



***VISION 2***  
***PC Console***  
***USER GUIDE***  
***[End User Version]***



**Goldtec Control Systems Pty Ltd**  
**Email: [info@goldtecsystems.com.au](mailto:info@goldtecsystems.com.au)**  
**Web: [www.goldtecsystems.com.au](http://www.goldtecsystems.com.au)**

## CONTENTS

|   |    |
|---|----|
| 1. General description .....  | 3  |
| 2. About the CONSOLE .....  | 4  |
| 2.1 Logging in .....  | 4  |
| 2.2 The Homepage .....  | 5  |
| 3. Planning activities .....  | 9  |
| 3.1 Planning – Irrigation programs .....                                | 9  |
| 3.1.1 Creating a new irrigation program .....                           | 10 |
| 3.1.2 Defining water and fertilizer dosages .....                       | 13 |
| 3.1.3 Manually starting/stopping and freezing irrigation programs ..... | 15 |
| 3.1.4 Added values of the Irrigation programs perspective .....         | 16 |
| 3.2 Evaporation .....   | 19 |
| 3.3 Planning – Groups .....   | 20 |
| 3.4 Planning – Satellites operation .....                               | 21 |
| 3.5 Planning – Filters backflushing .....                               | 21 |
| 3.6 Planning – Virtual water meters .....                               | 22 |
| 3.7 Planning – Conditions .....   | 23 |
| 3.8 Planning – Water sources .....                                      | 25 |
| 3.9 Planning – Rain Delay .....   | 26 |
| 3.10 Planning – Frost protection .....                                  | 27 |
| 3.11 Planning – Radiation sets .....                                    | 27 |
| 3.12 Planning – Global fertilizer limits .....                          | 29 |
| 3.13 Program library .....  | 30 |
| 3.14 Planning – Fertilization sets .....                                | 31 |
| 3.15 Alarms .....   | 31 |
| 4. Monitoring activities .....  | 33 |
| 4.1 Monitoring – Irrigation status .....                                | 33 |
| 4.2 Monitoring – Accumulations .....                                    | 36 |
| 4.3 Monitoring – Inputs & Outputs .....                                 | 37 |
| 4.4 Monitoring – My Targets .....                                       | 38 |
| 4.5 Maps & Diagrams .....   | 38 |
| 4.6 Monitoring – Weather station .....                                  | 44 |
| 5. Analyze .....  | 44 |
| 5.1 Event log .....   | 45 |
| 5.2 Data reports .....  | 46 |
| 5.2.1 Creating new Reports .....  | 47 |
| 5.2.2 Analysis settings .....   | 51 |
| 5.3 Analyze – Consumptions .....  | 52 |
| 5.4 Analyze – Irrigation performance .....                              | 54 |
| 5.5 Analyze – Analog sensors .....                                      | 55 |
| 6. Configure .....  | 56 |
| 6.1 Configure – Preferences .....                                       | 56 |
| 6.2 Configure – Constants .....   | 58 |
| 6.2.1 General .....   | 59 |
| 6.2.2 Main valve .....  | 59 |
| 6.2.3 Irrigation lines .....  | 60 |
| 6.2.4 Irrigation valves .....   | 60 |
| 6.2.5 Water meters .....  | 62 |
| 6.2.6 Fertilizers .....   | 62 |
| 6.2.7 pH/EC .....   | 64 |
| 6.2.8 Filters .....   | 65 |
| 6.2.9 Analog sensors .....  | 65 |
| 6.3 Configure - Dealers definitions .....                               | 65 |
| 6.3.1 Dealers definition – General .....                                | 66 |
| 6.3.2 Dealers definition – Fertilizers .....                            | 67 |
| 6.3.3 Dealers definition – Valve defaults .....                         | 68 |
| 6.3.4 Dealers definition – Memory allocations .....                     | 70 |
| 6.4 Configure – Data Acquisition .....                                  | 70 |
| 6.5 Configure – System .....  | 71 |
| 6.5.1 System – Water sources .....                                      | 72 |
| 6.5.2 System – Lines .....  | 72 |
| 6.5.3 System – Fertilization sites .....                                | 73 |
| 6.5.4 System – Filter sites .....                                       | 73 |
| 6.5.5 System – Hardware .....   | 75 |
| 6.5.6 System – I/O .....  | 76 |
| 6.6 Configure – Names .....   | 77 |
| 7. Tools .....  | 78 |
| 7.1 Tools – Console preferences .....                                   | 78 |
| 7.1.1 Console preferences – General .....                               | 78 |
| 7.1.2 Console preferences – My stuff .....                              | 79 |
| 7.1.3 Console preferences – Advanced .....                              | 79 |
| 7.2 Tools – Taking snapshots of my screen .....                         | 80 |
| 7.3 Tools – Place support call .....                                    | 80 |
| 7.4 Tools – Check for software updates .....                            | 80 |
| 7.5 Tools – Refresh translation strings .....                           | 80 |
| 7.6 Tools – Target tools .....  | 81 |



# VISION 2

## CONSOLE GUIDE

### 1. General description

The **VISION 2** irrigation control system is a modern distributed control system based on the powerful **VISION 2** irrigation controllers that can be communicated through the Internet from everywhere, anytime.

The same **CONSOLE** version is used for the **VISION 2** and **DREAM 2** systems. As such some features appearing in the **COLSOLE** may not be available on the **VISION 2** system options.

The drawing below demonstrates the physical layout of the communication between users and targets (controllers) in the **VISION 2** system.

Users have two options for accessing the system: one option is the software package called **CONSOLE** which is loaded and used on **PCs**, the other is just an internet site called **SPOT** which does not need any loading and is meant to be used by **CELLULAR PHONES** and **TABLETS**. The **CONSOLE** which is the subject of this document will be discussed widely below.

Both options enable the users to login to the **SERVICE** which is a sophisticated software package located somewhere in the cloud acting like a mediator between users and their controllers. Additionally the service contains a large **DATA BASE** that stores all the information about all the controllers and the **ADMINISTRATION** software that takes care about who is permitted to access which controller.

On the other end the controllers after power up also login to the **SERVICE** and stay online. The **SERVICE** will interrogate all the online controllers repeatedly in order to keep the **DATA BASE** up to date, so that users interested in some information about some controllers, can find it in the **DATA BASE**.



## 2. About the CONSOLE

The purpose of the following document is to describe to the potential user the various options offered by the **CONSOLE** for defining programs, obtaining information, analyzing data, generating reports and interfere with the ongoing activities.

For accessing the **SERVICE** each user must have a **Username** and a **Password** recognized by the **ADMINISTRATION** software. Some users have **Usernames** with permission to access through the **SPOT** only, but those that have access through the **CONSOLE** can also use the **SPOT** with the same **Username**. One thing must be pointed out: the **ADMINISTRATION** will not let a second user enter the system with a **Username** which is already logged in.

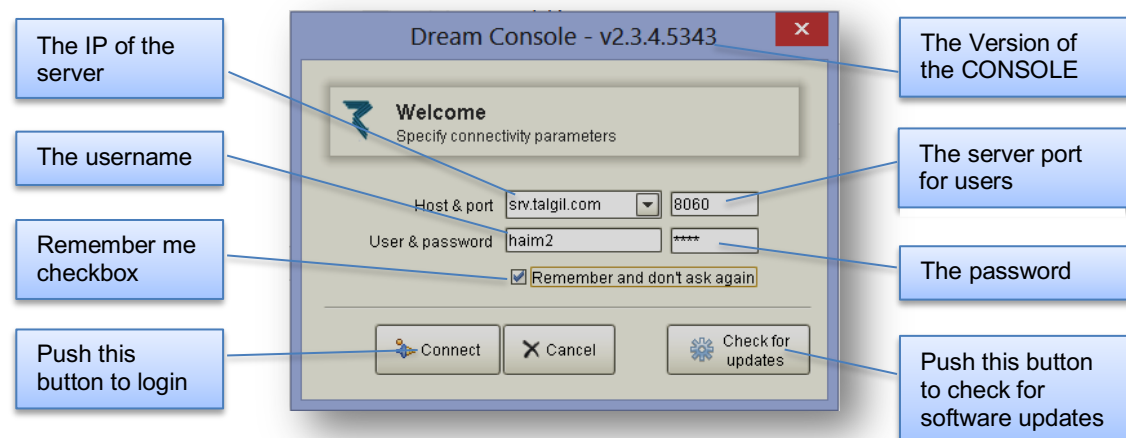
There is no limitation to install the **CONSOLE** at the office and at the user's home and the user will be able to use both sites, but not at the same time, the user shall have to logout from the office **CONSOLE** in order to being able to use a home **CONSOLE**.

### 2.1 Logging in

Double clicking the DREAM CONSOLE's icon



on the computer's desktop will bring up the following window:



Before trying to login, the **IP address** of the server and the **port** for users need to be defined.

- **IP address of the server** – srv.talgil.com
- **The port** – 8060

The username and password should be entered in small letters. If we wish the username and password be remembered, we have to click the **Remember me** checkbox.

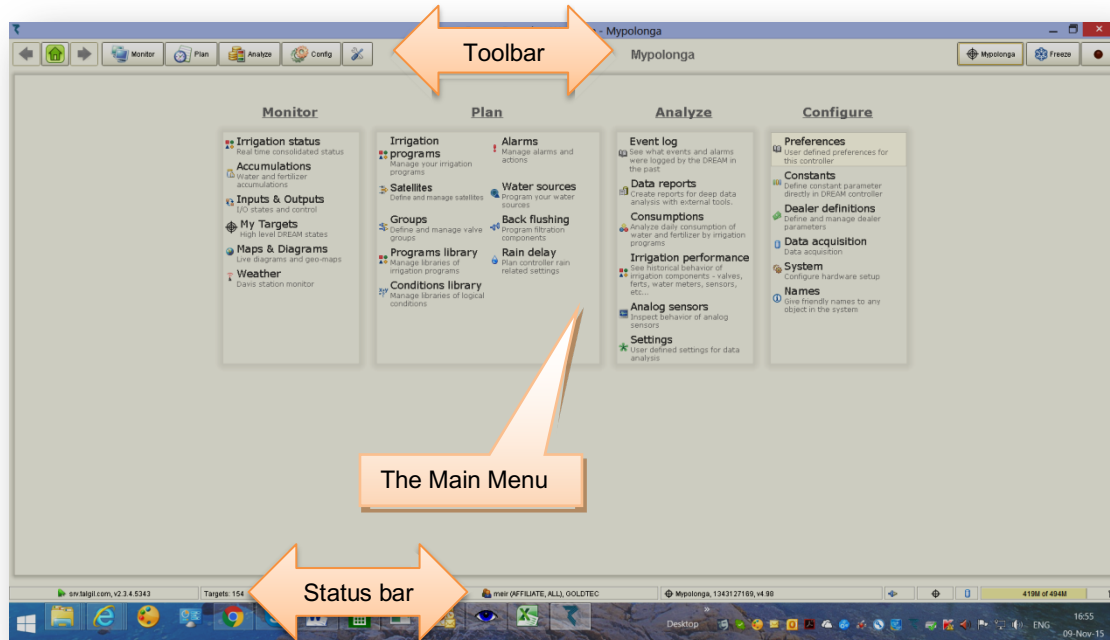
At this stage we can hit the **Check for updates** button to check if there are new software versions for updating the **CONSOLE**,

For logging in we now have to hit the **Connect** button.



## 2.2 The Homepage

In general, the **Homepage** contains the menu of all the subjects covered by the **CONSOLE**, it is the place from where the user can reach all of those subjects, but let's have a closer look and see what else is there.

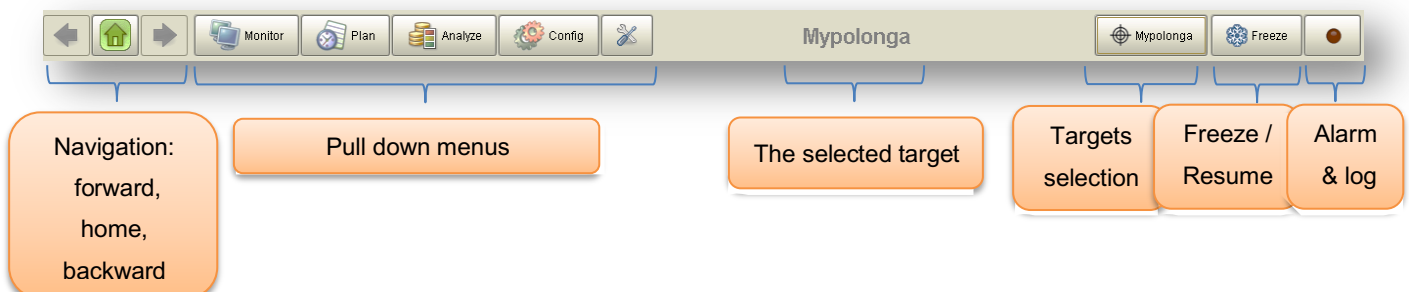


**The Main Menu** - The subjects of the **Main Menu** are grouped into meaningful groups, each group containing the relevant subjects. There are four groups:

- **Monitor** – deals with monitoring the current activities
- **Plan** – deals with all the planning that users may have to do.
- **Analyze** – deals with analyzing accumulated historical information.
- **Configure** – deals with all the information related with the system setup.

Depending on the configuration of the various targets there may be some differences in the list of subjects included in the menu.

**The Toolbar** - The **Tool bar** contains the following functions:

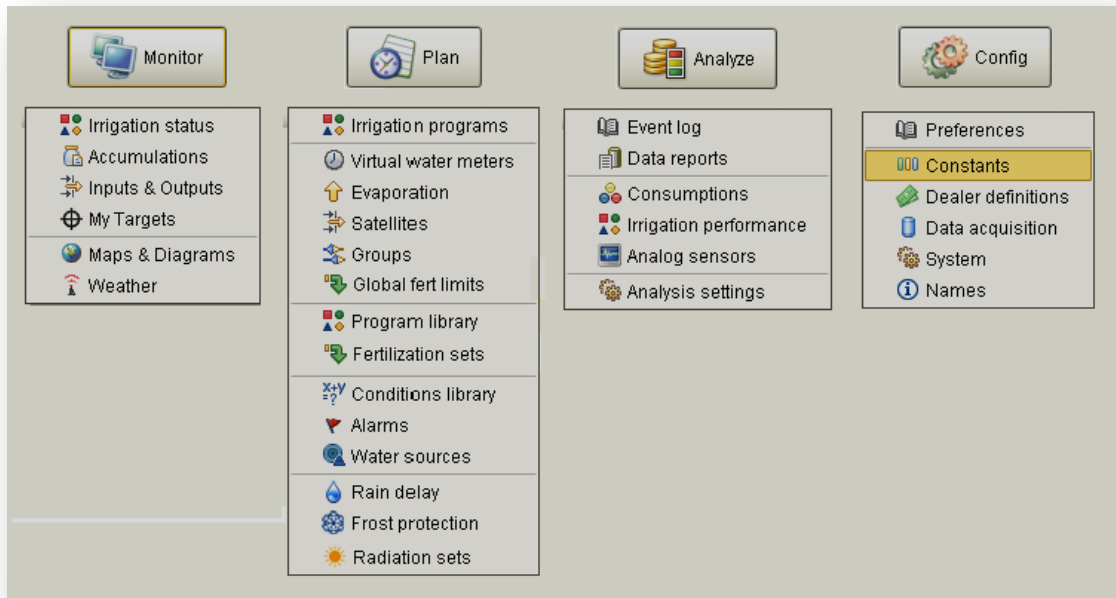



The **Toolbar** appears in all the perspectives of all the subjects giving the user the ability to navigate forward and backward, to select subjects from the **Pull down menus**, to select other target, to execute a **Freeze** command or to go to the **Alarm & log** perspective.

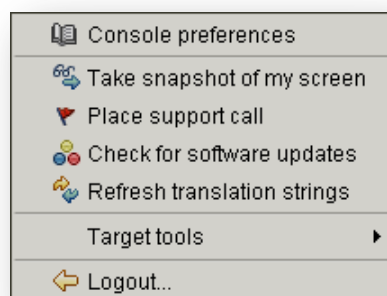
**The Pull down menu** - You may have probably noticed already that the buttons of the **Pull down menu** have the same names as the **Main Menu** groups: **Monitor**, **Plan**, **Analyze** and

**Config.** That is because the **Pull down menus** actually fulfill the same function as the **Main Menu** and that is giving access to the various subjects, so since the **Toolbar** appears in all the perspectives, the included **Pull down menus** serve as shortcuts to all the subjects.

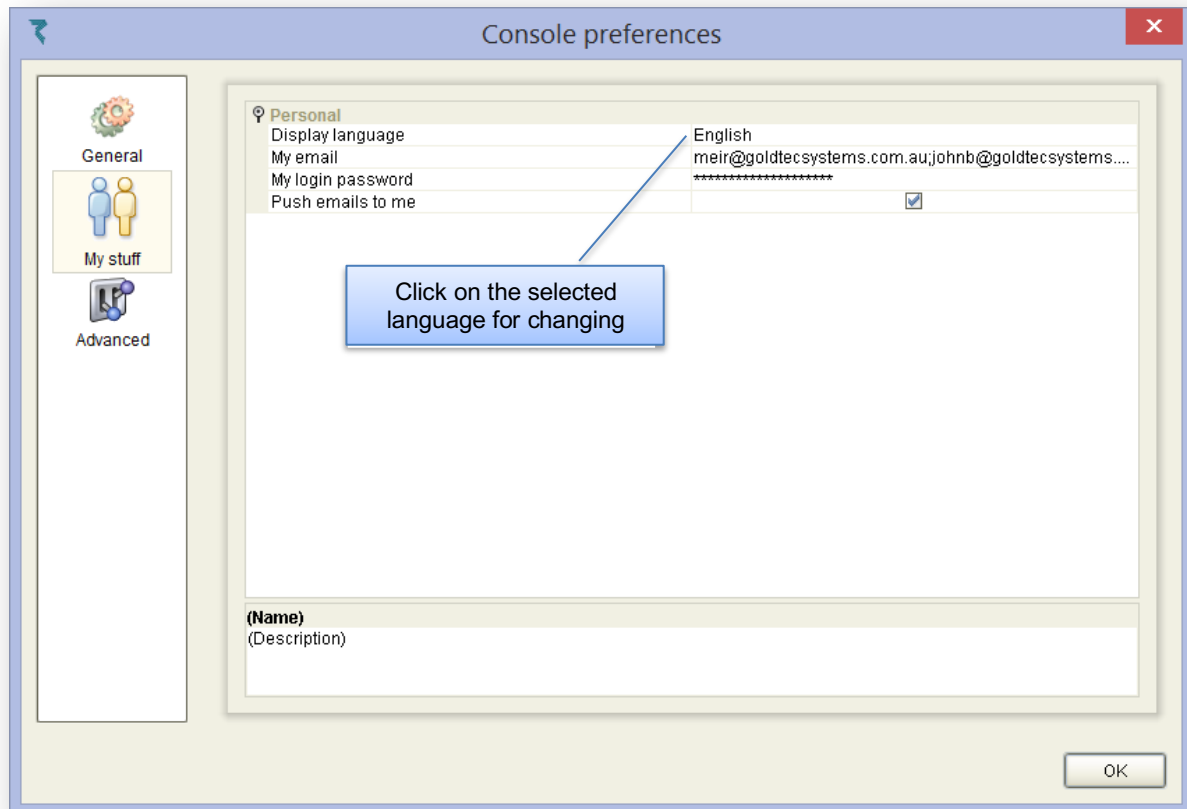
The following picture shows how the **Pull down menus** looks like.



**The Tools menu** - The following key included in the toolbar  is called **Tools**. This key opens a menu that supplies some useful tools; especially it gives us access to the [Console preferences](#) (see below) which some users will have to use for changing the language of the **CONSOLE**.









**The Targets selection key** – some users may need to have access to several targets (controllers), most perspectives of the **CONSOLE** deal with a single target, the **selected target** whose name appears in the middle of the **Toolbar**. To be able to change the selected target, the **Targets selection key** should be clicked, the list of targets permitted for the user will be displayed and the user will be able to select the unit he desires.

**The Freeze/ Resume command key**– sometimes users may need to have the ability to halt all activities of a selected target, for this purpose the **Freeze** command key be used. After confirming the command, it will be executed, stopping all the active programs, shutting down all the outputs and waiting until the **Resume** command is issued using the same key, the user is then given the option whether to continue or to stop the interrupted programs.

**The Alarm & log key**– the **Alarm & log** key may have two faces, when there are no alarms in the system it will look like this  otherwise it will have the following look with the  red light blinking.

In any case, hitting the **Alarm & log** key will bring us to the **Alarm & log perspective** that looks as follows:

**Outstanding system alarms**

| Target                | Alarm              |
|-----------------------|--------------------|
| Mypolonga, 1343127169 | Lack of fertilizer |

List of outstanding alarms.  
This is also the place to clear alarms.  
Alarms can be cleared by right clicking on them.

**Recent system events**

| Time stamp | Target    | Facility   | Context      | Subcontext | Message text                |
|------------|-----------|------------|--------------|------------|-----------------------------|
| 31         | Mypolonga | Irrigation | two tank mix |            | Program finished irrigation |
| 21         | Mypolonga | Irrigation | two tank mix |            | End of program cycle '7'    |
| 30         | Mypolonga | Irrigation | two tank mix | Valve 2.5  | Program valve closed        |
| 20         | Mypolonga | Irrigation | two tank mix | Valve 2.5  | Start of program cycle '7'  |
| 29         | Mypolonga | Irrigation | two tank mix | Valve 2.5  | Program valve opened        |
| 81         | Mypolonga | System     |              |            | Target is online            |
| 92         | Mypolonga | System     |              |            | Target is offline           |
| 30         | Mypolonga | Irrigation | two tank mix | Valve 2.5  | Program valve closed        |
| 21         | Mypolonga | Irrigation | two tank mix |            | End of program cycle '6'    |
| 29         | Mypolonga | Irrigation | two tank mix | Valve 2.5  | Program valve opened        |

Logged events of the last 24 hours

**Navigation**– the two arrow keys next to the home key, when they are green, they can be used for navigating backward and forward through the last visited perspectives.

**The Status bar**– the **Status bar** contains information about the current version of the **CONSOLE**, the currently logged in user and their role in the system, the selected target, its ID and its software version, an Object Tracker and some memory usage information that are mostly for use by the programmers.



### 3. Planning activities

In the following chapter we intend to describe the various planning tools offered by the **CONSOLE**.

By selecting the **Plan** section of the **Main Menu** or the **Pull down menus** all the planning tools can be reached. We shall start by describing the perspective of the **Irrigation programs** planning.

#### 3.1 Planning – Irrigation programs

The **Irrigation programs** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/ Irrigation programs**.


The design of the perspective took into consideration the needs of the users so that they would be able to get as much related information as they may need, without having to jump back and forth between perspectives and yet not to overload the screen with too much information.


The perspective was divided into three mandatory views and the user can decide which views will be displayed and which will be hidden- at the **Upper part** there is the view of the list of programs, in the **middle** there are the details of a selected program, at the **bottom** there are various tabs with complimentary information.

