only change his own name. An Administrator can change all non-static items.

There are no filters available for this list, but the results can be sorted in different ways by clicking the small triangles in the right side of each column header.

To delete a user, put a checkmark in the box to the left of the name and press Delete selected. You cannot delete yourself; another user with Administrator access must do this.

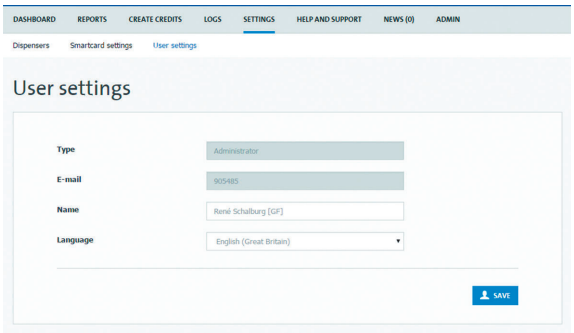
To add a user, click the Add new user button - this will show the Details screen with all fields editable. The added user will receive an e-mail notification with a link to WMS. The user might be required to create a Grundfos Global login, see section *3.2 Self-registration process*.

To change e-mail or type of any user, you must delete the user and recreate him/her with the correct login name and access rights.

To change name or language of a user, you must request the user to login to WMS him/her self and click on his/hers line in the list. This will bring up the details view with name and language changeable.

13.15.2 User settings - details

You will use the Details screen when creating new users or when maintaining your own user information.



TM06 6337 1116

Fig. 30 User settings - details

The screen has four fields:

Type is the access right type, either Administrator or Reader. You can only specify type at user creation.

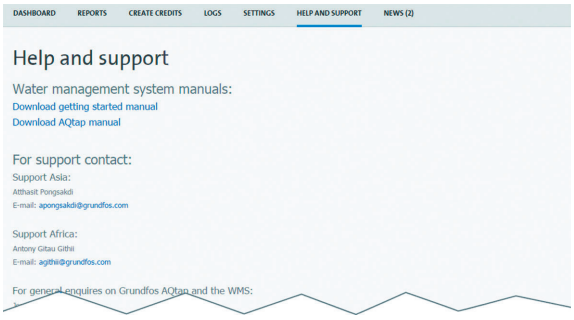
E-mail is the logon name, it must match the Global login e-mail (user name). You can only specify e-mail at user creation.

Name is the name you wish to give the new user. Any user can change his own name, but it is shared among all accessible WMS groups.

Language is the preferred display language. WMS will support English and French and the setting is shared among all accessible WMS groups. Any user can change his own language setting. Remember to press Save to save any changes.

13.16 Help and support

The Help and support screen provides links to WMS documentation and the AQtap home page in Grundfos Product Center. There are also contact information on Grundfos support personnel and other WMS relevant contacts within Grundfos.



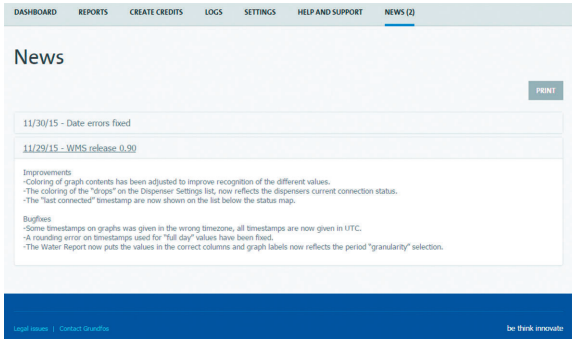
TM06 6340 1116

Fig. 31 Help and support

You can only follow links from this screen.

13.17 News

The News screen list messages from product management and system operations.



TM06 6341 1116

Fig. 32 News screen

Click on the news title to open or close the text view of each news item.

The Print button will print the current screen contents.

The menu entry will show the number of available new items.

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Addresses Revised 09.08.2017

Link to Water Management System:	https://auth.grundfos.com/watermanagement/
Forgotten password:	If you forget your password then it is easy to get a new one. Simply go to the Login screen and click the "Forgotten password" link.
Link to AQtap installation and operating instructions:	http://net.grundfos.com/qr/i/98804958
AQtap information:	You can find further information and manuals in the Grundfos Product Center http://product-selection.grundfos.com

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