The screenshot displays the 'Dream Console - Irrigation programs - G M Arnold' application. The interface is organized into three main horizontal sections. The top section, titled 'Irrigation programs', contains a table listing various programs such as 'Frost', 'Ramco Rd Irrigation', 'Horse Irrigation', 'Lawn', 'Kumquat Drip', 'House', 'Vegetables', 'Pots', 'Frost Condition below 1 degree', and 'Crowhurst New Trees'. Each row includes details like status (e.g., 'Incomplete', 'Scheduled', 'Finished'), priority, schedule, and cycles. A callout 'List of programs' points to this table. The middle section, titled 'Selected program details view', shows the details for the 'Ramco Rd Irrigation' program, which is highlighted with a yellow background. This section includes a table of water dosage methods and a table of water dosage left. A callout 'Selected program details view' points to this section. The bottom section, titled 'Complimentary information view', contains several tabs for additional data, including 'Water sources', 'Analog sensors', 'Hardware communication', 'Weather station', and 'Fert & water meters'. A callout 'Complimentary information view' points to this section. The interface also features a 'Views layout selection' button in the top right and a 'Programs editing keys' button in the top left. The bottom of the screen shows a Windows taskbar with various application icons and a system clock indicating 11:53 on 11-Nov-15.

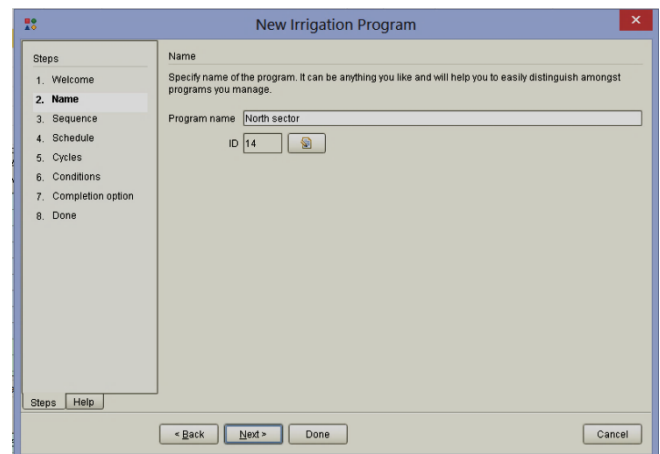
### 3.1.1 Creating a new irrigation program

Creation of new irrigation programs is done by means of a wizard.

To run the wizard, the new program  key has to be clicked.

The wizard is divided into 8 steps that lead the user through the definition process. Some of the steps may be irrelevant to a particular program and can therefore be skipped. At the end the  key has to be clicked.

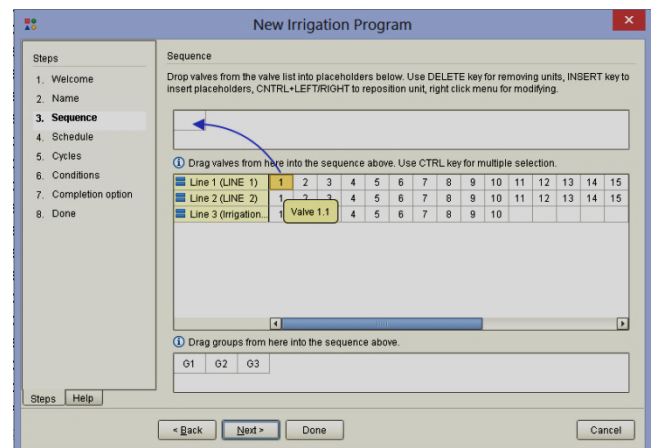
Programs will be identified by a name and by an ID number, both have default values, but can also be defined by the user.



**Defining the sequence** - Each program must have a definition of the sequence of valves included in the program, so step 3 is essential and cannot be skipped.

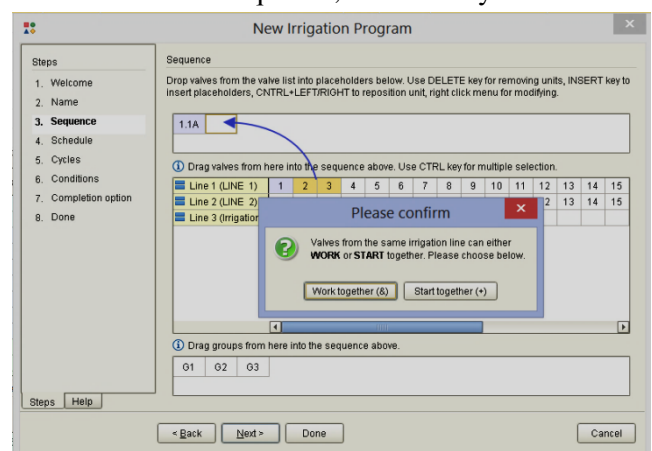
For a single valve to be included in the sequence, the user has to click on the selected valve (it will become yellow) and then it has to be dragged and dropped inside the placeholder as demonstrated at the screenshot to the right.

As a result the valve will be included in the sequence and a new placeholder will be generated. Any valve/valves that will be placed in the new placeholder will irrigate **after** the valve in the first place.



When two (or more) valves of the same line need to be included in the sequence, the **Ctrl** key of the keyboard has to be held down and then the desired valves have to be marked by clicking and then they have to be dragged into the free placeholder.

As a result the user will be asked whether they want the valves to work together (&) as a group with the same water and fertilizer dosage for the whole group, or just start together (+) and each valve will have its own dosage.

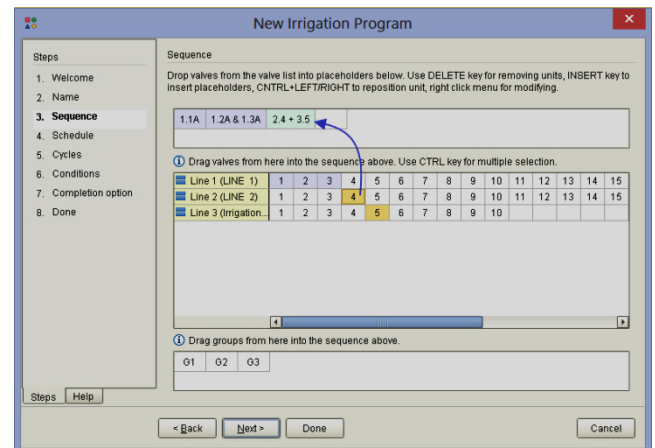




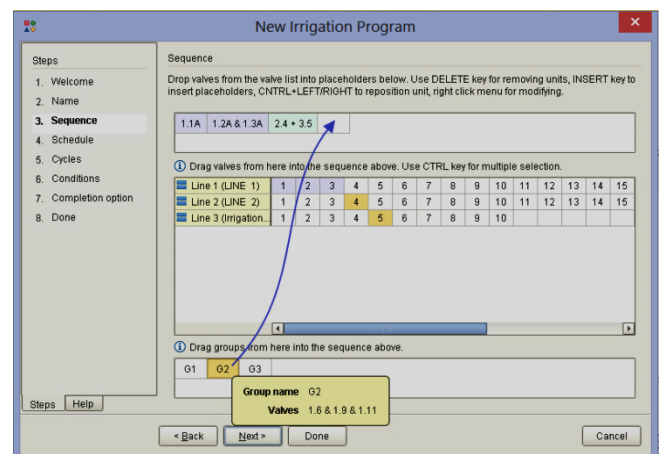
When the valves to be combined are of different Irrigation lines, the only option is to have them start together (+) but with separate water dosage per each valve.

Using of the start together (+) option needs to be enabled at the [Dealers definition](#).

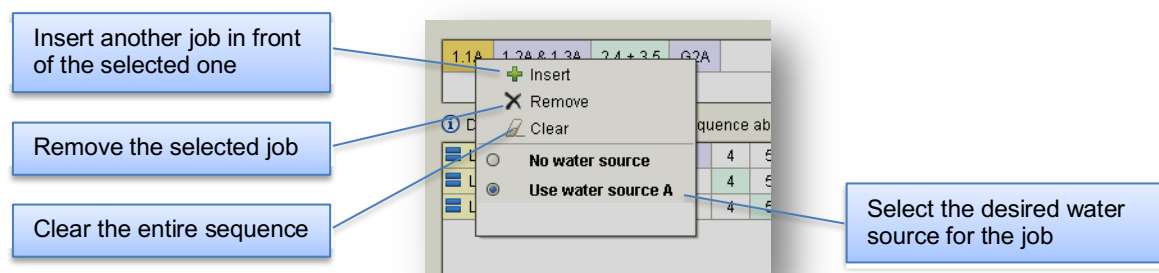
If these valves will have to fertilize from a common fertilizer site, they will need to share a common fertilizer dosage.



Predefined groups can also be included in the sequence the same way as individual valves.

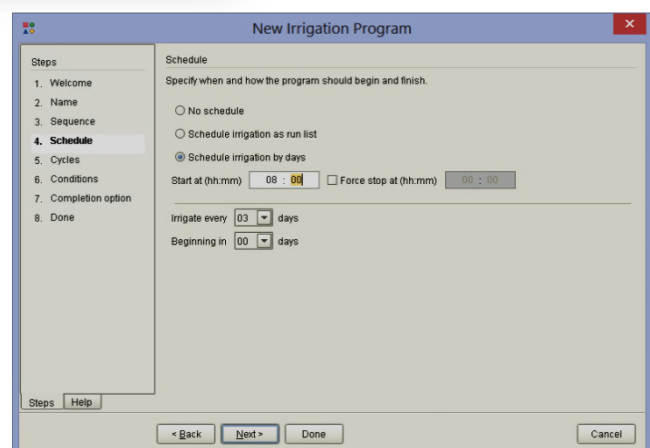


**Additional options with the sequence definition** - notice that at each stage of the sequence editing you can right click on any of the included valves and get the following options:



**Scheduling the program** – there can be two ways to schedule irrigation programs, either by using a **Cycle of days** or by defining a **Run-list**.

If the **Cycle of days** is selected, the user needs to define the number of days he needs the irrigation repeated: 1 means every day, 2 means every second days, etc...



When using the **Run-list option**, each day of the list can be marked as an irrigation day (W), as a fertigation day (F), or left free (-).

**Defining repetition cycles** – If the program has to be repeated several times a day, the number of repetition cycles and the interval between the cycles has to be defined.

As a special case, when **Irrigation by accumulated light** is enabled, the triggering of the next cycle will depend on the accumulated light and the user defined parameters.

**Using conditions** - Programs can be influenced by conditions in four ways:

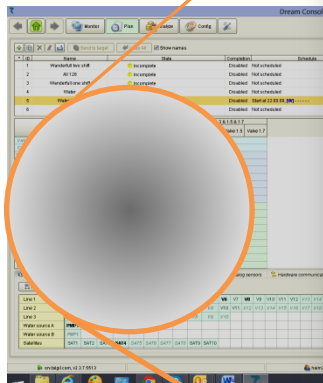
**Started** by condition, **Stopped** by condition, **Enabled** by condition and **Disabled** by condition

The user can define which condition will make the program **start**, or **stop**, or make it **enabled** or **disabled**.

How to define conditions is explained below at the paragraph dealing with **Conditions library**.

**Completion option** – When the completion option is enabled, then at the termination of the last job of the program, the system will make another pass through the jobs of the program trying to complete all those jobs that got some leftovers due to some interruption.

When the **Done** button is clicked the new program will be displayed at the **Selected program view** of the **Irrigation programs** perspective as follows:



| Water & Fert           | 1.2A & 1.4 & 1.6 & 1.8 |           |           |           | 1.1A & 1.3 & 1.5 & 1.7 |           |           |           |
|------------------------|------------------------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|
|                        | Valve 1.2              | Valve 1.4 | Valve 1.6 | Valve 1.8 | Valve 1.1              | Valve 1.3 | Valve 1.5 | Valve 1.7 |
| Valve state            | IRR                    |           |           |           | C                      |           |           |           |
| Current flow (m3/h)    | 100.0                  |           |           |           | 85.714                 |           |           |           |
| Water dosage method    | m3                     |           |           |           | m3                     |           |           |           |
| Water dosage planned   | 345                    |           |           |           | 315                    |           |           |           |
| Water dosage left      | 242                    |           |           |           | 315                    |           |           |           |
| Water dosage calc      | 0                      |           |           |           | 0                      |           |           |           |
| Water before method    | m3                     |           |           |           | m3                     |           |           |           |
| Water before local     | 20                     |           |           |           | 20                     |           |           |           |
| Water after            | 10                     |           |           |           | 10                     |           |           |           |
| [1] Local fert method  | L bulk                 |           |           |           | L bulk                 |           |           |           |
| [1] Local fert planned | 0                      |           |           |           | 850                    |           |           |           |
| [1] Local fert left    | 0                      |           |           |           | 0                      |           |           |           |
| [2] Local fert method  | L bulk                 |           |           |           | L bulk                 |           |           |           |
| [2] Local fert planned | 850                    |           |           |           | 0                      |           |           |           |
| [2] Local fert left    | 0                      |           |           |           | 0                      |           |           |           |
| [3] Local fert method  | None                   |           |           |           | None                   |           |           |           |
| [3] Local fert planned | 0                      |           |           |           | 0                      |           |           |           |
| [3] Local fert left    | 0                      |           |           |           | 0                      |           |           |           |

### 3.1.2 Defining water and fertilizer dosages

The program is created with the default dosage units, double clicking on the currently selected units will enable selection of different dosing units.

| Water & Fert           | 1.2A & 1.4 & 1.6 & 1.8 |           |           |           | 1.1A & 1.3 & 1.5 & 1.7 |           |           |           |
|------------------------|------------------------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|
|                        | Valve 1.2              | Valve 1.4 | Valve 1.6 | Valve 1.8 | Valve 1.1              | Valve 1.3 | Valve 1.5 | Valve 1.7 |
| Valve state            | IRR                    |           |           |           | C                      |           |           |           |
| Current flow (m3/h)    | 100.0                  |           |           |           |                        |           |           |           |
| Water dosage method    | m3                     |           |           |           |                        |           |           |           |
| Water dosage planned   | 345                    |           |           |           | 315                    |           |           |           |
| Water dosage left      | 242                    |           |           |           |                        |           |           |           |
| Water dosage calc      | 0                      |           |           |           |                        |           |           |           |
| Water before method    | m3                     |           |           |           |                        |           |           |           |
| Water before local     | 20                     |           |           |           | 20                     |           |           |           |
| Water after            | 10                     |           |           |           |                        |           |           |           |
| [1] Local fert method  | L bulk                 |           |           |           |                        |           |           |           |
| [1] Local fert planned | 0                      |           |           |           |                        |           |           |           |
| [1] Local fert left    | 0                      |           |           |           |                        |           |           |           |
| [2] Local fert method  | L bulk                 |           |           |           | L bulk                 |           |           |           |
| [2] Local fert planned | 850                    |           |           |           | 0                      |           |           |           |
| [2] Local fert left    | 0                      |           |           |           |                        |           |           |           |
| [3] Local fert method  | None                   |           |           |           |                        |           |           |           |
| [3] Local fert planned | 0                      |           |           |           |                        |           |           |           |
| [3] Local fert left    | 0                      |           |           |           |                        |           |           |           |

Fert 1

Fert 2

Fert 3

None

L/m3

sec/min

mm:ss/m3

L/min

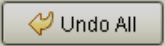
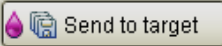
L prop

time

L bulk



**Notice that –**

- When finished defining all the information in the **Irrigation program view** the information has to be transmitted to the target by clicking the key, or if we wish to cancel, we shall click  
- The same view that is used for planning the irrigation program is also used for watching the progress while the program is running.
- The view of the irrigation program shows also the statuses of the included jobs and their last flow rates.
- There are two irrigation modes in which the user does not define a **planned water dosage**, instead there is a **calculated water dosage** which will dictate the amount to be irrigated, these modes are the **Irrigation by volume per area**, and **Irrigation by [Evaporation](#)** (see below).
- When the **Water dosage left** is nonzero the program can be started with left quantities instead of the planned quantities.
- The **VISION 2** system recognizes **Local fertilizer sites** that belong to particular irrigation lines only and **Central fertilizer sites** that may be shared by several irrigation lines. Any site can have up to 6 fertilizer injectors. Views of irrigation programs will change according to the existing fert sites and injectors on the particular irrigation lines.
- In those cases in which the **VISION 2** is planned to fertilize by **EC/pH control**, the irrigation program view will contain additional information related with the **EC/pH control**.

### 3.1.3 Manually starting/stopping and freezing irrigation programs

- When the user wants to manually start a program they first have to click on the program at the List of programs view, the row of the programs gets yellow to indicate that this is the selected program. Now if we click the **Start** key we may get several options depending on the status and the type of the program as demonstrated below:

“Start without fertilizer” appears only when the program contains fertilizers

“Start normally” will start the complete program from the beginning

“Start with lefts” will irrigate only the left quantities

“Start from” will enable starting the sequence from other than the first valve

| ID | Name                           | State             | Completion | Priority | Schedule                                     | Cycles | C | Start normally | Start without fertilizer | Start with lefts | Start from | Interval left | Conditions | Sequence   |
|----|--------------------------------|-------------------|------------|----------|--|--------|---|----------------|--------------------------|------------------|------------|---------------|------------|--|
| 1  | Frost                          | Incomplete        | Disabled   | 9        | Not scheduled                                | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 1.9 > 2.5 > 7.2 > 1.14 > 1.18                        |
| 2  | Ramco Rd Irrigation            | Scheduled today   | Disabled   | 0        | Start at 17:35:00, F F F F F [F] F           | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 1.16 > 1.10 > 1.1 & 1.11 > 1.14 > 1.2 & 1.3 & 1.4 >  |
| 3  | Horse Irrigation               | Scheduled today   | Disabled   | 0        | Start at 17:26:00, daily, begin today        | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 1.7 > 1.8  |
| 4  | Lawn                           | Finished          | Disabled   | 0        | Start at 17:15:00, F F F F F [F] F           | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 2.3 > 2.5 > 2.6 > 2.7 > 2.1 & 2.8 > 2.2 > 2.4        |
| 5  | Kumquat Drip                   | Scheduled         | Disabled   | 0        | Start at 09:08:00, W F - W - [F] F           | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 1.13   |
| 6  | House                          | Scheduled today   | Disabled   | 0        | Start at 17:10:00, daily, begin today        | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 2.14 > 2.10 & 2.13 > 2.9 & 2.15 > 2.11 & 2.12        |
| 7  | Vegetables                     | Scheduled today   | Disabled   | 0        | Start at 18:05:00, daily, begin today        | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 2.13   |
| 8  | Pots                           | Scheduled         | Disabled   | 0        | Start at 12:00:00, daily, begin tomorrow     | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 2.17   |
| 9  | Frost Condition below 1 degree | Ready + condition | Disabled   | 1        | Start by condition, W W W W W [W] W          | 4      | 0 |                |                          |                  |            | 00:48:00      | START      | 7.1 > 7.2  |
| 10 | Crow hurst New Trees           | Scheduled         | Disabled   | 0        | Start at 02:00:00, every 3-rd day, begin tor | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 1.16 > 1.18 > 1.14 > 4.2                             |
| 11 | Home Irrigation                | Scheduled         | Disabled   | 0        | Start  | 0      | 0 |                |                          |                  |            | 00:00:00      |            | 3.1 & 3.2 > 3.3 & 3.4 > 3.9 & 3.10 > 3.5 & 3.6 > 3.7 |

| Lawn                   | Lawn 1   | Lawn 2   | Lawn 3   | East Lawn | Horse Lawn | Front Lawn | Clothes  |
|------------------------|----------|----------|----------|-----------|------------|------------|----------|
| Valve state            | C        | C        | C        | C         | C          | C          | C        |
| Current flow (gpm)     | 0.0      | 0.0      | 0.0      | 0.0       | 0.0        | 0.0        | 0.0      |
| Water dosage method    | hh:mm:ss | hh:mm:ss | hh:mm:ss | hh:mm:ss  | hh:mm:ss   | hh:mm:ss   | hh:mm:ss |
| Water dosage planned   | 00:40:00 | 00:40:00 | 00:45:00 | 01:00:00  | 00:35:00   | 00:50:00   | 00:50:00 |
| Water dosage left      | 00:39:46 | 00:40:00 | 00:45:00 | 01:00:00  | 00:35:00   | 00:50:00   | 00:50:00 |
| Water dosage calc      | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00  | 00:00:00   | 00:00:00   | 00:00:00 |
| Water before local     | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00  | 00:00:00   | 00:00:00   | 00:00:00 |
| Water before special   | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00  | 00:00:00   | 00:00:00   | 00:00:00 |
| Water after            | 00:00:00 | 00:00:00 | 00:00:00 | 00:00:00  | 00:00:00   | 00:00:00   | 00:00:00 |
| [f] Local fert method  | g bulk   | g bulk   | g bulk   | g bulk    | g bulk     | g bulk     | g bulk   |
| [f] Local fert planned | 2        | 2        | 2        | 2         | 2          | 5          | 5        |
| [f] Local fert left    | 2        | 2        | 2        | 2         | 2          | 5          | 5        |

Notice that –

- When the program is already running, we shall be able to stop it manually by the key.
- There is an option to make the program skip to the next valve in the sequence by the key.
- Programs can be commanded to Freeze by the key. The program will be halted until the resume command is issued.

### 3.1.4 Added values of the Irrigation programs perspective

The **Irrigation programs** perspective is not just for planning your irrigation programs; it is a very useful workspace that supplies a lot of information and enables the users to get a good picture about the happenings in his system and enables him to interfere.

**Table 1: Irrigation Programs**

| ID | Name                       | State      | Completion | Priority | Schedule                     | Cycles | Cycles left | Interval | Interval left | Conditions | Sequence   |
|----|----------------------------|------------|------------|----------|------------------------------|--------|-------------|----------|---------------|------------|--|
| 1  | Noble Rd (day)             | Scheduled  | Disabled   | 0        | Start at 07:00:00, F----[-]  | 0      | 0           | 00:00:00 | 00:00:00      |            | 1.1A > 1.2A & 1.3 & 1.4 > 1.5A & 1.6 > 1.7A & 1.9 > 1.8A |
| 3  | Noble Rd (Wednesday night) | Running    | Disabled   | 0        | Start at 22:00:00, ----W[-]  | 0      | 0           | 00:00:00 | 00:00:00      |            | 1.1A & 1.2 & 1.3 & 1.4 > 1.5A & 1.6 > 1.7A & 1.9 > 1.8A  |
| 4  | Arena                      | Incomplete | Disabled   | 0        | Not scheduled                | 0      | 0           | 00:00:00 | 00:00:00      |            | 2.4B   |
| 7  | Pasture + Arena            | Incomplete | Disabled   | 0        | No start time, ---W-[-]      | 0      | 0           | 00:00:00 | 00:00:00      |            | 2.3B > 2.4B  |
| 20 | Virgo Rd (day)             | Scheduled  | Disabled   | 0        | Start at 06:00:00, W----[-]  | 0      | 0           | 00:00:00 | 00:00:00      |            | 2.4B > 2.3B > 2.1B > 2.2B                                |
| 22 | Virgo Rd (Wednesday night) | Running    | Disabled   | 0        | Start at 22:00:00, ----W[-]  | 0      | 0           | 00:00:00 | 00:00:00      |            | 2.3B > 2.1B > 2.2B > 2.4B                                |
| 30 | Noble Rd fert agitation    | Incomplete | Disabled   | 0        | Not scheduled                | 0      | 0           | 00:00:00 | 00:00:00      |            | 3.1  |
| 32 | Program 32                 | Finished   | Disabled   | 0        | Start at 22:00:00, W-W-W-F-H | 0      | 0           | 00:00:00 | 00:00:00      |            | 3.2  |

**Table 2: Virgo Rd (Wednesday night) Details**

| Valve state            | C         | C         | IR        | C         |
|------------------------|-----------|-----------|-----------|-----------|
| Current flow (m3/h)    | 18.947    | 80.0      | 48.0      | 17.142    |
| Water dosage method    | h/m/m/m/s | h/m/m/m/s | h/m/m/m/s | h/m/m/m/s |
| Water dosage planned   | 01:30:00  | 01:30:00  | 01:30:00  | 00:45:00  |
| Water dosage left      | 00:00:00  | 00:00:00  | 00:02:32  | 00:45:00  |
| Water dosage calc      | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00  |
| Water before local     | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00  |
| Water after            | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00  |
| [1] Local fert method  | None      | None      | None      | None      |
| [1] Local fert planned | 0         | 0         | 0         | 0         |
| [1] Local fert left    | 0         | 0         | 0         | 0         |
| [2] Local fert method  | None      | None      | None      | None      |
| [2] Local fert planned | 0         | 0         | 0         | 0         |
| [2] Local fert left    | 0         | 0         | 0         | 0         |

**Table 3: I/O View - Active Outputs**

| Line                | FRT1 | FRT2 | V1   | V2   | V3   | V4 | V5 | V6 | V7 | V8  | V9  | V10 | V11 | V12 | V13 | V14 | V15 | WM  | FM  |
|---------------------|------|------|------|------|------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Line 1              | FRT1 | FRT2 | V1   | V2   | V3   | V4 | V5 | V6 | V7 | V8  | V9  | V10 | V11 | V12 | V13 | V14 | V15 | WM  | FM  |
| Line 2              | FRT1 | FRT2 | V1   | V2   | V3   | V4 | V5 | V6 | V7 | V8  | V9  | V10 | V11 | V12 | V13 | V14 | V15 | WM  | FM  |
| Line 3              | V1   | V2   | V3   | V4   | V5   | V6 | V7 | V8 | V9 | V10 | V11 | V12 | V13 | V14 | V15 | V16 | V17 | V18 | V19 |
| Water source A      | PMP1 |      |      |      |      |    |    |    |    |     |     |     |     |     |     |     |     |     |     |
| Water source B      | PMP1 |      |      |      |      |    |    |    |    |     |     |     |     |     |     |     |     |     |     |
| Satellites          | SAT1 | SAT2 | SAT3 | SAT4 | SAT5 |    |    |    |    |     |     |     |     |     |     |     |     |     |     |
| Indication Contacts | CON1 | CON2 | CON3 | CON4 | CON5 |    |    |    |    |     |     |     |     |     |     |     |     |     |     |

**The I/O view** - when the I/O view is selected the status of the Inputs and Outputs is displayed.

**Table 4: I/O View - Inputs and Outputs**

| Line                | MV   | V1   | V2   | V3   | V4   | V5 | V6 | V7 | V8 | V9 | V10 | V11 | V12 | V13 | V14 | V15 | V16 | V17 | V18 | V19 | V20 | V21 | V22 | V23 | V24 | V25 | WM | FM |
|---------------------|------|------|------|------|------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| Line 1              | MV1  | V1   | V2   | V3   | V4   | V5 | V6 | V7 | V8 | V9 | V10 | V11 | V12 | V13 | V14 | V15 | V16 | V17 | V18 | V19 | V20 | V21 | V22 | V23 | V24 | V25 | WM | FM |
| Line 2              | MV2  | V1   | V2   | V3   | V4   | V5 | V6 | V7 | V8 | V9 | V10 | V11 | V12 | V13 | V14 | V15 | V16 | V17 | V18 | V19 | V20 | V21 | V22 | V23 | V24 | V25 | WM | FM |
| Water source A      |      |      |      |      |      |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| Satellites          | SAT1 | SAT2 | SAT3 | SAT4 | SAT5 |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| Indication Contacts | CON1 | CON2 | CON3 | CON4 | CON5 |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| Alarms              | ALM1 | ALM2 |      |      |      |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| Free water meters   | WM2  | WM3  |      |      |      |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |

The I/O list is arranged in rows, each row dealing with a different irrigation line or a different site. The row begins with the outputs indicated by light green background and ends with the inputs colored by light purple background. Pointing at the I/O device will display its name and status. The type of characters used for displaying the outputs and the inputs and the color of the characters indicate their statuses as follows:

Closed outputs will appear in black-----

V1

Outputs activated by programs will be in **bold black**-----

V2

Manually opened output will be **bold blue**-----

V9

Not connected output will be in italic gray-----

V4

Output with problem will be in **bold red**-----

V3

Water meter with flow or a closed contact input will appear in **bold black** -----

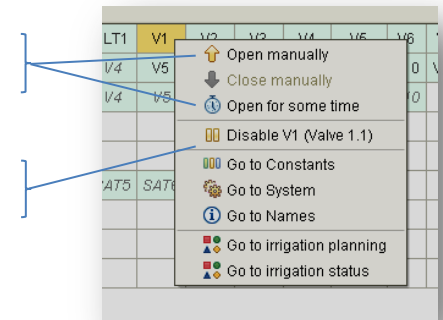
WM

Water meter without flow or open contact input will appear in black -----

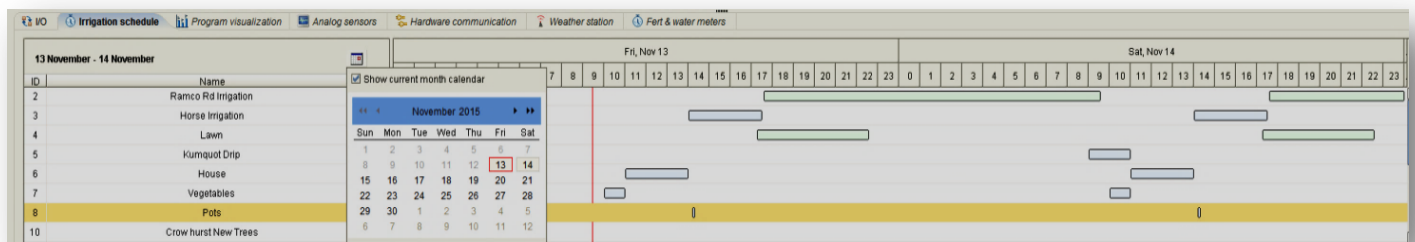
WM3

Right clicking on any output will enable executing manual opening of the output, with/without time limit. Manual opening has lower priority than opening by program.

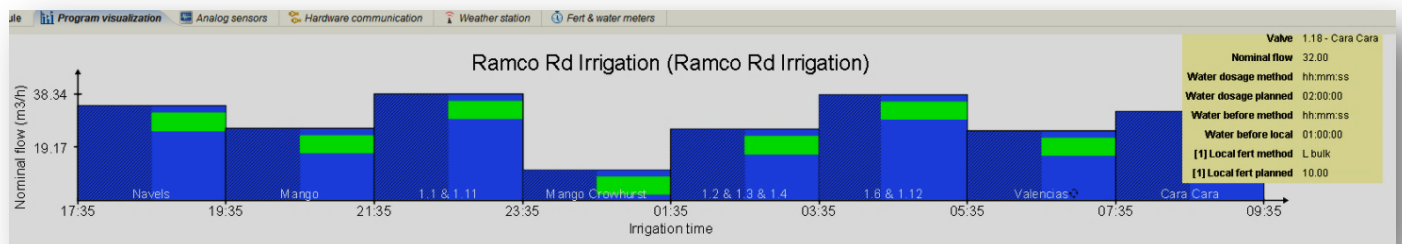
Valves can temporarily be **disabled** so that even if they participate in an irrigation program as individual valves or included in some groups, they will stay closed as long as they remain **disabled**.



**The Irrigation schedule view** – supplies a graphic picture of the expected irrigation timetable, helps designing the irrigation in the most efficient way.



**Program visualization** – supplies a graphic picture of the stages of a particular program



**Water sources view** – supplies information about the activity of the water sources.

| Source | Pump          | State  | Overload          | Alarm | On/Off             | Pressure | Flow   | Total flow | Valves     |
|--------|---------------|--------|-------------------|-------|--------------------|----------|--------|------------|------------|
| A      | 1 (W Pump 1)  | Opened |                   |       |                    |          |        | 0.00       | 1, 4, 3, 4 |
| B      | 2 (W Pump 2)  | Opened |                   |       |                    |          |        | 0.00       |            |
| C      | 1 (W Pump 3)  | Closed | Opened (W Pump 3) |       | Opened (W Pump 3)  |          | 0.00   |            |            |
| D      | 1 (W Pump 4)  | Closed | Opened (W Pump 4) |       | Opened (W Pump 4)  |          | 226.41 |            |            |
| E      | 2 (W Pump 5)  | Closed | Opened (W Pump 5) |       | Opened (W Pump 5)  |          | 226.41 |            |            |
| F      | 1 (W Pump 6)  | Closed | Opened (W Pump 6) |       | Closed (W Pump 6)  |          | 0.00   |            |            |
| G      | 2 (W Pump 7)  | Closed |                   |       | Closed (W Pump 7)  |          | 0.00   |            |            |
| H      | 1 (W Pump 8)  | Closed |                   |       | Opened (W Pump 8)  |          | 209.17 |            |            |
| I      | 2 (W Pump 9)  | Closed |                   |       | Opened (W Pump 9)  |          | 209.17 |            |            |
| J      | 3 (W Pump 10) | Closed |                   |       | Closed (W Pump 10) |          |        |            |            |
| K      | 4 (W Pump 11) | Closed |                   |       | Closed (W Pump 11) |          |        |            |            |



**Analog sensors view** – supplies real time information about all analog sensors.

| Sensor | Name       | Type                 | Current reading |
|--------|------------|----------------------|-----------------|
| 1      | Sensor 1   | Tensiometer          | 16.125 (%)      |
| 2      | Sensor 2   | Temperature          | 18.875 (C)      |
| 3      | Sensor 3   | Tensiometer          | 10.5 (%)        |
| 4      | Sensor 4   | Temperature          | 20.0 (C)        |
| 5      | Sensor 5   | Tensiometer          | 15.375 (%)      |
| 6      | Sensor 6   | Tensiometer          | 20.25 (%)       |
| 7      | Sensor 7   | Unknown              | 0.0 (?)         |
| 8      | Sensor 8   | Unknown              | 0.0 (?)         |
| 9      | Sensor 9   | Unknown              | 0.0 (?)         |
| 10     | Sensor 10  | Unknown              | 0.0 (?)         |
| 11     | Sensor 11  | Unknown              | 0.0 (?)         |
| 12     | Sensor 12  | Unknown              | 0.0 (?)         |
| 13     | Barometer  | Atmospheric pressure | 764.3 (hg mm)   |
| 14     | Temperat.  | Temperature          | 16.6 (C)        |
| 15     | Humidity   | Humidity             | 43.0 (%)        |
| 16     | W. speed   | Wind speed           | 19.0 (km/h)     |
| 17     | W direct   | Wind direction       | 323.0 (grad)    |
| 18     | Radiation  | Radiation            | 274.0 (uv)      |
| 19     | Daily rain | Daily rain           | 0.0 (mm)        |
| 20     | Rain rate  | Rain rate            | 0.0 (index)     |
| 21     | UV radiat. | UV radiation         | 0.0 (med)       |
| 22     | ET         | Evapotranspiration   | 4.5 (mm)        |
| 23     | Dew point  | Dew point            | 4.0 (C)         |

**Hardware communication view** – shows the status of the communication with all the peripheral interfaces.

| Address | Type | Status | List of connected RTU states |
|---------|------|--------|------------------------------|
| 1       | AC   | OK     | N/A                          |

N/A on Vision 2

**Weather Station view** – When a weather station is connected to the **VISION 2** controller, 11 analog values are reported on line to the controller.

| Atmospheric pressure | Temperature | Humidity  | Wind speed  | Wind direction | Radiation  | Daily rain | Rain rate    | UV radiation | Evapotranspiration | Dew point |
|----------------------|-------------|-----------|-------------|----------------|------------|------------|--------------|--------------|--------------------|-----------|
| 765.00 (hg mm)       | 15.70 (C)   | 32.00 (%) | 8.00 (km/h) | 325.00 (grad)  | 21.00 (uv) | 0.00 (mm)  | 0.00 (index) | 0.00 (med)   | 4.70 (mm)          | -1.00 (C) |

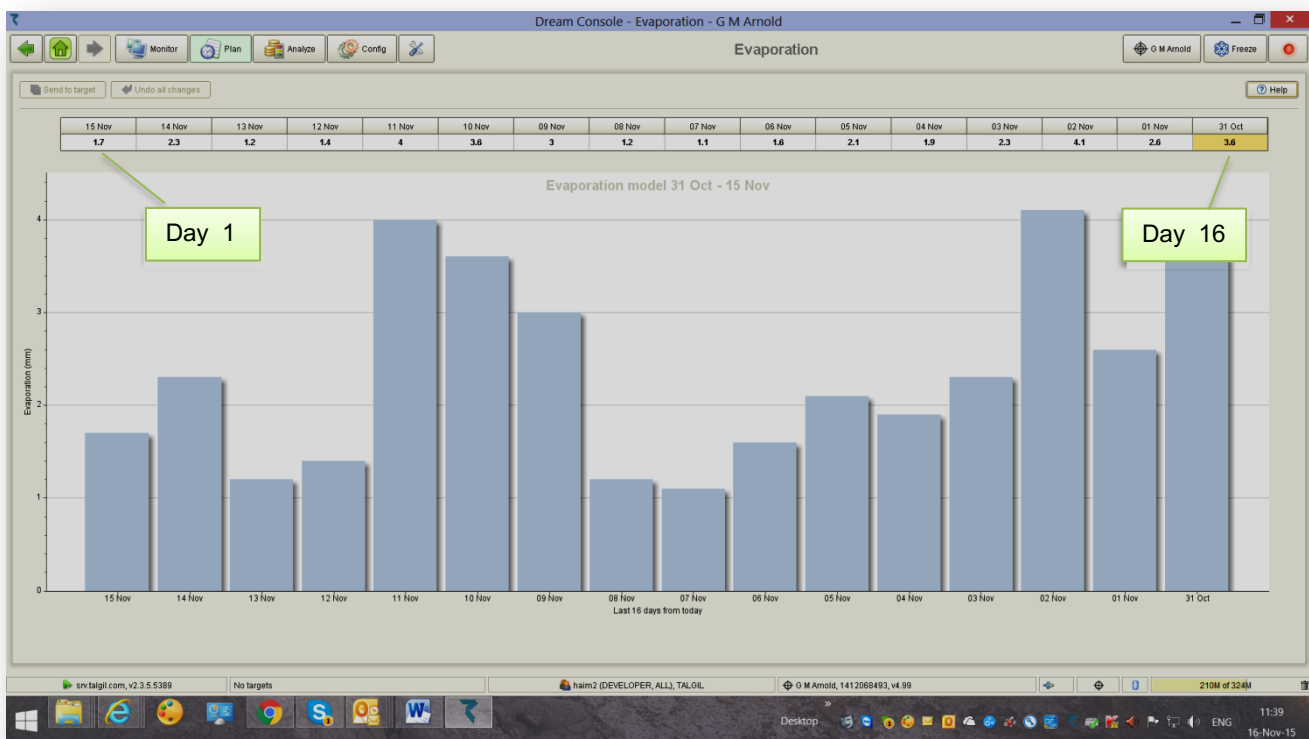
**Water and fertilizer flow view** – shows the flow of all water meters and fertilizer meters, optionally it will show the flow of **free water meters** and **virtual water meters** as well.

| ID  | Name      | Location | m3/h | Site   | Fertilizer | L/h  |
|-----|-----------|----------|------|--------|------------|------|
| WM1 | WM Line 1 | LINE 1   | 2.86 | Line 1 | 1          | 0.00 |
| WM2 | WM Line 2 | LINE 2   | 5.00 | Line 1 | 2          | 0.00 |
| WM3 | WM Line 3 | LINE 3   | 0.00 | Line 2 | 1          | 1.67 |
| WM4 | WM Line 4 | LINE 4   | 0.00 | Line 2 | 2          | 0.00 |
| WM5 | WM Line 5 | LINE 5   | 0.00 | Line 3 | 1          | 0.00 |
|     |           |          |      | Line 3 | 2          | 0.00 |
|     |           |          |      | Line 4 | 1          | 0.00 |
|     |           |          |      | Line 4 | 2          | 0.00 |
|     |           |          |      | Line 5 | 1          | 0.00 |
|     |           |          |      | Line 5 | 2          | 0.00 |

## 3.2 Evaporation

The **Evaporation** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Evaporation**. The subject will be included in the menus only when enabled at **Config/Dealers definitions**.

When Irrigation by **Evaporation** is enabled, instead of the user defining how much water to irrigate, the system will calculate the water dosage based on the **Evaporation** data stored in the controller's memory for the last 16 days.



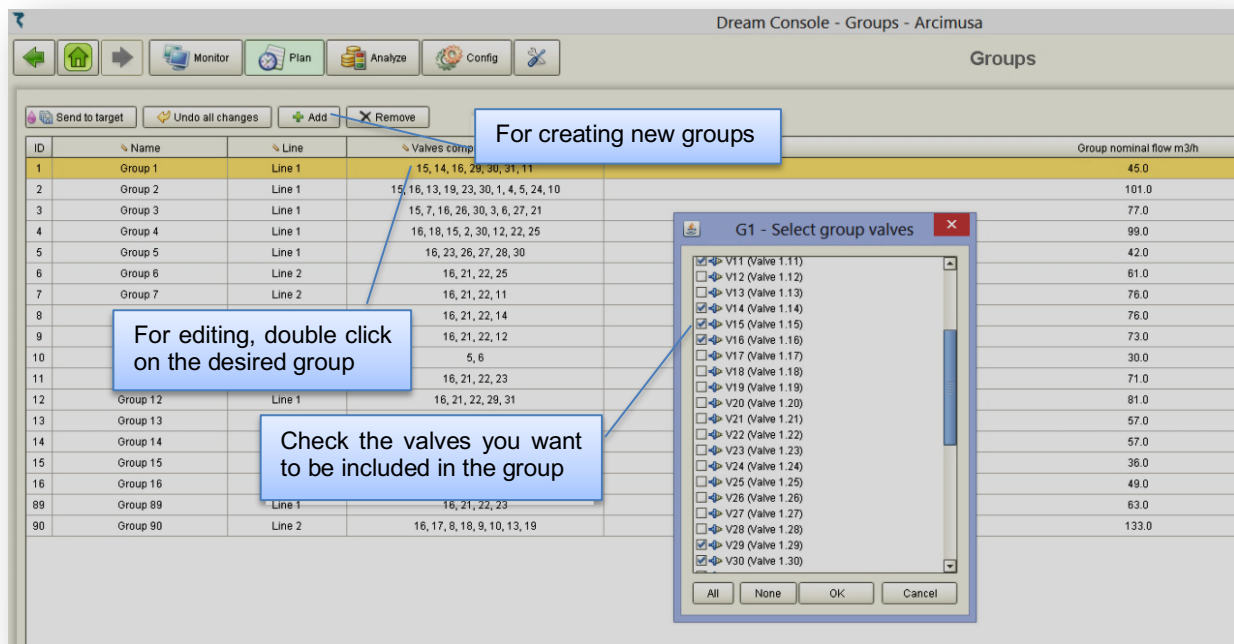
**Notice that –**

- The **Evaporation** per each of the last 16 days can be inserted **manually** by the user, or received automatically from a **Weather station**. Each midnight the information of the **Evaporation table** is shifted in such a way that the information of 16 days ago is overrun by day 15 and that of day 15 is overrun by day 14, etc. The information of day 1 will assumed to be equal to the day before, until updated automatically from the weather station or manually by the user.
- The calculated **Water dosage** takes into consideration the accumulated **Evaporation** since last irrigation, multiplied by the **Area** covered by the valve to be irrigated and multiplied by a **Crop factor** that can be set per each valve.
- If the program contains several cycles, the water dosage per cycle will be calculated by dividing the calculated **Water dosage** by the number of cycles.
- There is an option to have the calculated **Water dosage** converted to time by dividing the calculated **Water dosage** by the nominal flow of the valve to be irrigated.

### 3.3 Planning – Groups

The **Groups** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Groups**. The subject will be included in the **Menus** only when the **Named Groups** were enabled at [Config/Dealers definitions](#).

**Named Groups** are useful when the same groups of valves are used in various programs, then instead of repeating each time all the valves of the group we only select the name of the group and place it in the **Irrigation sequence**.



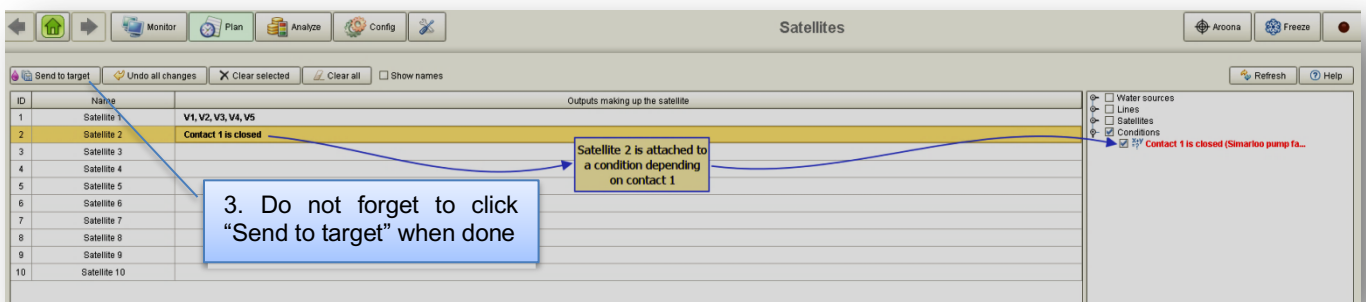
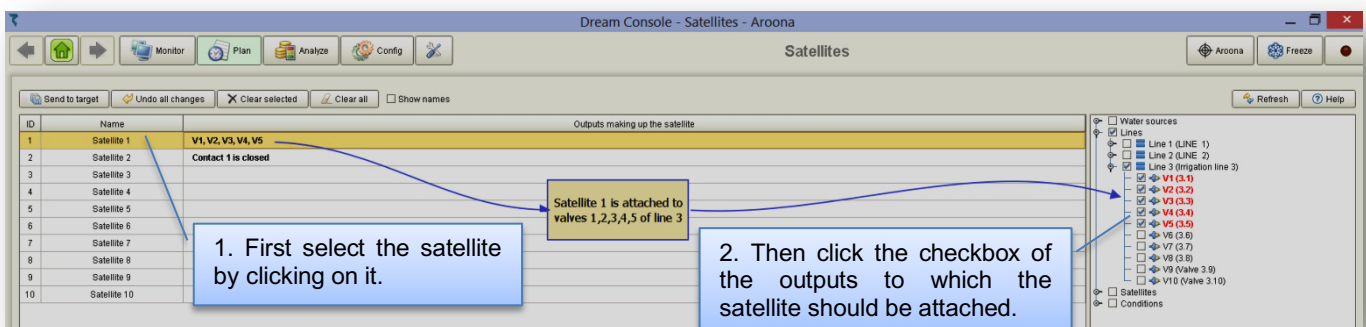
**Notice that –**

- **Groups** may contain valves of the same irrigation line only.
- When a **Group** is included in a program, there will be only one water dosage defined for the whole **Group**, all the valves included will open together and get closed together (unless **Gradual Opening** was selected).
- If for some reason some valves must temporarily be left out and not open together with the other valves of the **Group** they can be disabled (see paragraph 3.1.4 above ([Added values of the Irrigation programs perspective](#))).

### 3.4 Planning – Satellites operation

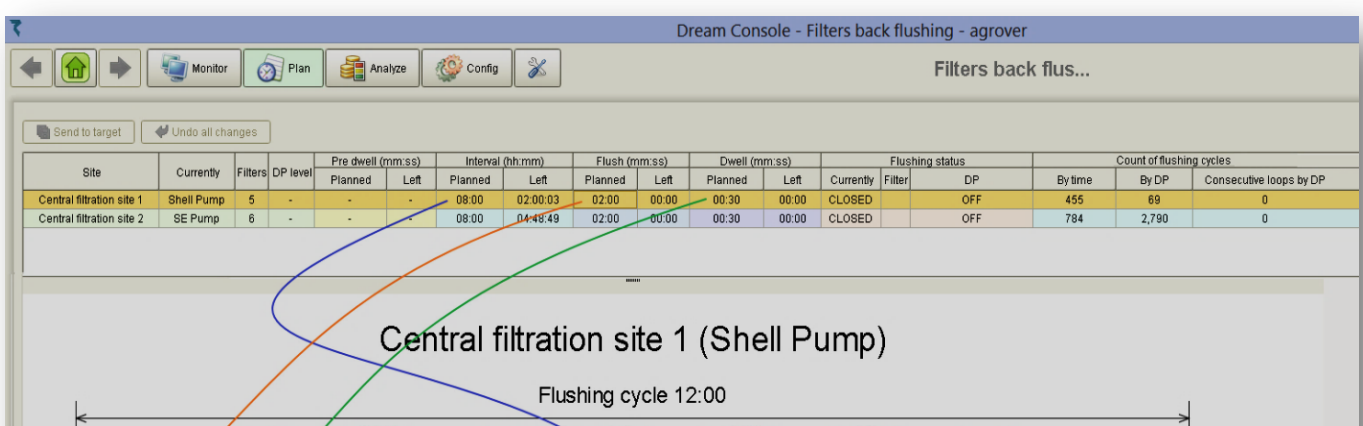
The **Satellites** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Satellites**. The subject will be included in the **Menus** only when the image of the controller contains **Satellites**.

**Satellites** are outputs that can be attached to other outputs in order to work with them together. As long as any of the outputs to which the satellite is attached is open, the **Satellite** will remain open as well. Additionally, **Satellites** can be attached to **conditions** so that as long as the **condition** is true, the **Satellite** will stay open. The following drawings demonstrate how to attach **Satellites** to outputs and to **conditions**.



### 3.5 Planning – Filters backflushing

The **Filters Back-flushing** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Filters Back flushing**. The subject will be included in the **Menus** only when filters are included in the target's image.





Graphic layout of the backflushing program

Notice that –

- The countdown of the **Left interval** to the next flushing cycle stops while there is no irrigation in progress, at the same time the DP status is ignored. That's because **Backflushing** is only needed during irrigation.
- The filter that will be the first to be flushed when a flushing cycle starts, depends on the selection made at the [Config/Dealers definition](#).
- Again at [Config/Dealers definition](#) users may decide whether the DP will be in effect or will be ignored during the line filling delay.
- What will be the status of the irrigation programs while flushing, can be decided while defining the filters constants at [Config/Constants/Filters](#).

### 3.6 Planning – Virtual water meters

The **Virtual water meters** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Virtual water meters**. The subject will be included in the **Menus** only when the image of the controller contains **Virtual water meters**.

**Virtual water meters** are calculated water meters, that are defined by a formula based on real water meters. The **Virtual water meters** can be used for three purposes:

- For measuring the water supplied to an **Irrigation line** for irrigation.
- For measuring the water supplied by a **Water source**.
- For **Network protection**. A **Network protection** meter is supposed to sum up the water meters supplying water into the network and subtract the water meters that are using the water of the network. Under normal conditions the result should be zero, because the water coming in should be equal to the water going out of the network.

3. Third step – define the additional parameters

The screenshot shows the 'Virtual water meters' window with a table of virtual water meters and a 'Formula Editor - Network Protection' dialog box.

| ID | Name               | Function           | Formula   | Protection limit m3 | Object                          | Action | Ratio m3/pulse |
|----|--------------------|--------------------|---|---------------------|---------------------------------|--------|----------------|
| 1  | Irrigation line 1  | Line irrigation    | FVM1 - VM2 - VM3  |                     | Line 1 (Ramco Rd)               |        | 1              |
| 2  | Source A           | Source flow        | FVM2 + FVM3   |                     | Water source A (Water source A) |        | 1              |
| 3  | Source B           | Source flow        | FVM4 + FVM5   |                     | Water source B (Water source B) |        | 1              |
| 4  | Network Protection | Network protection | FVM2 + FVM3 + FVM4 + FVM5 + FVM6 - VM4 - VM5 - VM6 - VM7 - FVM1 | 20                  | Satellite 1 (Satellite 1)       | Close  |                |

The 'Formula Editor - Network Protection' dialog box shows the formula:  $FVM4 + FVM5 + FVM6 - VM4 - VM5 - VM6 - VM7 - FVM1$ . The formula is broken down into a positive part (+) and a negative part (-).

positive part (+):  $FVM4 + FVM5 + FVM6$

negative part (-):  $- VM4 - VM5 - VM6 - VM7 - FVM1$

1. First step – select the function of the virtual meter

2. Second step – define the formula by the Formula editor

**Notice that –**

- The formula consists of **Free water meters (FWMi)** and **Irrigation line water meters (WMI)**, some can be on the positive side of the formula (+) and others on the negative side (-).
- The **Object** column serves different functions for different types of **Virtual water meters**. When the **Virtual water meter** is used for **Irrigation line**, the **Object** column will contain the name of the Irrigation line that uses the **Virtual meter**. In **Source flow** type it will contain the name of the **Water source** using the meter and in **Network protection** type it will contain an output that has to be Closed/ Opened when the **Network protection** event occurs.
- In case of **Network protection** type there are two more parameters to define- the **Protection limit** that defines the volume of water accumulated by the **Virtual water meter** that will indicate a leakage in the network. Remember that under normal conditions the accumulation should stay on zero. The second parameter will define the action, whether to close or to open the selected output.
- In case of **Line Irrigation** type and **Source flow** type virtual meters, the **Ratio** of the **Virtual water meter** has to be defined. Here we actually mean the amount of water calculated by the virtual water meter that will be considered as 1 pulse.

### 3.7 Planning – Conditions

The **Conditions** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Conditions library**. The subject will be included in the **Menus** only when the **Conditions** were enabled at [Config/Dealers definitions](#).

**Conditions** can be set for identifying various types of events in the system. When a condition becomes true it may influence the operation of **Irrigation programs** or **Satellites**. An **Irrigation program** may **Start/ Stop/ be Enabled/ be Disabled** by conditions. A **Satellite** attached to a **Condition** will remain activated as long as the **Condition** remains true.

9. Conditions can be requested to send notification when becoming true

10. Send

7. Define how long the condition has to be true before considered as such

3. Select the item the condition refers to

| ID | Name                      | Enabled | State | Duration mm:ss | Condition is TRUE when       | From hh:mm | Until hh:mm | Notification | Used by program             |
|----|---------------------------|---------|-------|----------------|------------------------------|------------|-------------|--------------|-----------------------------|
| 1  | Start Cooling Temperature | Yes     | FALSE | 00:00          | Sensor 2 value is above 24.0 | 09:00      | 15:00       | Yes          | Cooling (START)             |
| 2  | Stop Cooling Temperature  | Yes     | FALSE | 00:00          | Sensor 2 value is below 23.0 | 16:00      | 21:00       | No           | Cooling (STOP)              |
| 3  | Frost start               | Yes     | FALSE | 00:00          | Sensor 2 value is below 1.0  | 03:00      | 06:00       | Yes          | Frost Condition below 1 ... |
| 4  | Condition 4               | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 5  | Condition 5               | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 6  | Condition 6               | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 7  | Condition 7               | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 8  | Condition 8               | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 9  | Condition 9               | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 10 | Condition 10              | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 11 | Condition 11              | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 12 | Condition 12              | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |
| 13 | Condition 13              | No      |       | 00:00          |                              | 00:00      | 00:00       | No           |                             |

Condition Editor - COND4

When: Water meter flow is higher than

Water meter: WM1 (WM Line 1)

Flow: [ ]

Apply changes

Program is running  
Program not running  
Program is starting  
Program is ending  
Contact is opened  
Contact is closed  
Contact is opening  
Contact is closing  
Satellite is opened  
Satellite is closed  
Satellite is opening  
Satellite is closing

1. Select the condition you wish to edit

6. Enable the condition

8. Conditions can be limited within a time-zone

4. Define the set-point

5. Confirm

2. Select the type of the condition

#### Notice that –

- It is very helpful to give the **Condition** a descriptive name that describes its function.
- **Conditions** that are not enabled will not be able to influence the operations of the programs or the satellites attached to them.
- **Conditions** can be combined by a **logic expression** in order to create a **Combined condition** for example the expression  $(1+2)\&(3+4)$  means that the **Combined condition** will be true when either condition 1 or 2 are true and at the same time condition 3 or 4 must also be true. So the symbol (+) means logical “or” and the symbol (&) means logical “and”.
- In order for receiving a notification when the condition becomes true, the appropriate checkbox at the notifications list must be checked. You can read about notifications at paragraph [6.1 - Configure Preferences - Notifications](#) below.

### 3.8 Planning – Water sources

The **Water sources** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Water sources**. The subject will be included in the **Menus** only when the image of the controller contains **Water sources**.

When the **Water sources** contain several water pumps the **Water sources** can be set to work in three different modes:

- **In static mode** – the same combination of pumps will be activated each time.
- **By Actual Flow** – The combination of pumps that will be activated depends on the **Actual flow** of the valves that are irrigating from the water source at any moment. During the line filling time of the valves the **Nominal flow** will be considered.
- **By Nominal flow** – The combination of pumps that will be activated depends on the **Nominal flow** of the valves that are irrigating from the water source at any moment.



In the following example **Water source A** is set to work in the **Static mode** and Water source B by **Actual Flow**.

**Water sources**

1. Select the water source you want to deal with

2. Select the operation mode for the water source

3. Set the desired static combination of pumps

4. Optional

5. Optional

**Water source A - Static**

The combination of pumps that will be activated is independent from the flow demand. Specify below which pumps should be working.

Delay between flow levels (mm:ss) 00 : 00

|                                     | 1                                   | 2 |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |

**Water sources**

1. Select the water source you want to deal with

2. Select the operation mode for the water source

3. Mark the pumps enabled for use

4. Define the dynamic combination of pumps per each flow level

5. Optional

6. Optional

**Water source B - FLOW**

The combination of pumps that will be activated depends on actual flow demand. During the line filling period the nominal flow will be used instead of the actual.

Delay between flow levels (mm:ss) 00 : 00

Map of water pumps per flow limits:

| Flow m3/h        | 1                                   | 2                                   | 3                                   |
|------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Enabled/Disabled | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 100              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 150              | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 200              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 350              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 0                |                                     |                                     |                                     |
| 0                |                                     |                                     |                                     |

**Notice that –**

- Optionally a **Delay** can be defined that in **Static mode** it becomes effective when the water source shuts down and in the other modes the **Delay** will be in effect each time that the combination of valves must change due to change in the flow.
- Optionally a **Flow limit** can be set per each water source that defines the maximal flow that can be obtained from that source. If a program needs to be started, but the flow demand of the valve to be opened added to the flow of the valves already running under that **Water source**, exceeds the limit, it will cause the program to wait.

### 3.9 Planning – Rain Delay

The **Rain Delay** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/Rain Delay**. The subject will be included in the **Menus** only when enabled at [Config/Dealers definitions](#).

The **Rain Delay** is meant to delay irrigation programs when the amount of the daily accumulated rain reaches the user defined limit. The Programs affected by the **Rain Delay** will be those with priority less than **5**.

The amount of rain fall that when reached will activate the delay

The number of days the delay will last

The number of days still left to delay

| Rain delay Frost protection |               |   |
|-----------------------------|---------------|---|
| Parameter name              | Current setup | Description and details   |
| Rain limit                  | 9             | Rain level in mm or inches that will trigger rain delay               |
| Days of rain delay          | 3             | Number of days to delay irrigation due rain                           |
| Rain delay left             | 1             | Left days of rain delay   |
| Rain delay status           | ON            | Current state of rain delay, ON or OFF                                |
| Measured daily rain         | 0.0           | Amount of rain measured by the rain sensor during current day         |
| Total rain delay days       | 0             | Total number of days with activated rain delay                        |
| Rain contact                |               | The contact that will trigger rain delay when the contact gets closed |

#### Notice that –

- When the **Rain Delay left** is manually set to a nonzero value, it will cause the rain delay to be started right away.

### 3.10 Planning – Frost protection

The **Frost protection** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/ Frost protection**. The subject will be included in the **Menus** only when enabled at [Config/ Dealers definitions](#).

The **Frost protection** algorithm is taking into consideration the **Dew point** for calculating at which temperature the frost protection program should be started in order not to let the crop temperature drop to the **Critical temperature** defined by the user. The **Dew point** is calculated based on the ambient **temperature** and **humidity**. When the **Frost protection** program is activated, all irrigation programs with priority lower than **6** will be halted.

| Rain delay Frost protection     |               |  |
|---------------------------------|---------------|--|
| Parameter name                  | Current setup | Description and details  |
| Critical temperature            | -2 degrees C  | The temperature that may harm the crop and must not be reached                   |
| Temp raise for stopping         | 2             | Raise of temperature above starting point required for stopping frost protection |
| Frost program number            | 10            | The program to be activated for frost prevention                                 |
| Frost protection status         | Off           | Current state of frost protection, ON or OFF                                     |
| Starting protection temperature | 0.0           | The temperature at which the frost protection will start                         |
| Current temperature             | 0.0           | Current temperature, applicable only when there is temperature sensor            |
| Current dew point               | 0.0           | Current dew point, calculated at the weather station or THD                      |

The Critical temperature that must not be reached

The frost protection will stop when the temperature rises above the critical temp by this value

The program number to be activated when the frost protection will start

### 3.11 Planning – Radiation sets

The **Radiation sets** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/ Radiation sets**. The subject will be included in the **Menus** only when enabled at [Config/ Dealers definitions](#).

The **Radiation sets** are used when defining the parameters needed for triggering irrigation cycles by accumulated light. This irrigation method is based on repeated cycles that are triggered by the accumulated light. Instead of the user defining the number of cycles and the interval between cycles he defines a threshold of accumulated light that whenever reached, an irrigation cycle is triggered. Additionally the user may define the minimal and maximal interval between the cycles as a protection against light sensor failures. For the sake of flexibility, the 24 hours of the day can be divided into three parts and each part may have its own definition of threshold and minimal/maximal intervals.

Dream Console - R

Monitor Plan Analyze Config

Radiation sets Freeze

Send to target Undo all changes Clear selected set Help

| ID | Using sensor    | Coefficient | Valid from | Valid Until | Accumulated radiation threshold | Min interval (hh:mm) | Max interval (hh:mm) | Used by      |
|----|-----------------|-------------|------------|-------------|---------------------------------|----------------------|----------------------|--------------|
| 1  | AS6 (Radiation) | 1           | 00:01      | 05:59       | 125                             | 01:00                | 02:30                | Program - 24 |
|    |                 |             | 05:59      | 15:59       | 80                              | 00:30                | 00:45                |              |
|    |                 |             | 15:59      | 23:59       | 50                              | 02:00                | 03:00                |              |

The radiation sensor to refer to

The coefficient to be used with the sensor

The periods dividing the 24 hours

Accumulated radiation threshold

The minimal and maximal intervals

The programs using the radiation set

**Notice that –**

- The same **Radiation sensor** can be used by several **Radiation sets**. The **Coefficient** defines in % the part of the sensor's reading taken into consideration by the particular **Radiation set**. **Coefficient** = 0 means disabled set.
- The same **Radiation set** can be used by several irrigation programs.

### 3.12 Planning – Global fertilizer limits

The **Global fertilizer limits** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/ Global fert limits**. The subject will be included in the **Menus** only when enabled at the local MMI of the target, entering **Setup/ Dealers Definitions**.

The purpose of the **Global fert limit** is to define the total amount of fertilizer of each type to be supplied to the valve per season. Each amount injected will be deducted from the global limit until no more is left and then the injection of that fertilizer will be blocked for that valve.

Dream Console - Global fert limits

Monitor Plan Analyze Config

Global fert limits Freeze

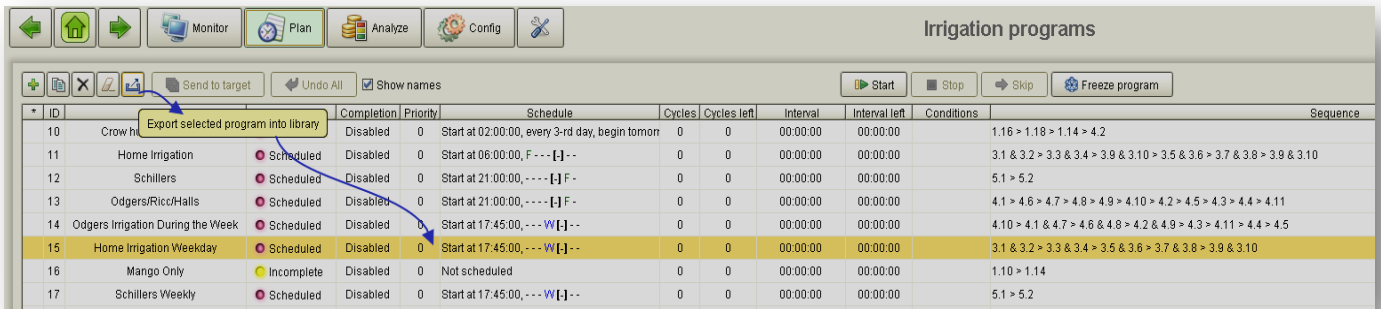
Send to target Undo all changes Help

| Line | Valve     | Name        | Date | Note | Local fertilization (L) |     |     |     |   |   | Central fertilization (L) |
|------|-----------|-------------|------|------|-------------------------|-----|-----|-----|---|---|---------------------------|
|      |           |             |      |      | 1                       | 2   | 3   | 4   | 5 | 6 | 1                         |
| 1    | A 1-4     | Dec 1, 2015 |      |      | 115                     | 105 | 105 | 210 | 0 | 0 | 120                       |
| 2    | Valve 1.2 | Dec 1, 2015 |      |      | 120                     | 115 | 115 | 230 | 0 | 0 | 160                       |
| 3    | Valve 1.3 | Dec 1, 2015 |      |      | 120                     | 115 | 120 | 240 | 0 | 0 | 160                       |
| 4    | Valve 1.4 | Dec 1, 2015 |      |      | 210                     | 180 | 190 | 380 | 0 | 0 | 260                       |
| 5    | Valve 1.5 | Dec 1, 2015 |      |      | 150                     | 130 | 120 | 240 | 0 | 0 | 180                       |
| 6    | Valve 1.6 | Dec 1, 2015 |      |      | 125                     | 115 | 110 | 220 | 0 | 0 | 140                       |
| 7    | Valve 1.7 | Dec 1, 2015 |      |      | 110                     | 100 | 90  | 180 | 0 | 0 | 130                       |

### 3.13 Program library

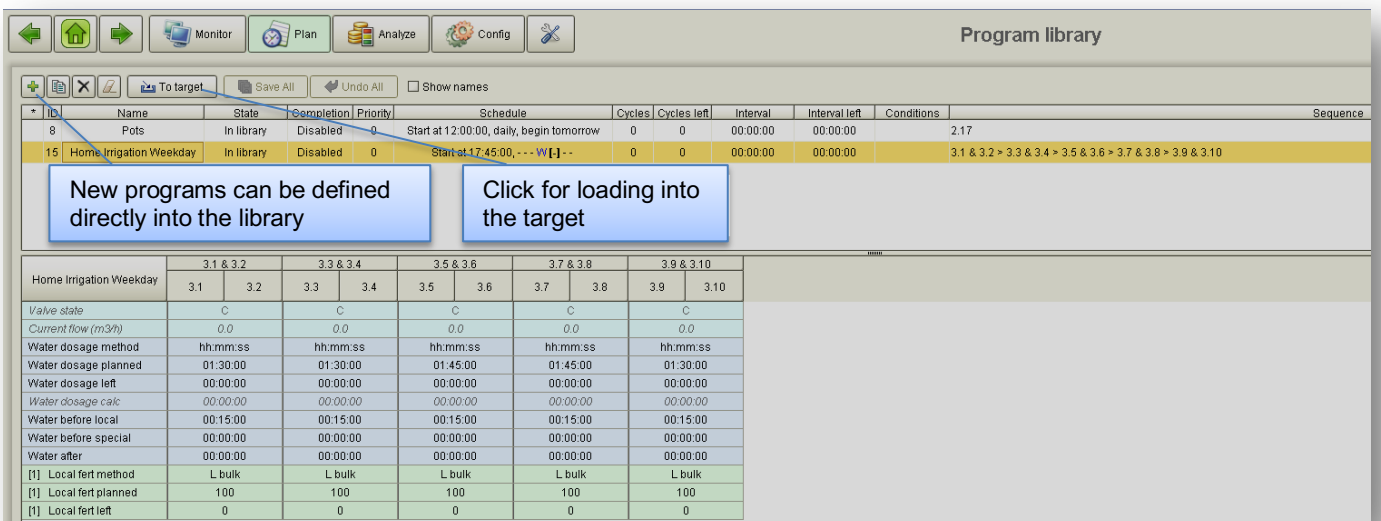
The **Program library** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/ Program library**.

The **Program library** enables storing selected programs for later use. Being at **Plan/ Irrigation programs** perspective, the user can export a selected program to the library as demonstrated below.



| ID | Name                              | State      | Completion | Priority | Schedule  | Cycles | Cycles left | Interval | Interval left | Conditions  | Sequence |
|----|-----------------------------------|------------|------------|----------|---|--------|-------------|----------|---------------|---|----------|
| 10 | Crow h                            | Disabled   | 0          | 0        | Start at 02:00:00, every 3-rd day, begin tomorrow | 0      | 0           | 00:00:00 | 00:00:00      | 1.16 > 1.18 > 1.14 > 4.2  |          |
| 11 | Home Irrigation                   | Scheduled  | Disabled   | 0        | Start at 06:00:00, F---[ ]--                      | 0      | 0           | 00:00:00 | 00:00:00      | 3.1 & 3.2 > 3.3 & 3.4 > 3.9 & 3.10 > 3.5 & 3.6 > 3.7 & 3.8 > 3.9 & 3.10 |          |
| 12 | Schillers                         | Scheduled  | Disabled   | 0        | Start at 21:00:00, ----[ ]F-                      | 0      | 0           | 00:00:00 | 00:00:00      | 5.1 > 5.2   |          |
| 13 | Odgers/Rict/Halls                 | Scheduled  | Disabled   | 0        | Start at 21:00:00, ----[ ]F-                      | 0      | 0           | 00:00:00 | 00:00:00      | 4.1 > 4.6 > 4.7 > 4.8 > 4.9 > 4.10 > 4.2 > 4.5 > 4.3 > 4.4 > 4.11       |          |
| 14 | Odgers Irrigation During the Week | Scheduled  | Disabled   | 0        | Start at 17:45:00, ---W[ ]--                      | 0      | 0           | 00:00:00 | 00:00:00      | 4.10 > 4.1 & 4.7 > 4.6 & 4.8 > 4.2 & 4.9 > 4.3 > 4.11 > 4.4 > 4.5       |          |
| 15 | Home Irrigation Weekday           | Scheduled  | Disabled   | 0        | Start at 17:45:00, ---W[ ]--                      | 0      | 0           | 00:00:00 | 00:00:00      | 3.1 & 3.2 > 3.3 & 3.4 > 3.5 & 3.6 > 3.7 & 3.8 > 3.9 & 3.10              |          |
| 16 | Mango Only                        | Incomplete | Disabled   | 0        | Not scheduled                                     | 0      | 0           | 00:00:00 | 00:00:00      | 1.10 > 1.14   |          |
| 17 | Schillers Weekly                  | Scheduled  | Disabled   | 0        | Start at 17:45:00, ---W[ ]--                      | 0      | 0           | 00:00:00 | 00:00:00      | 5.1 > 5.2   |          |

The exported program will be stored at the **Program library** from where it can be loaded into the target when desired. The **Program library** storage folder resides at the PC where the **CONSOLE** is running.



| ID | Name                    | State      | Completion | Priority | Schedule                                 | Cycles | Cycles left | Interval | Interval left | Conditions   | Sequence |
|----|-------------------------|------------|------------|----------|--|--------|-------------|----------|---------------|--|----------|
| 8  | Pots                    | In library | Disabled   | 0        | Start at 12:00:00, daily, begin tomorrow | 0      | 0           | 00:00:00 | 00:00:00      | 2.17   |          |
| 15 | Home Irrigation Weekday | In library | Disabled   | 0        | Start at 17:45:00, ---W[ ]--             | 0      | 0           | 00:00:00 | 00:00:00      | 3.1 & 3.2 > 3.3 & 3.4 > 3.5 & 3.6 > 3.7 & 3.8 > 3.9 & 3.10 |          |

| Home Irrigation Weekday | 3.1 & 3.2 | 3.3 & 3.4 | 3.5 & 3.6 | 3.7 & 3.8 | 3.9 & 3.10 |
|-------------------------|-----------|-----------|-----------|-----------|------------|
| Valve state             | C         | C         | C         | C         | C          |
| Current flow (m3/h)     | 0.0       | 0.0       | 0.0       | 0.0       | 0.0        |
| Water dosage method     | hh:mm:ss  | hh:mm:ss  | hh:mm:ss  | hh:mm:ss  | hh:mm:ss   |
| Water dosage planned    | 01:30:00  | 01:30:00  | 01:45:00  | 01:45:00  | 01:30:00   |
| Water dosage left       | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00   |
| Water dosage calc       | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00   |
| Water before local      | 00:15:00  | 00:15:00  | 00:15:00  | 00:15:00  | 00:15:00   |
| Water before special    | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00   |
| Water after             | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00  | 00:00:00   |
| [1] Local fert method   | L bulk    | L bulk    | L bulk    | L bulk    | L bulk     |
| [1] Local fert planned  | 100       | 100       | 100       | 100       | 100        |
| [1] Local fert left     | 0         | 0         | 0         | 0         | 0          |

**Notice that –**

- Programs in the library can be edited the same way as regular irrigation programs.



### 3.14 Planning – Fertilization sets

The **Fertilization sets** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/ Fertilization sets**. The subject will be included in the **Menus** only when enabled at the local MMI of the target, entering **Setup/ Dealers Definitions**.

Fertilization sets are predefined combinations of fertilizer dosages stored in a library. Instead of redefining frequently used combinations, each time they need to be used, the user can simply point out which fertilization set to use.

| ID | Name  | Target EC | Target pH | Fertilizer | Dosage mode | Dosage value |
|----|-------|-----------|-----------|------------|-------------|--------------|
| 1  | set 1 | N/A       | N/A       | 1          | L/m3        | 0.25         |
| 2  | set 1 | N/A       | N/A       | 2          | L/m3        | 0.3          |
| 3  | set 1 | N/A       | N/A       | 3          | L prop      | 20           |
| 4  | set 1 | N/A       | N/A       | 4          | L prop      | 22           |
| 5  | set 1 | N/A       | N/A       | 5          | None        | 0            |
| 6  | set 1 | N/A       | N/A       | 6          | None        | 0            |
| 1  | set 2 | N/A       | N/A       | 1          | L/m3        | 1            |
| 2  | set 2 | N/A       | N/A       | 2          | None        | 0            |
| 3  | set 2 | N/A       | N/A       | 3          | None        | 0            |
| 4  | set 2 | N/A       | N/A       | 4          | L/m3        | 0.8          |
| 5  | set 2 | N/A       | N/A       | 5          | None        | 0            |
| 6  | set 2 | N/A       | N/A       | 6          | None        | 0            |
| 1  | set 3 | N/A       | N/A       | 1          | None        | 0            |
| 2  | set 3 | N/A       | N/A       | 2          | None        | 0            |
| 3  | set 3 | N/A       | N/A       | 3          | None        | 0            |
| 4  | set 3 | N/A       | N/A       | 4          | None        | 0            |

**Notice that –**

- Each fertilizer site can have 9 sets stored in the library. Each set will include combinations of dosages of the fertilizers included in the specific site.
- When the fertilizer site includes pH and EC control, the fertilizer sets may include set-points of the desired pH and EC levels.

### 3.15 Alarms

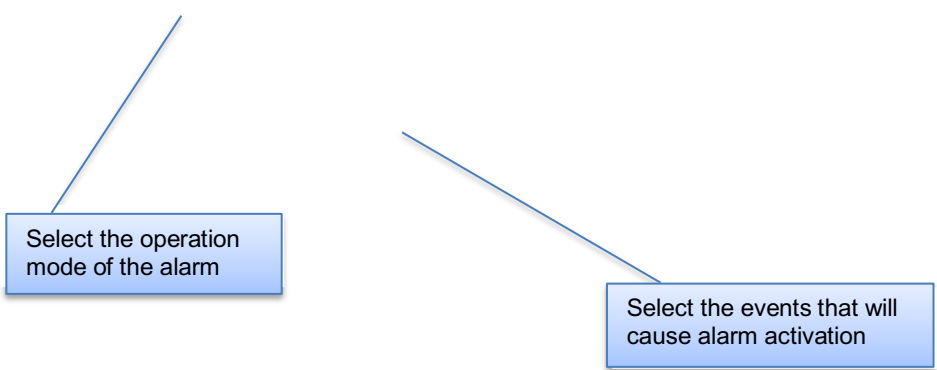
The **Alarms** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Plan/ Alarms**. The subject will be included in the **Menus** only when the image of the controller contains **Alarm outputs**.

When allocated in the target's image **Alarm outputs** can be set to be activated in various **Alarm cases**.

| ID | Name    | Mode of operation | Possible alarm   |
|----|---------|-------------------|--|
| 1  | Alarm 1 | Continuous        | No power, IO communication error, SHORT Circuit, RTU communication error |
| 2  | Alarm 2 | Continuous        |  |
| 3  | Alarm 3 | Periodic          |  |
| 4  | Alarm 4 | Continuous        |  |
| 5  | Alarm 5 | Continuous        |  |

**Possible alarm causes**

- ☒ No power
- ☒ IO communication error
- ☒ Short circuit
- ☒ RTU communication error
- ☐ No pressure
- ☐ Water leakage
- ☐ Fertilizer leakage
- ☐ Filter looping
- ☐ No fertilizer flow
- ☐ Water high flow
- ☐ Water low flow
- ☐ Pump failure



Select the operation  
mode of the alarm

Select the events that will  
cause alarm activation

## 4. Monitoring activities

The following chapter deals with the **Monitoring tools** supplied by the System.

### 4.1 Monitoring – Irrigation status

The **Irrigation status** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Monitor/ Irrigation status**.

The **Irrigation status** perspective is meant to supply the user the most relevant information about the ongoing activities in his system. The perspective operates in context of multiple targets – the current status of the **Active programs** in all the targets which belong to the user's projects will be displayed.

The perspective is divided into several views and the user can decide which views will be displayed and which will be hidden - at the **top left** there is the **Main view** that shows the **Active programs**, in the **top right** the view of **Flow rates** of all water meters and fertilizer meters, at the **bottom right** the view of the **Outstanding system alarms** and at the **bottom left** the view with **Complimentary information**.

Apart from the **Main view** with the **Active programs**, the contents of the other views are context sensitive. The context can be of the **selected target** or the **selected irrigation line**.

The screenshot shows the 'Irrigation status' window in the Dream Console. The interface is divided into several panels:

- Top Left (Main view):** A table showing active programs for different targets. Annotations include 'Selected controller context' pointing to the 'Target' column and 'Type of context' pointing to the 'State' column.
- Top Right (Flow rates view):** A panel showing flow rates for water meters and fertilizer meters. An annotation 'Selected target' points to the 'EdenSprings' target selector.
- Bottom Left (Complimentary information view):** A panel showing various system parameters like line status, fertilization sites, and alarms. An annotation 'Complimentary information view' points to this panel.
- Bottom Right (Existing alarms view):** A panel showing outstanding system alarms. An annotation 'Existing alarms view' points to this panel.
- Bottom Center:** A panel with tabs for 'IO - EdenSprings', 'Other programs', 'Filters', and 'Hardware communication'. An annotation 'Tabs of complimentary information' points to these tabs.

The main table in the top left has the following data:

| Target          | Program        | State                 | Valve   | State | Flow m <sup>3</sup> /h | Cur    | Nom      | Left | Local fertilization | Central fertilization |
|-----------------|----------------|-----------------------|---------|-------|------------------------|--------|----------|------|---------------------|-----------------------|
| EdenSpr...      | 3-12hr         | Running with problems | Orou... | IRR   | 0.0                    | 30.00  | 03:07:09 |      | 0.00                | 0.00                  |
| 50 - Program 50 |                | Waiting               |         |       |                        |        |          |      |                     |                       |
| Belgersdorf     | 50 - Tank Fill | Running               | 2.1 &   | IRR   | 0.0                    | 600.00 | 01:26:57 |      | 0.00                | 0.00                  |

**The Active programs view** – supplies information about the **Active programs** with the currently running jobs in all the targets that the user has access to.

Per each active program the following information is supplied:

The screenshot shows the 'Active programs view' interface. At the top, there are navigation buttons: Monitor, Plan, Analyze, and Config. Below these, a breadcrumb trail reads 'G125A > G126A > G127A > G128A > G129A'. The main table has columns for Target, Program, State, Valve, State, Flow m³/h (Cur, Nom, Left), Local fertilization (Flow, Left), and Central fertilization (Flow, Left for three different lines). Blue arrows point to specific columns with labels: 'Name of the target' points to the Target column, 'Name of the program' points to the Program column, 'Status of the program' points to the State column, 'The running job' points to the Valve column, 'Status of the job' points to the State column, 'Current flow' points to the Cur flow column, 'Nominal flow' points to the Nom flow column, 'Left time/volume' points to the Left flow column, 'Local fert flow & left fert' points to the Local fertilization columns, and 'Central fert flow & left fert' points to the Central fertilization columns.

| Target         | Program             | State   | Valve     | State | Flow m³/h |         |          | Local fertilization |           | Central fertilization |      |      |      |      |      |
|----------------|---------------------|---------|-----------|-------|-----------|---------|----------|---------------------|-----------|-----------------------|------|------|------|------|------|
|                |                     |         |           |       | Cur       | Nom     | Left     | Flow                | Left      | Flow                  | Left | Flow | Left | Flow | Left |
| Jubilee Alm... | 9 - Replant 201...  | Running | Replant 1 | IRR   | 411.68    | 424.99  | 02:36:58 | 0.0                 | 00:00:... | 0.0                   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jubilee Alm... | 14 - Sprinkler 5... | Running | G127      | IRR   | 1568.166  | 1618.80 | 02:36:58 | 0.0                 | 00:00:... | 0.0                   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Notice that** –

- When an **Active program** contains pH/EC control parameters, there will be additional columns supplying information about the **Planned**, **Actual**, **Average** pH/EC levels and the calculated **Scale** (correction factor).

**The Flow rates view** – supplies information about the **Flow rates** of the water meters and fertilizer meters belonging to the selected line or selected target, depending on the context selection.

The screenshot shows the 'Water meters' view for 'Jubilee Almonds, 1368020394'. It includes a checkbox for 'Show free WM'. The table lists water meters (WMA, FWM1-FWM17) and their flow rates (Free WM 1-17).

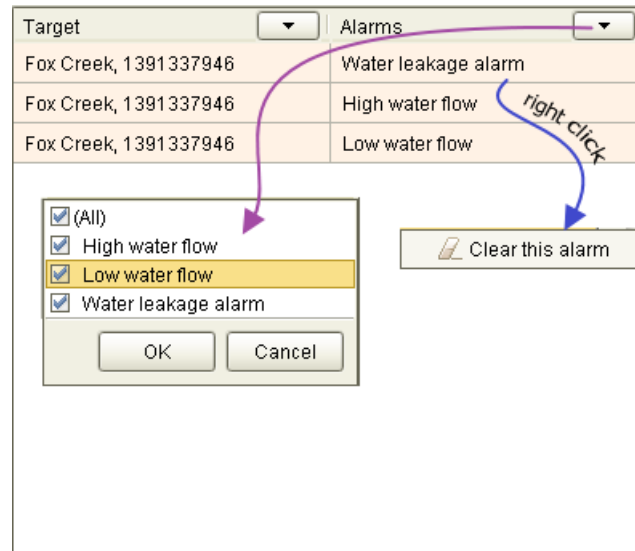
| WMA    | WM Src. A  | Src. A | 2400.00 |
|--------|------------|--------|---------|
| FWM1   | Free WM 1  | Free   | 0.00    |
| FWM2   | Free WM 2  | Free   | 0.00    |
| FWM3   | Free WM 3  | Free   | 0.03    |
| FWM4   | Free WM 4  | Free   | 0.00    |
| FWM5   | Free WM 5  | Free   | 0.25    |
| FWM6   | Free WM 6  | Free   | 0.00    |
| FWM7   | Free WM 7  | Free   | 0.00    |
| FWM8   | Free WM 8  | Free   | 42.35   |
| FWM9   | Free WM 9  | Free   | 51.43   |
| FWM... | Free WM 10 | Free   | 51.43   |
| FWM... | Free WM 11 | Free   | 49.65   |
| FWM... | Free WM 12 | Free   | 0.00    |
| FWM... | Free WM 13 | Free   | 0.00    |
| FWM... | Free WM 14 | Free   | 0.00    |
| FWM... | Free WM 15 | Free   | 0.00    |
| FWM... | Free WM 16 | Free   | 0.00    |
| FWM... | Free WM 17 | Free   | 0.00    |

The screenshot shows the 'Fert meters' view for 'Jubilee Almonds, 1368020394'. It displays fertilizer meters (FM1-FM6) and their flow rates for 'CENTER 1', 'Line 2', and 'Line 1'.


| CENTER 1 |     | FM1  | 0.00 |
|----------|-----|------|------|
| Line 2   | FM1 | 0.00 |      |
|          | FM2 | 0.00 |      |
|          | FM3 | 0.00 |      |
|          | FM4 | 0.00 |      |
|          | FM5 | 0.00 |      |
|          | FM6 | 0.00 |      |
| Line 1   | FM1 | 0.00 |      |
|          | FM2 | 0.00 |      |
|          | FM3 | 0.00 |      |
|          | FM4 | 0.00 |      |
|          | FM5 | 0.00 |      |
|          | FM6 | 0.00 |      |

**The Outstanding system alarms view** – supplies information and enables clearing of the **Outstanding alarm events**. Content of the view will depend on the context selection made, line context or target context.

For clearing alarms, right click on the alarm status you wish to clear.



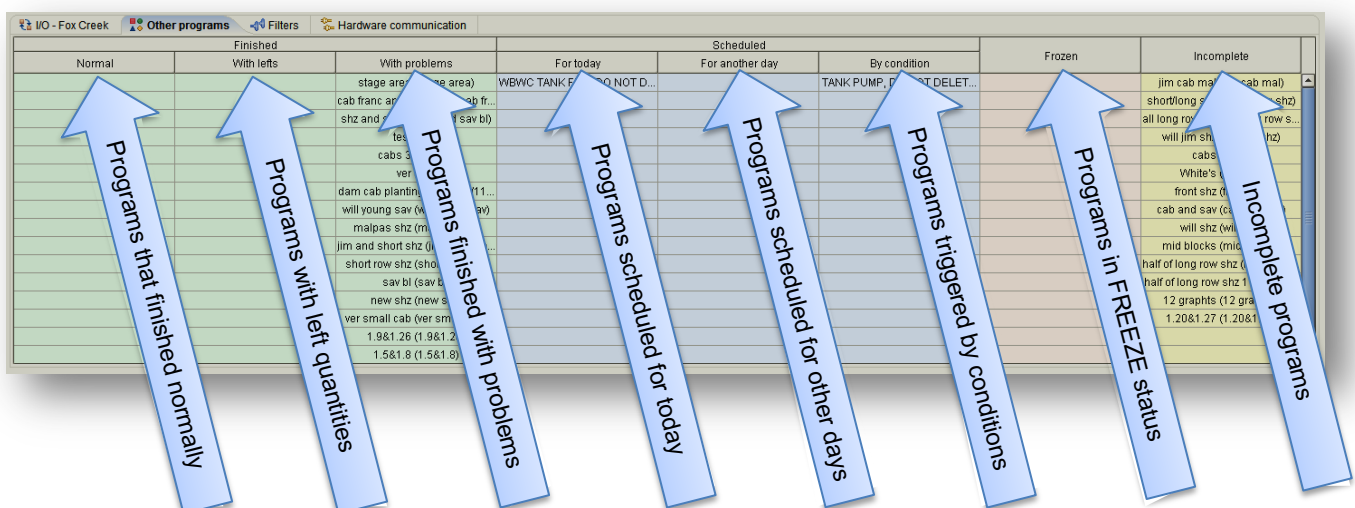
**Notice that –**

- When clicking on the  key in the “Alarms” column, we shall be able to filter the displayed alarms, only the checked alarms will be displayed.

**The Complimentary information view** – most of the tabs included in the **Complimentary information view** are also included in the **Plan/ Irrigation programs** perspective and were covered already in paragraph [3.1.4 Added values of the Irrigation programs perspective](#).

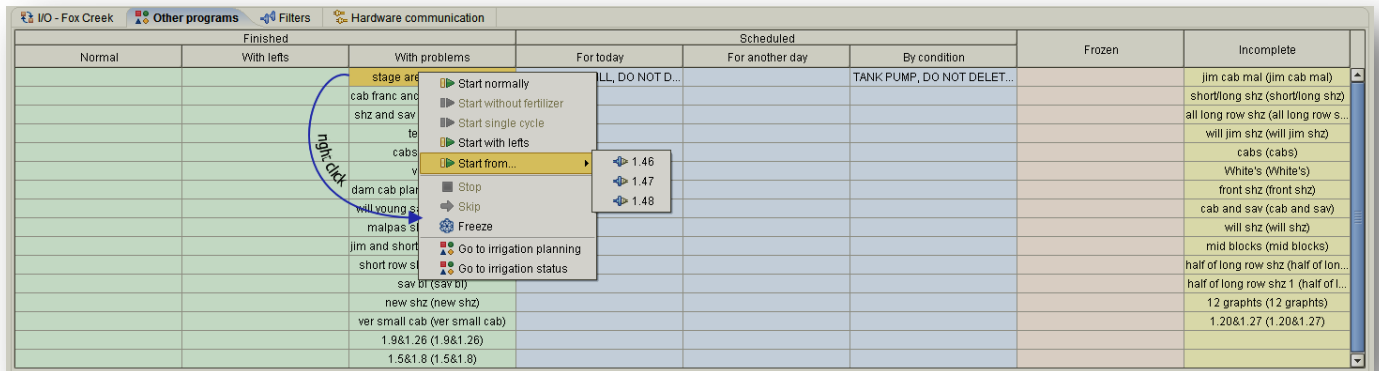
The only tab which is not included in the above paragraph is the one that deals with **Other programs**, the programs that do not appear in the **active programs** displayed at the **active programs view**.

**The Other programs view** – The **Other programs view** is arranged as follows:



## Notice that –

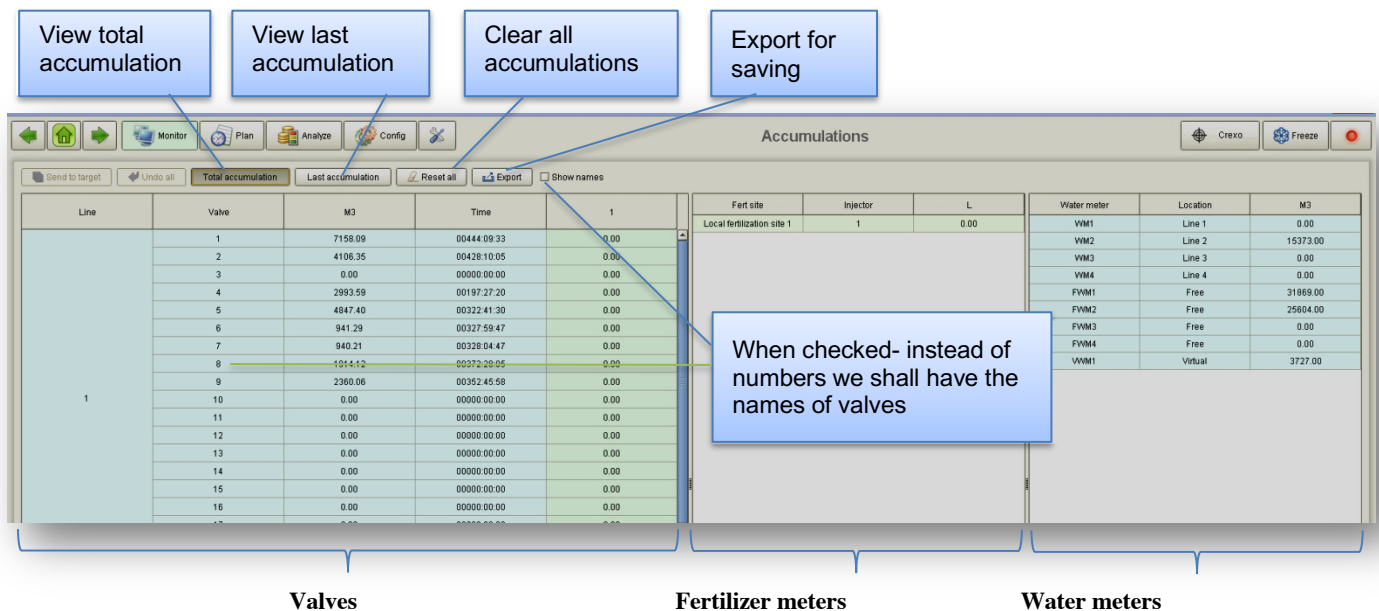
- Incomplete programs are programs that are ready to be started but they are not scheduled to start by themselves. These programs can be started manually.
- Right clicking on any of the programs in the **Other programs view** will enable the user to do some operations as demonstrated below:



## 4.2 Monitoring – Accumulations

The **Accumulations** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Monitor/ Accumulations**.

The **Accumulations** perspective contains information about the accumulated water and fertilizers for all the valves and all the water and fertilizer meters. As for the valves, the total or the last irrigation's **Accumulation** can be requested.





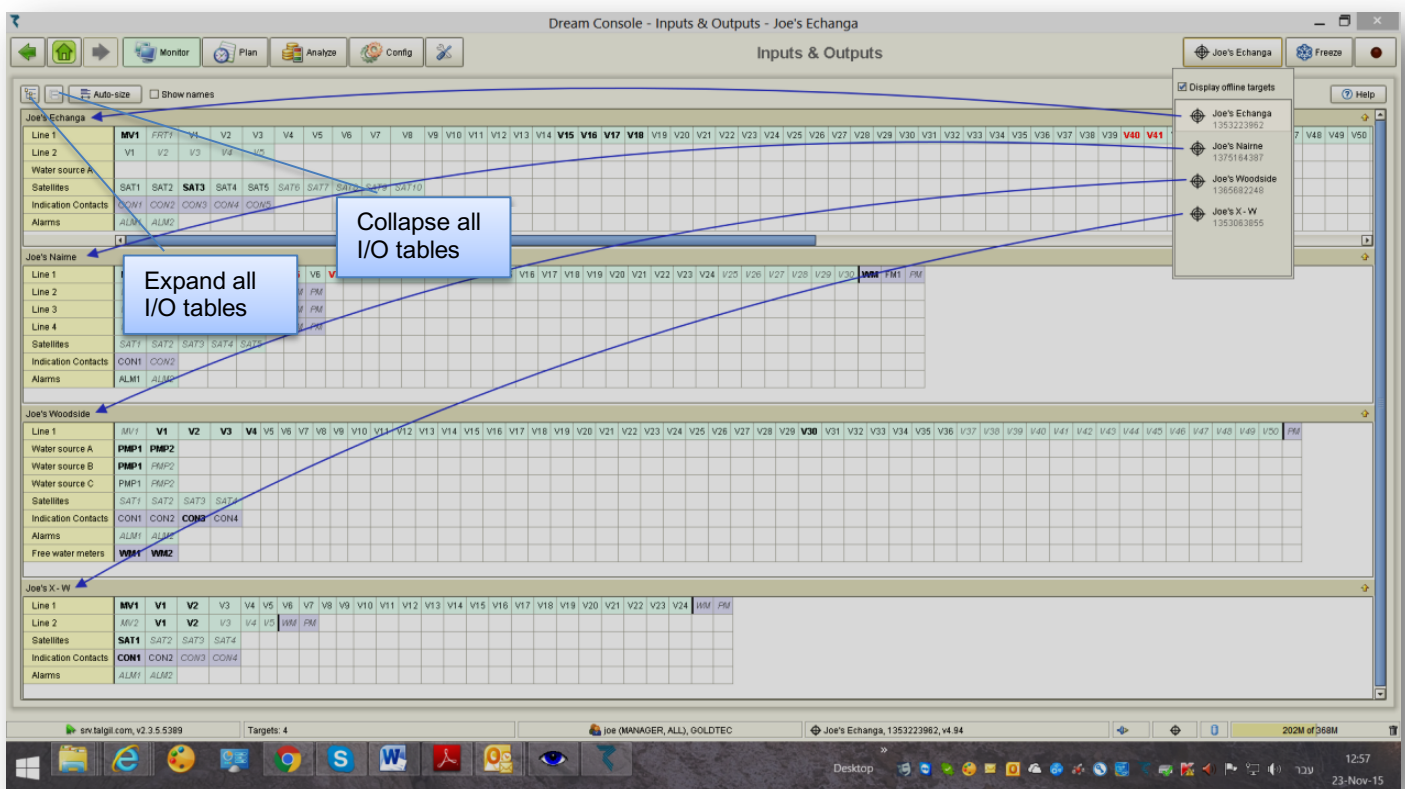
Notice that –

- The contents of the **Accumulation** table can be exported for saving in an Excel formatted (csv) file.
- The contents of the table can be edited.
- The total accumulation contains all that has been accumulated since the last time the accumulation was cleared.
- Valves that irrigate by time will have time accumulation by default, but if the line contains a water meter, there will be volumetric accumulation as well.
- Valves that irrigate by volume will have volumetric accumulation by default, but if we wish to get time accumulation as well, the appropriate parameter at the [Dealers Definitions](#) must be set.

### 4.3 Monitoring – Inputs & Outputs

The **Inputs & Outputs** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Monitor/ Inputs & Outputs**.

The **Inputs & Outputs** (I/O) perspective gives a consolidated view of the statuses of all Inputs and Outputs of all the controllers accessible by the user.



The explanation about the details of the I/O view and the meaning of the various printing fonts and various colors of the characters is fully covered at paragraph [3.1.4 Added values of the Irrigation programs perspective](#) above at **The I/O view** topic.

## 4.4 Monitoring – My Targets

**My Targets** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Monitor/ My Targets**.

**My Targets** perspective supplies general information about the targets accessible by the user. The following information is supplied.

| Serial #   | Name         | Affiliate | Project           | Firmware | Config        | Reset         | Time          | Battery | AC    | Irrigation          | Flushing      | Interface | RTU | Connection    | Disconnection |
|------------|--------------|-----------|-------------------|----------|---------------|---------------|---------------|---------|-------|---------------------|---------------|-----------|-----|---------------|---------------|
| 1353223982 | Joe's Ech... | GOLDTEC   | Ceravolo Orchards | v4.94    | 04 Nov, 08:58 | 10 Oct, 15:12 | 24 Nov, 00:28 | 14.5    | OK    | Irrigating + alarms | Not connected | OK        | OK  | 23 Nov, 15:25 | 23 Nov, 15:23 |
| 1375164387 | Joe's Nal... | GOLDTEC   | Ceravolo Orchards | v4.98    | 21 Oct, 16:35 | 21 Oct, 16:35 | 24 Nov, 00:28 | 14.3    | OK    | Irrigating + alarms | Not connected | OK        | OK  | 23 Nov, 14:55 | 23 Nov, 14:53 |
| 1365682248 | Joe's Wo...  | GOLDTEC   | Ceravolo Orchards | v4.98    | 25 Nov, 13:20 | 11 Nov, 17:34 | 24 Nov, 00:28 | 13.7    | Alarm | Irrigating          | Not connected | OK        | OK  | 23 Nov, 17:45 | 23 Nov, 17:43 |
| 135...     | ...          | ...       | ...               | ...      | ...           | ...           | ...           | ...     | ...   | ...                 | ...           | ...       | ... | ...           | ...           |

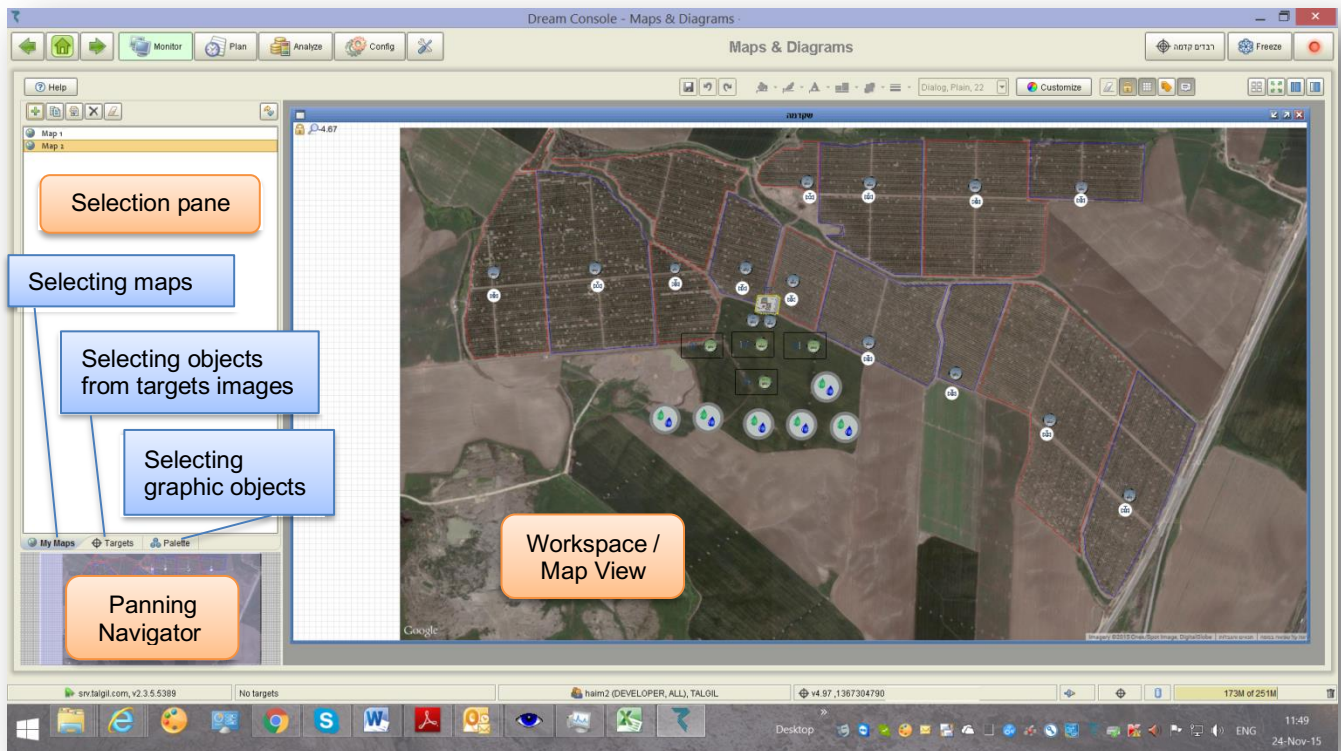
## 4.5 Maps & Diagrams

The **Maps and Diagrams** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Monitor/ Maps and Diagrams**.

The **Maps** perspective is dedicated for supplying a visual picture of the state and the activities of one or more targets.


Users may construct various maps, give them names and then switch amongst them to access a particular visual slice of the system. As background the user can select to use a **Schematic** drawing of the network or a **Topographic** map view. On this background the user can place an arbitrary combination of objects by dragging and dropping from the selection pane that contains all the components constituting the controllers images. When the map is complete the combination of objects supplies a vivid picture by animation effects and changing colors. The user may combine objects by “pipes” that will give the feeling of flow when there is water flowing from the source toward these objects. Additionally, blocks of the map can be placed inside polygons associated with object placed on the map, so that the status of the object will influence the look of the block on the map.

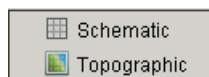
The map layout contains the following parts:



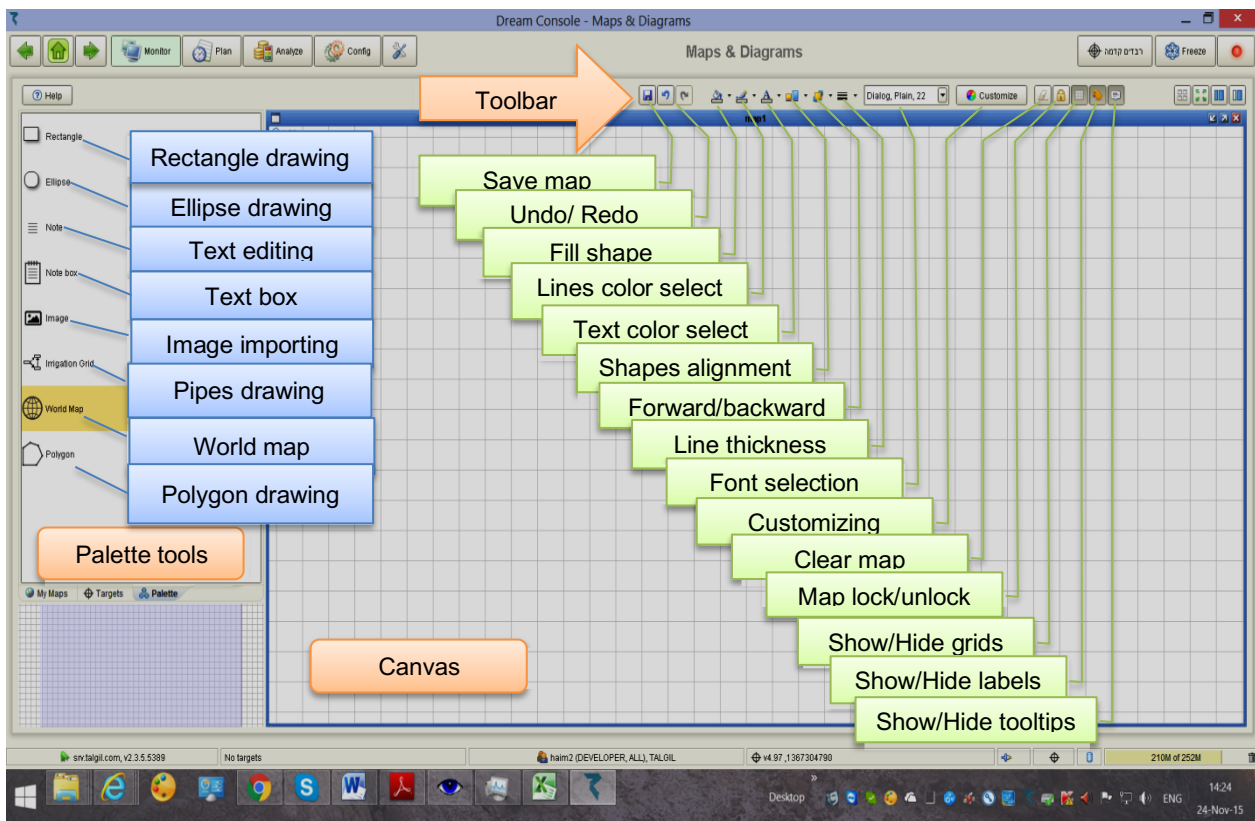
The contents of the **Selection pane** depend on the type of items the user would like to select:

- Selecting maps from the list of maps.
- Selecting objects from the Target's image to be placed on the map.
- Selecting graphic items to be included in the map.

**Creating a new map** – for creating a new map the  key has to be clicked as a result the user will be asked to select the type of background they would like to use for the map



If the **Schematic map** was selected then after giving a name to the map the workplace of the map perspective will turn into a clear canvas and the user will be able to use the graphic tools supplied in the **Palette pane** and in the **Toolbar** and create/ import a schematic map.

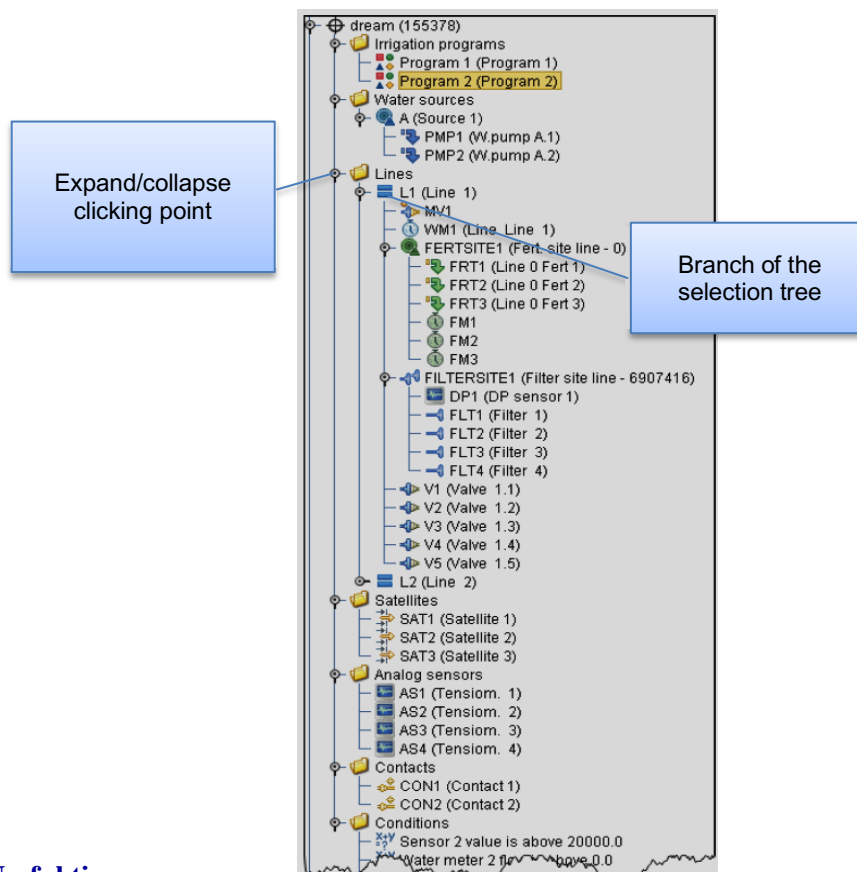


If the **Topographic map** was selected, then after giving a name to the map the workspace will be filled with a GoogleEarth map showing the area where the target is located. Notice that each target when introduced to the Administration software can have its geographic location defined. Now the mouse scroll-wheel can be used for Zooming in and out the geographical map until a satisfactory view is obtained. The **Palette pane** and the **Toolbar** tools can now be used for completing the map background if needed.

After creating the background of the map whether **Schematic** or **Topographic**, the user will have to add the objects of the **Target's image** that he wishes to appear on the map.

**Placing objects in the map** – Selecting the **Targets** tab will display in the **Selection pane** the **Selection tree/ trees** of the **Target/Targets** the user has access to. The **Selection trees** contain the objects belonging to the **Targets’ image** and which can be placed on the map by **drag and drop** action.

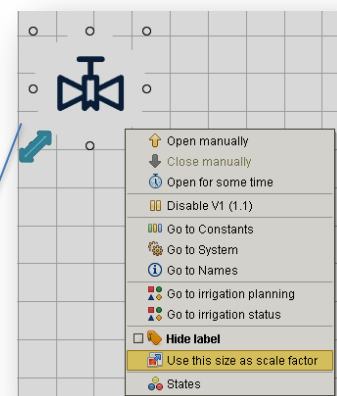
Selection trees can appear in expanded or collapsed form, in order to expand/collapse a branch of a tree, one should click the dot which the branch is starting from.



**Useful tips –**

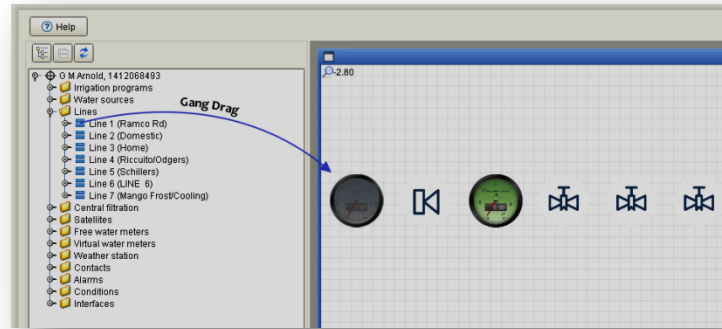
After placing the first object of a certain type on the canvas, right click on it and you will be able to change its size by dragging one of the corners to or away from the center of the shape. When you are satisfied with the size of the object right click on it again and select the option “**Use this size as scale factor**”, this will make all the objects of the same type that will be added to the map, have the same size.

Change size



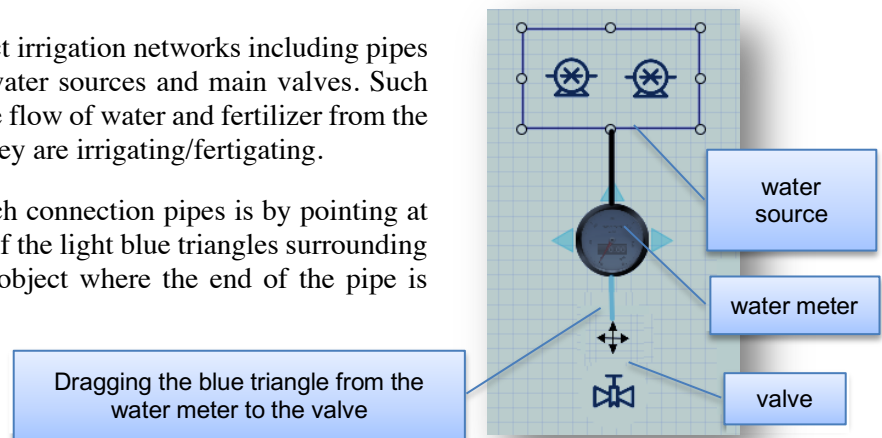


If an irrigation line branch is dragged and dropped into the canvas area in its **collapsed** shape, the whole contents of the irrigation line will be **Gang Dragged** into the map.



Users will be able to construct irrigation networks including pipes connecting objects to their water sources and main valves. Such network of pipes will indicate flow of water and fertilizer from the source to the objects while they are irrigating/fertigating.

The easiest way to create such connection pipes is by pointing at the object and dragging one of the light blue triangles surrounding the object toward the other object where the end of the pipe is supposed to be connected.

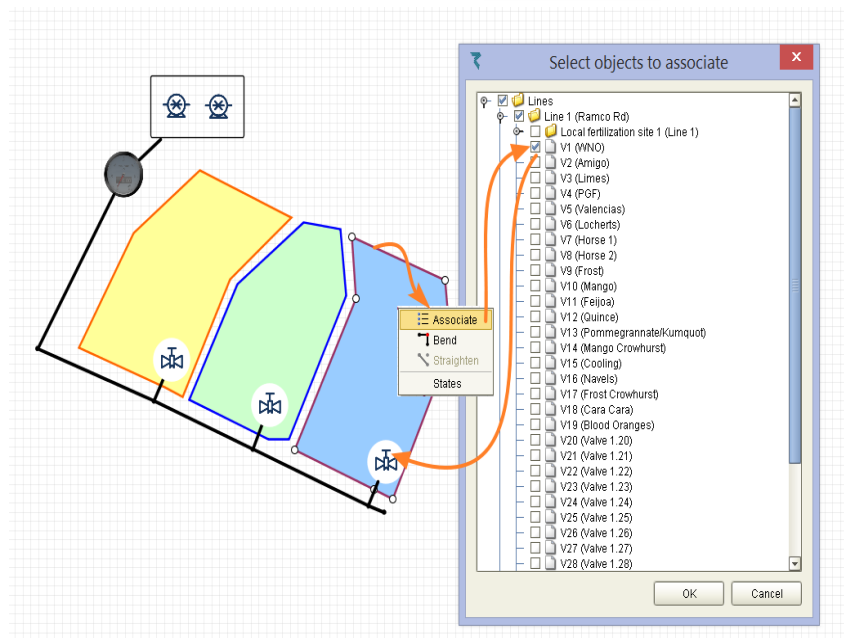


The **polygon** tool should be used in the following way:

First the **polygon** has to be adjusted to the block it is supposed to represent. Right click on the **polygon** and use the “**Bend**” tool wherever a bending point is needed. You can stretch the bending points according to the corners of the block. When you are satisfied with the shape of the **polygon** you can right click on one of its laterals and select the “**Associate**” option.

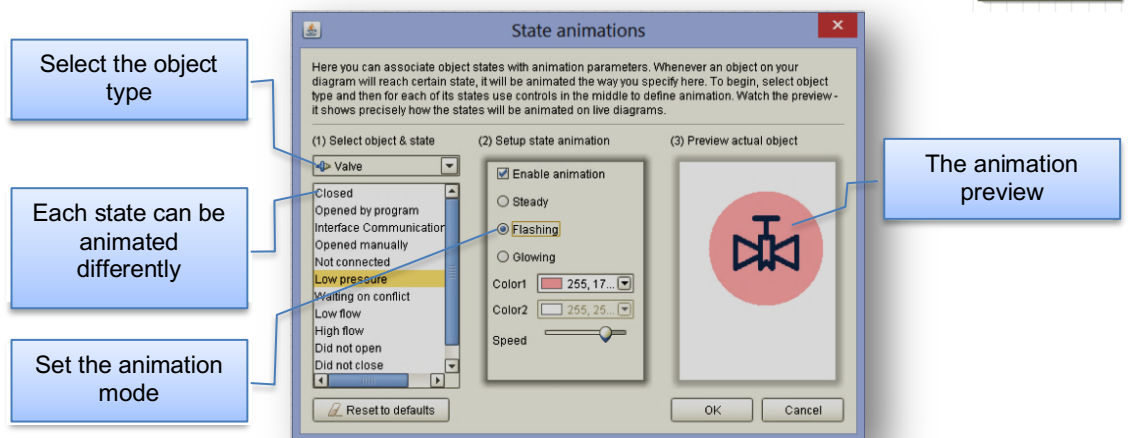
Mark the objects you would like the **polygon** to be associated with.

You better use the **forward/backward** tool to send the polygon to the **back** layer.

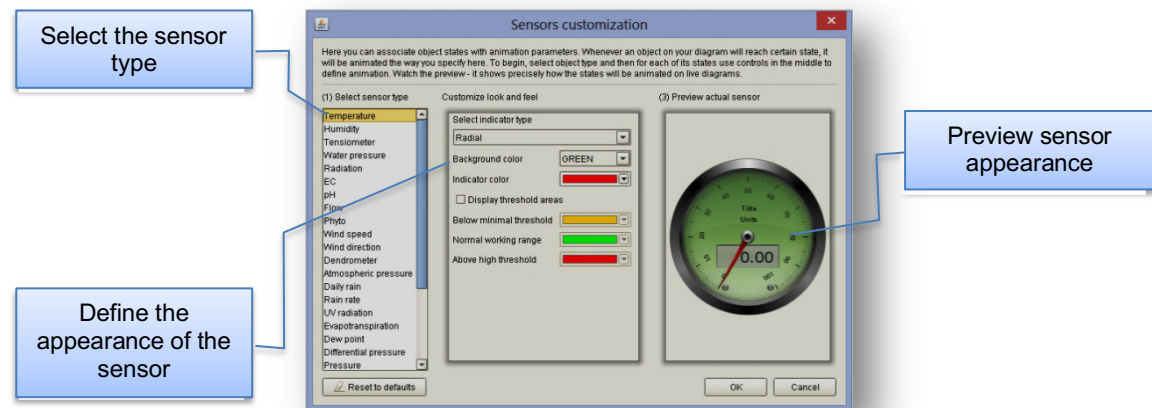




**Customizing Objects states**- the purpose of customizing objects is to define whatever animation and which colored background will represent each status the object may get. The following window is used for defining the **Objects states animation**. It opens when **Customize/ States** is selected.



**Customizing analog sensors appearance**- Analog sensors may be customized to get a different appearance as follows:

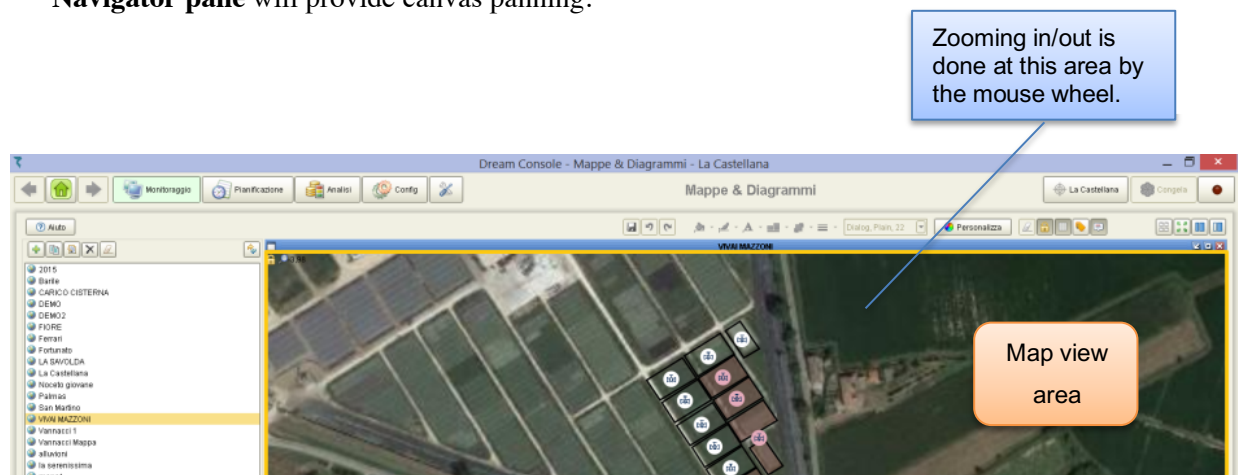


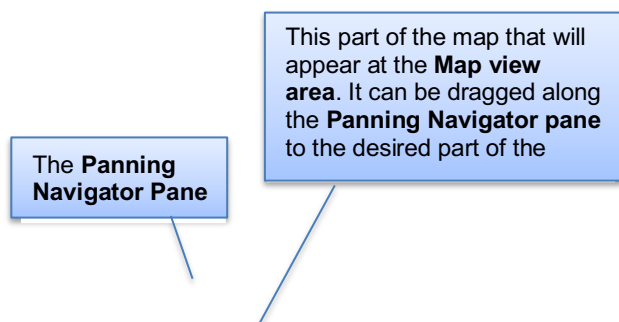
**Customizing Labels**- Labels of objects may include several parts such as: **Target name** (optional), **ID of the object** (mandatory - always displayed), **object name** (optional), **Location ID and name** (optional), **State** (optional). The user may decide which parts of the **Labels** they prefer to see and which parts to hide. Remember that there is a key for global **hide/show labels**.

**When the whole map is complete and no more changes are needed, do not forget to lock the Map view by clicking the lock key.**



**Zooming/ Panning Navigator**- the user may decide which part of the map will appear at the **Map view** by using the following tools:- **Zooming in/out** is executed at the **Map view** area by the **Scroll wheel** of the mouse, left mouse button drag at the **Panning Navigator** pane will provide canvas panning.

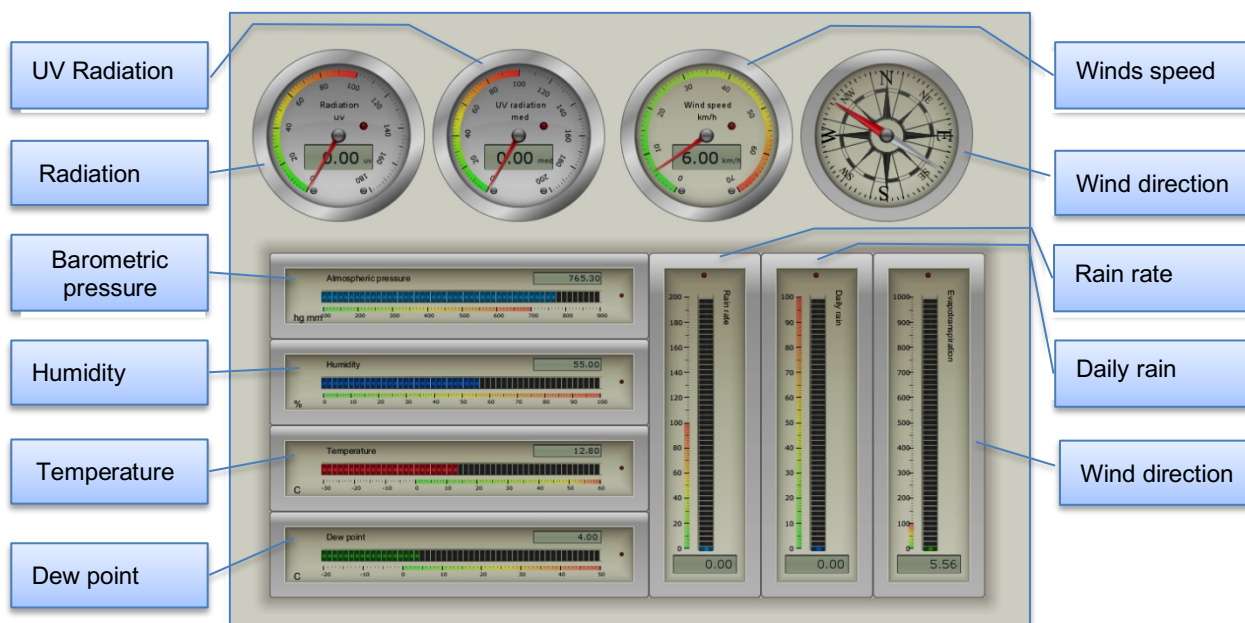




## 4.6 Monitoring – Weather station

The **Weather station** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Monitor/ Weather station**. The subject will be included in the **Menus** only when the image of the controller has a **Weather station interface** defined.

There are 11 parameters transmitted from the **Weather station** to the DREAM control system, the **Weather station** perspective presents these parameters in the following way:



**Notice that –**

- The parameters arriving from the **Weather station** can be stored in a logfile for later analysis. For this to happen, the data acquisition rate has to be defined as explained below at [Configure/ Data Acquisition](#).

## 5. Analyze

The following chapter deals with the **Analytic tools** supplied by the **CONSOLE** for analyzing the accumulated information resulting from the **Target's activities**.

## 5.1 Event log

The **Event log** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Analyze/ Event log**.

The **Event log** perspective is the place at which the user may check the list of events following the activities moment by moment. The **Event log** is stored in the memory of the **SERVER** in a chronological order and can be retrieved from there by a request with specified range of dates.

How long back will the **SERVER** keep the **Event log**? The answer depends on the **Data retention** settings done at the **ADMINISTRATION** software. Check with the person in charge of the system setup that the **Data retention** parameters were properly set.

Users will be able to query system events by combining any of the following criteria choices:

- time range
- severity
- facility
- context and/or sub-context object(s)

The screenshot shows the 'Event log' window in the Dream Console software. The interface includes a top menu bar with 'Monitor', 'Plan', 'Analyze', and 'Config'. Below this is a toolbar with 'Reset', 'Run query', and a search bar. A calendar on the left allows selecting a date range. The main area displays a table of events with columns for Facility, Context, Subcontext, and Message text. On the right, there's a 'Message text' list with checkboxes for filtering. Annotations with arrows point to specific features:

- Request a new range query:** Points to the 'Run query' button.
- Current day:** Points to the selected date (27) on the calendar.
- Mark the desired range of dates by pointing at the first day and drag it toward the last day of the range:** Points to the date range selection on the calendar.
- General filter:** Points to the search bar.
- Filter the list by Severity, Facility or Context:** Points to the 'Severity', 'Facility', and 'Context type' dropdowns.
- Filter the list by Sub-context:** Points to the 'Subcontext type' dropdown.
- Export the list to a csv file:** Points to the 'Export' button.
- Activate a filter that will hide unchecked event types:** Points to the 'Message text' list on the right.

The event log table shows entries for November 26, 2015, with details like 'Irrigation', 'two tank mix', and 'Program 41'. The bottom status bar shows 'srv.talgil.com, v2.3.5.5389' and 'haim2 (DEVELOPER, ALL), TALGIL'.

**Notice that –**

- By default the events of the current day will be listed.

## 5.2 Data reports

The **Data reports** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Analyze/ Data reports**.

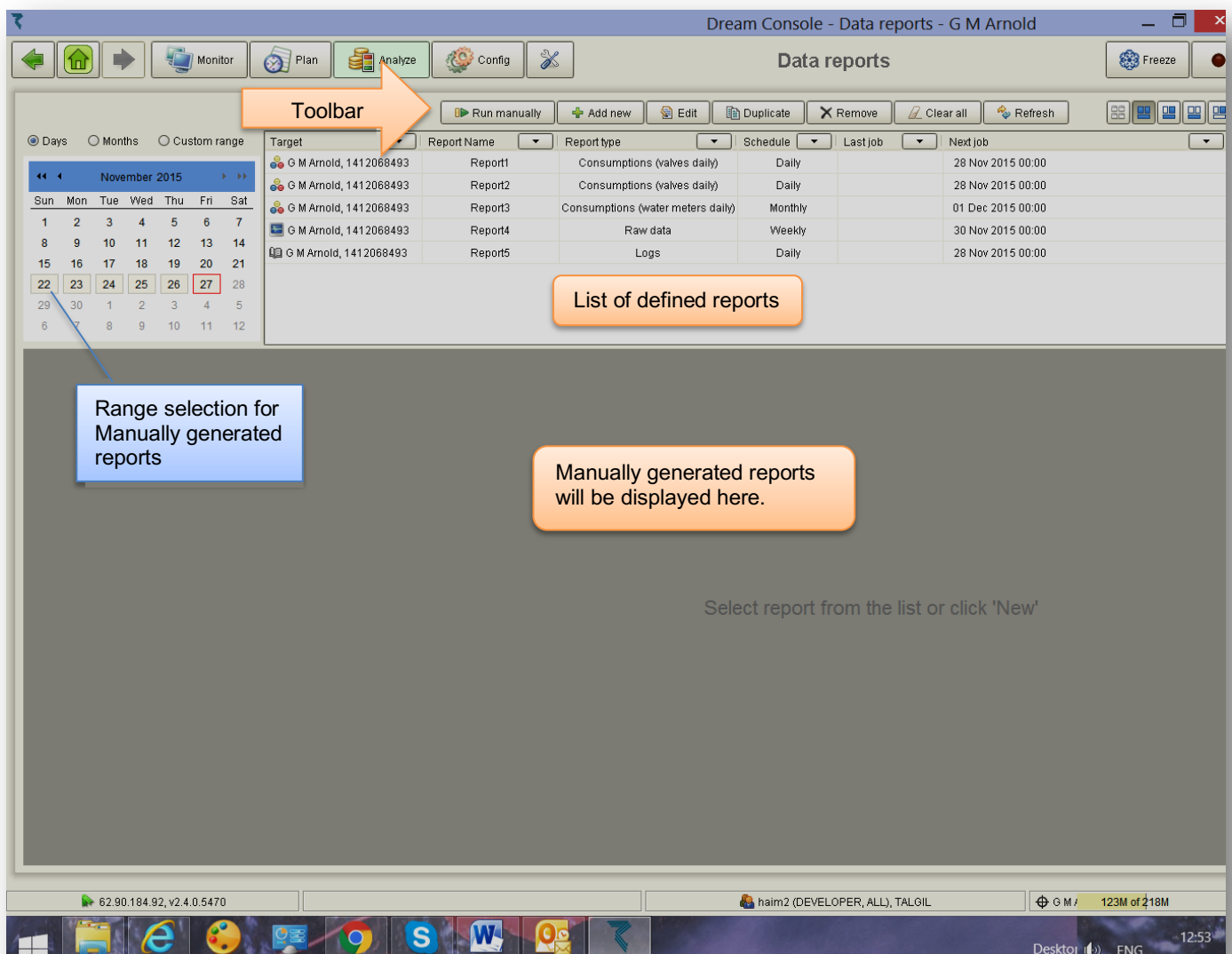
The **Data reports** perspective is the place where the user may define formatted documents by which various reports may be generated.

There can be various types of reports: **Consumption** reports, **Raw data** reports or **Event log** reports.

- **Consumption** reports may refer to a selected **group of valves**, to a selected **group of water meters**, to certain **crops**, or to certain **plots**. These reports will supply data about the consumption of the selected items.
- **Raw data** reports may refer to an arbitrary combination of items picked from the target's image and will supply information about their statuses.
- **Event log** reports will contain a list of events taken from the memorized **Event log** and optionally filtered by **Severity**, by **Facility**, and/or by **belonging object**.

The defined reports are just skeletons that do not contain any data until really generated. Users will be able to generate reports on manual demand or reports can be scheduled to be generated automatically in a predefined cycle. The generated reports can be set to be delivered as E-mails to the listed recipients in **Excel worksheet** format (csv).

The **Data reports** perspective has the following structure:



### 5.2.1 Creating new Reports

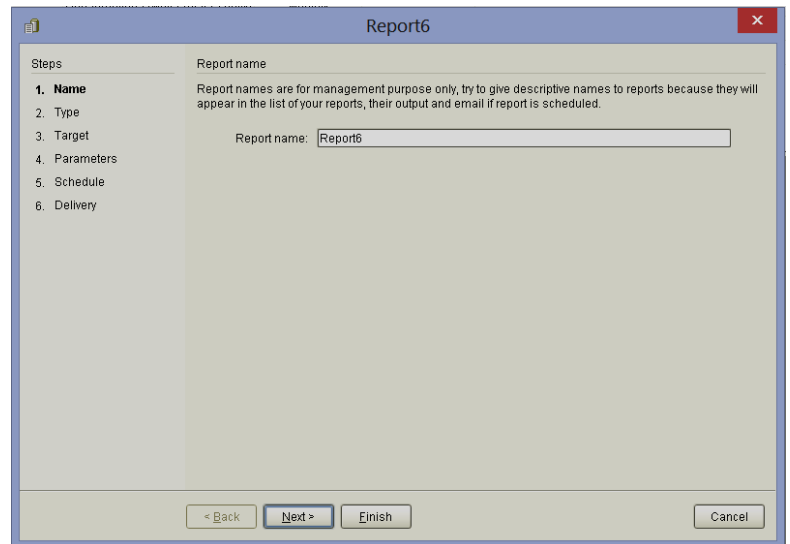
Creation of new **Reports** is done by means of a wizard.

To run the wizard, the **Add new** key has to be clicked.



The wizard is divided into 6 steps that lead the user through the definition process. At the end the **Finish** key has to be clicked.

The first step is about giving the report a name.

The screenshot shows the "Report6" wizard window at the "Name" step. On the left, a "Steps" list shows "1. Name" as the current step, followed by "2. Type", "3. Target", "4. Parameters", "5. Schedule", and "6. Delivery". The main area is titled "Report name" and contains a text box with "Report6" entered. Below the text box are navigation buttons: "< Back", "Next >", "Finish", and "Cancel".

Report6

Steps

1. **Name**
2. Type
3. Target
4. Parameters
5. Schedule
6. Delivery

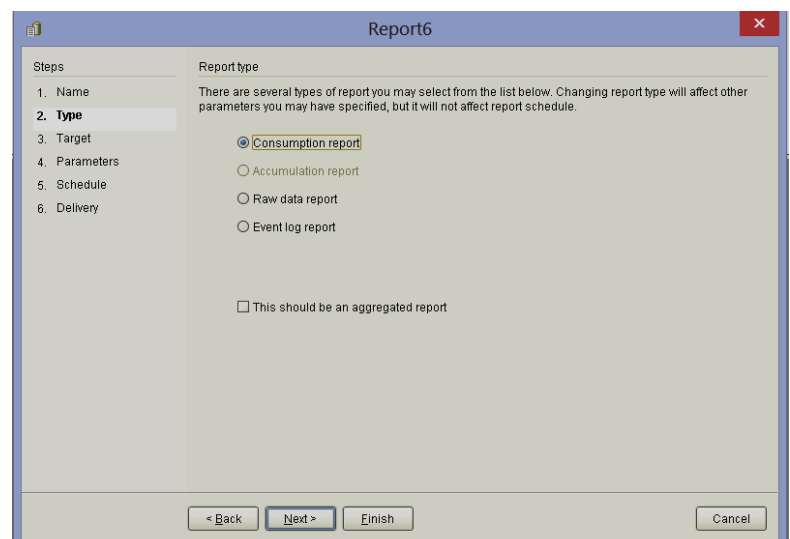
Report name

Report names are for management purpose only, try to give descriptive names to reports because they will appear in the list of your reports, their output and email if report is scheduled.

Report name: Report6

< Back Next > Finish Cancel

The second step deals with selecting the type of report we would like to create - **Consumption** report, **Raw data** report or **Event log** report.

The screenshot shows the "Report6" wizard window at the "Type" step. The "Steps" list on the left now highlights "2. Type". The main area is titled "Report type" and contains a list of radio button options: "Consumption report" (selected), "Accumulation report", "Raw data report", and "Event log report". There is also an unchecked checkbox labeled "This should be an aggregated report". Navigation buttons at the bottom are "< Back", "Next >", "Finish", and "Cancel".

Report6

Steps

1. Name
2. **Type**
3. Target
4. Parameters
5. Schedule
6. Delivery

Report type

There are several types of report you may select from the list below. Changing report type will affect other parameters you may have specified, but it will not affect report schedule.

☒ Consumption report

☐ Accumulation report

☐ Raw data report

☐ Event log report

☐ This should be an aggregated report

< Back Next > Finish Cancel

In the third step we need to select the target which the report will be dealing with.

The fourth step deals mostly with selecting the items that will be included in the report and therefore it depends on the type of the report we are dealing with.

In case of **Consumption** report, the items for selection will be **Valves**, **Water meters**, **Crops**, or **Plots**. First we need to select the **Type of items** and then by clicking on the items we make them included in the report (colored yellow or checked at the checkbox). To complete the definition of the report we need to add some more information about its contents, the **Rate** at which the data will be sliced, whether or not to include **Per area** calculations, **NPK** and **totals** per each time slice.

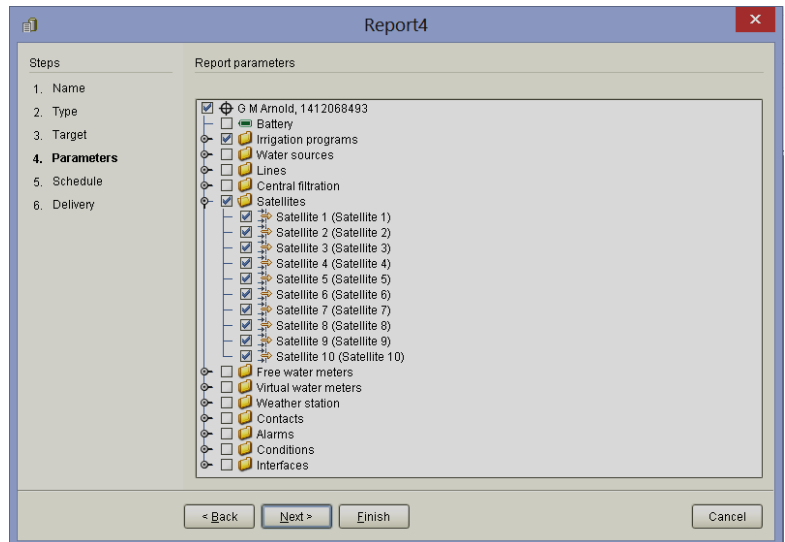
|                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|----------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|
| Line 1 (Ramco ...)   |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Line 2 (Domestic)    |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Line 3 (Home)        |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Line 4 (Riccuito...) |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Line 5 (Schillers)   |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Line 6 (LINE 6)      |   |   |   |   |   |   |   |   |   |    |    |    |    |
| Line 7 (Mango F...)  |   |   |   |   |   |   |   |   |   |    |    |    |    |

**Notice that –**

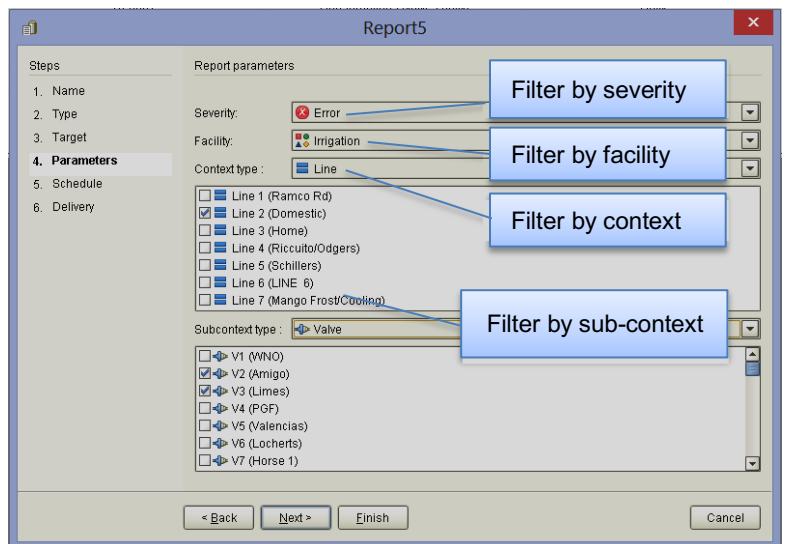
For being able to create **Crop**, **Plot** reports and for including **NPK** data, there has to be some preparatory work to be done, defining the crops, plots and the fertilizers used. The process will be discussed below at [5.2.2 Analysis settings](#).



In case of **Raw data** report there will be a tree of items presented for selecting the items to be included in the report.



When defining **Event log** reports the user is given multiple filtering tools to be able to pick out the particular events he is interested in.



As mentioned above the defined reports are empty skeletons without any data inside. There are two ways to have them be filled with data –

1. By issuing a  **Run manually** command.
2. By scheduling the report to be created and transmitted in a certain rate.

For generating a report manually the user needs to select the report from the list of reports, define the time range he would like the report to cover and then issue the **Run manually** command.

The other option, the automated report generation is actually defined at the stage the report skeleton is created by defining a **Schedule** for its generation.

- **Daily**- generated at the end of each day covering 24 hours of data.
- **Weekly**- generated at the end of each week, covering 7 days of data.
- **Monthly**- generated at the end of each month, covering 1 month of data.
- **Annual**- generated at the end of each year, covering 1 year of data.
- **Custom**- generated at specified time daily covering specified number of hours.

The automatically generated reports can be delivered to a list of Email recipients, or alternatively stored at a specified location.


## 5.2.2 Analysis settings

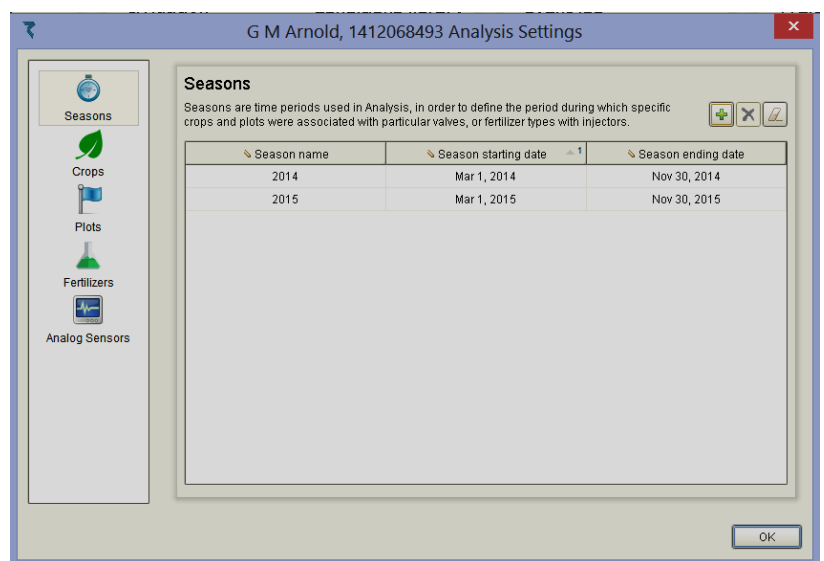
The **Analysis settings** topic can be accessed through the **Main menu** or the **Pull down menu** when selecting **Analyze/ settings**.

Most of the definitions made at the **Analysis settings** deal with complementary data to be used during the reports generation.


If the user would like to generate reports related to the **Crops** and the **Plots** he got, or if he is interested in knowing the contents of **NPK** supplied to each **Valve**, **Crop** or **Plot**, he has to make these extra definitions.

It is important to understand that all the **Consumption** reports are based on the repeated sampling of the water and fertilizers **Accumulations** recoded per the **Irrigation valves**. So if we want to be able to project that information on the **Crops** and the **Plots**, we need to define which **Irrigation valves** belong to each **Crop** and to each **Plot**. However that correlation may be dynamic and can change by **Seasons**, therefore the user will have to make his definitions based on **Seasons**.

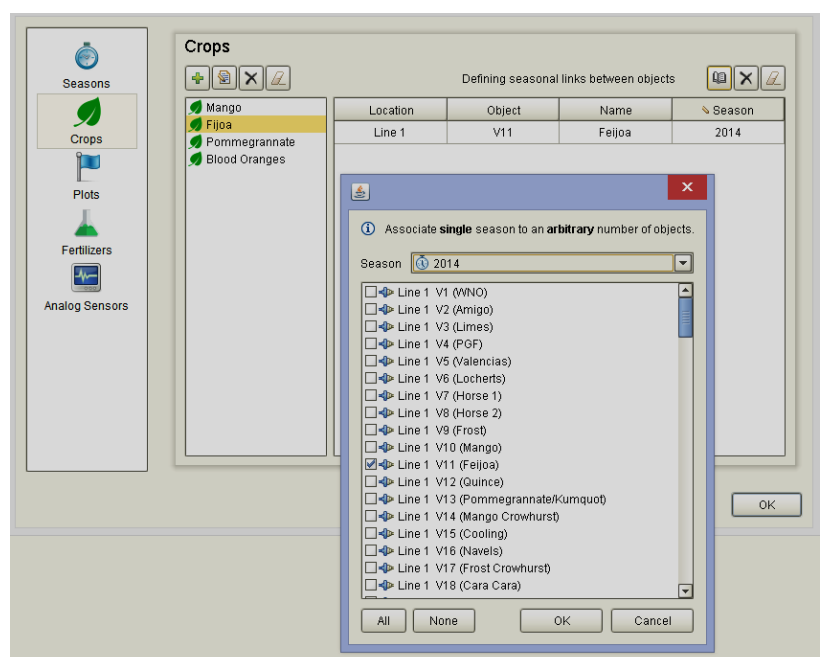
Use the  to add a new **Season**.



**Crops** and **Plots** are defined in the same manner-

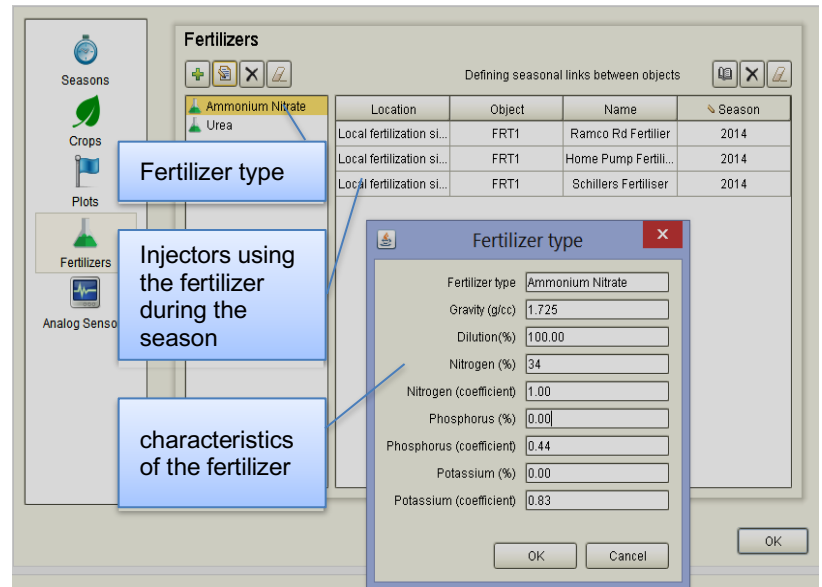
First the name of the new **Crop** or **Plot** is added by using the .

Then a table opens at which the user can select the **Season** of interest and mark the **Valves** belonging to the new **Crop** or **Plot** at that **Season**.



The **NPK** rating of a fertilizer describes the amount of **Nitrogen (N)**, **Phosphorus (P)**, and **Potassium (K)** in a fertilizer and these are the three main nutrients needed for the growth of plants.

So in order to be able to tell how much of those nutrients were supplied to each **Valve**, **Crop** or **Plot** in each **Season**, we have to define which kind of fertilizer was in use by each injector along the **Season** and what are the characteristics of those fertilizers. Then the system will convert the accumulated volume of injected fertilizer into amount of **N,P,K** supplied.



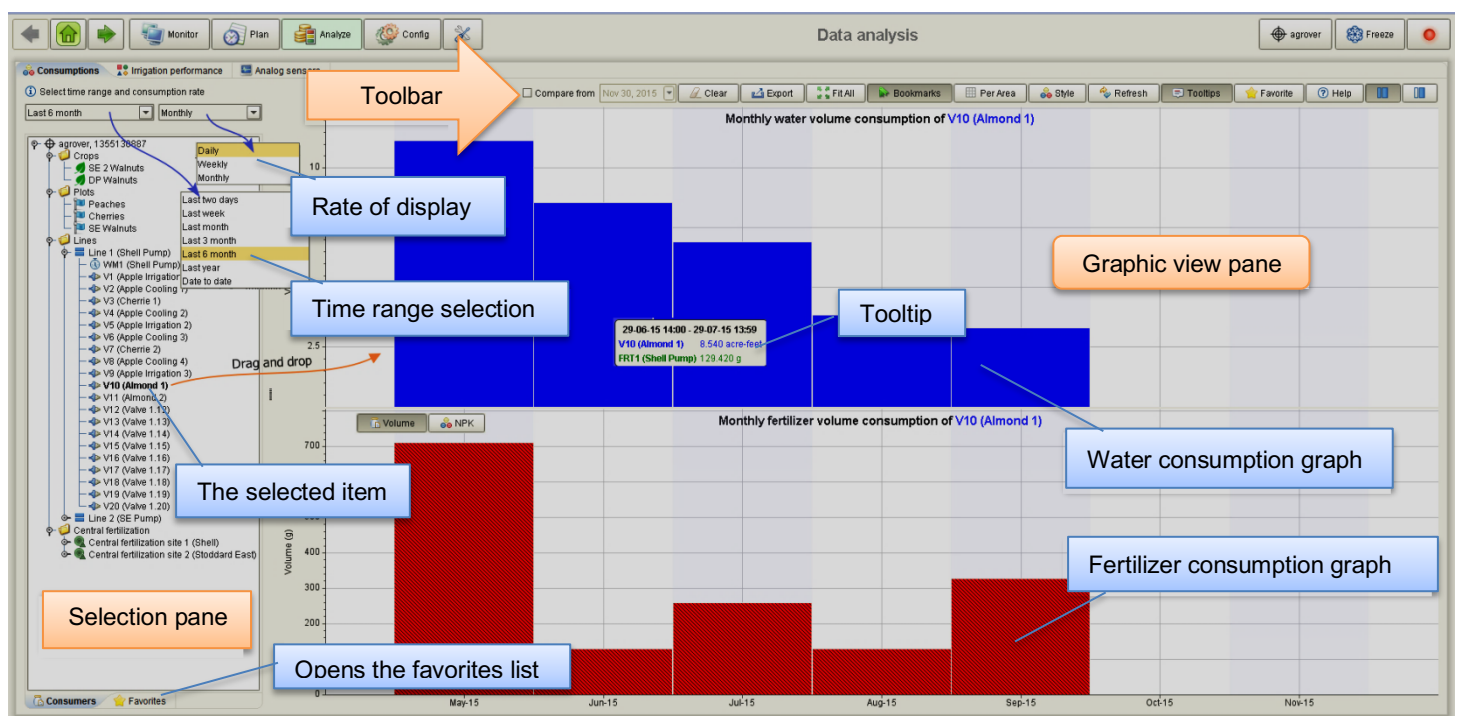
### 5.3 Analyze – Consumptions

The **Consumptions** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Analyze/ Consumptions**.


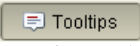

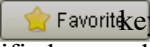

The **Consumptions** perspective supplies various tools that help analyzing the information accumulated in the data base about the water and fertilizers consumed by the **Valves**, **Crops**, **Plots** in the system.

We have mentioned already that all the **Consumptions** data is based on the repeated sampling of the water and fertilizers **Accumulations** recoded per the **Irrigation valves**. In order to make that repeated sampling happen, we must define the **Data acquisition** rate at which the **Accumulations** will be sampled, how to make this setting will be explained in the paragraph [6.4 Data acquisition](#) below.

The following drawing demonstrates the structure of the **Consumptions** perspective:



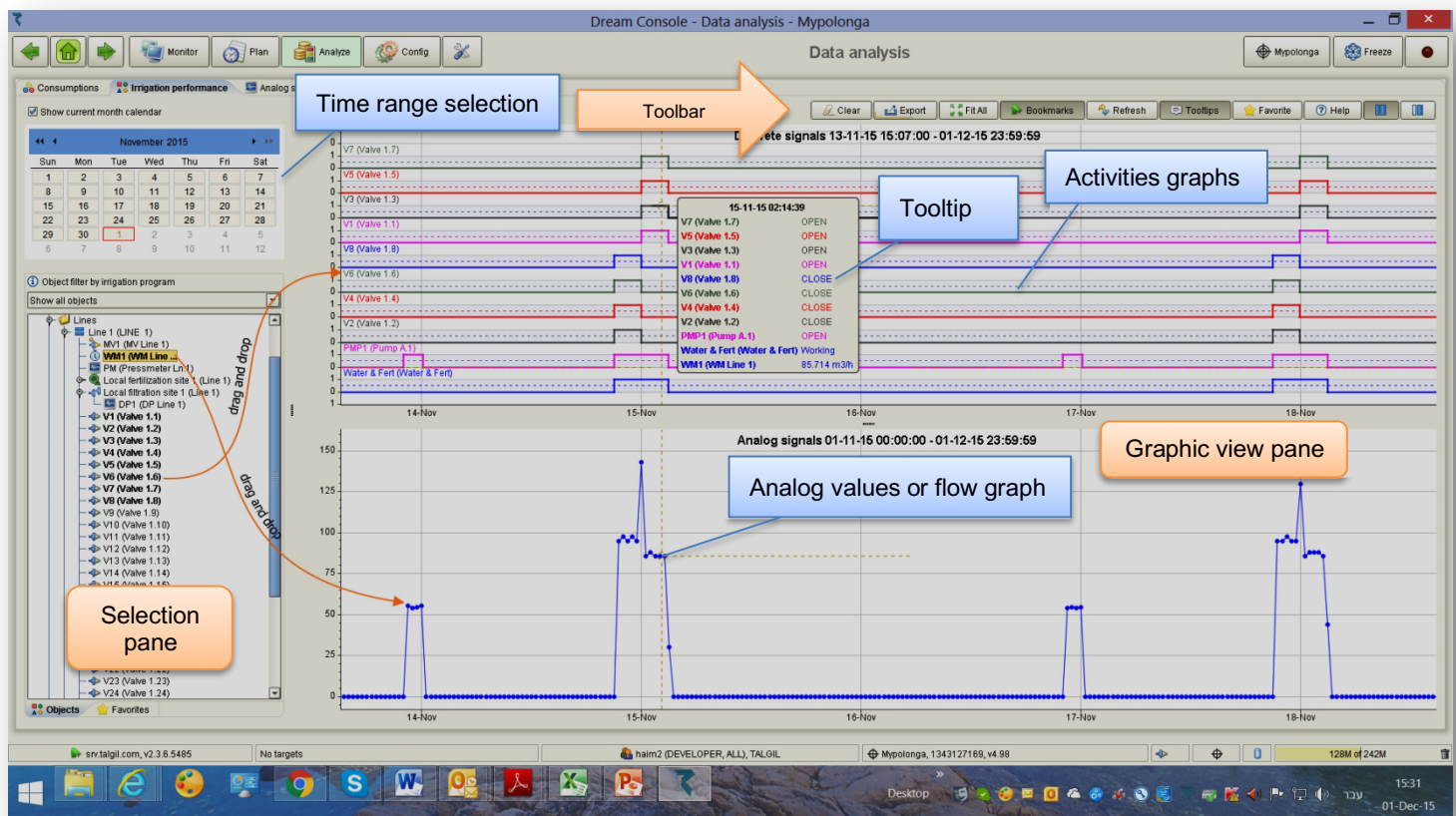
**Notice that –**

- In order to get the desired information out of this perspective we need at least three steps:
  1. **To select the time range**
  2. **To select the rate of display**
  3. **To drag and drop the desired item into the Graphic view pane**
- The information displayed at the **Graphic view pane** can be **Exported** by clicking . The result will be a table containing the same information in a tabular format. The contents of the table can be saved in a “csv” file which is the type of files used by **Excel**.
- Fertilizer consumption can be displayed in two different ways – **by volume** and **by NPK**. When displayed **by volume**, there will be one bar for each fertilizer volume, when displayed **by NPK**, there will be exactly 3 bars, each representing cumulative volume of N, P and K for all fertilizers at the given time span.
- The  key turns on the **Tooltip view** that shows in numeric format the consumption values at each time pointed on the graph.
- The information displayed can be presented as **Consumption per area** by clicking .
- Using the  key enables saving the collection of items included in the graph under a specified name that will be added to the **Favorites list**. When the name of the graph in the list will be double clicked, the system will draw again the graph with fresh data based on the time range selected. This saves the effort of defining frequently used graphs again and again.
- The  tool brings up to date information from the controller and refreshes the graphs.


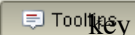
## 5.4 Analyze – Irrigation performance

The **Irrigation performance** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Analyze/ Irrigation performance**.



The **Irrigation performance** perspective supplies various tools for analyzing historical data of activities in the system. The selected items activities along the given time span, are presented in a graphical view, enabling to put one against the other for example the starting and stopping of irrigation programs, opening and closing of valves, starting and stopping of pumps, etc. Additionally statuses of digital inputs, statuses of defined conditions, statuses of RTUs and the status of the battery can also be presented in the graph. To complete the picture values of analog sensors or flow of water meters can also be included in the same graph.



**Notice that –**

- In order to get the activity graph of an item we need the following steps:
  1. To select the time range
  2. To drag and drop the desired item into the Graphic view pane
- The information displayed at the **Graphic view pane** can be **Exported** by clicking . The result will be a table containing the same information in a tabular format. The contents of the table can be saved in a “csv” file which is the type of files used by **Excel**.
- The  key turns on the **Tooltip view** that shows the statuses of the selected items and the values of the analog sensors at the time pointed on the graph.

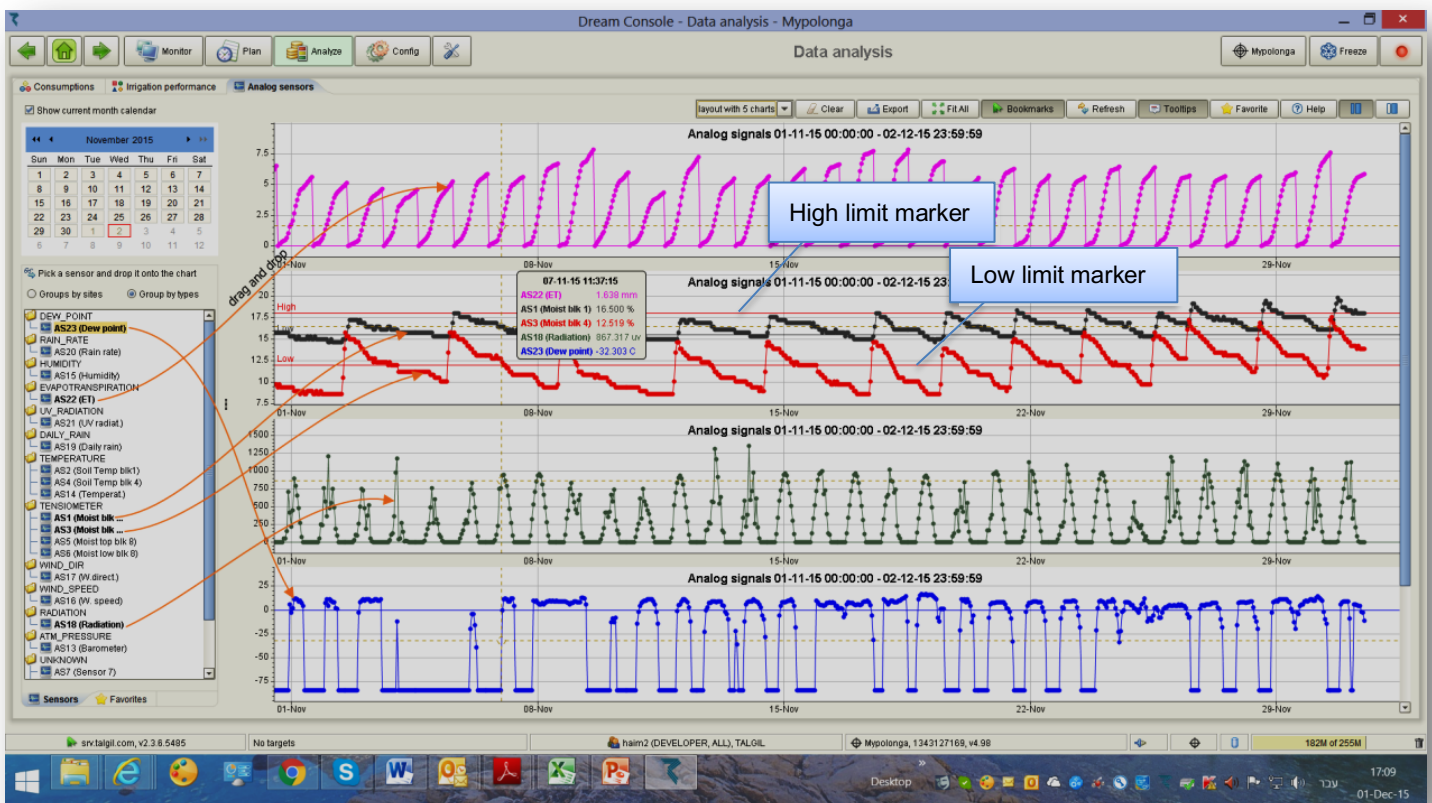


- The colors of the items on the graph are selected randomly, however by right clicking on a selected graph the user may set a preferred color for that item. The selection will be memorized and each time the same item will be selected this color will be reused.
- Using the  **Favorite** key enables saving the collection of items included in the graph under a specified name that will be added to the **Favorites list**. Any time the user wishes to see the graph with the same items again, all they have to do is double click the name of the graph and the system will display the graph with fresh data based on the time range selected. This saves the effort of defining frequently used graphs again and again.
- The  **Refresh** tool brings up to date information from the controller and refreshes the graphs.
- The user can **Zoom in/out horizontally** by rotating the mouse wheel. **Zooming vertically** can be obtained if at the same time the “**Ctrl**” key of the key board is held down.

## 5.5 Analyze – Analog sensors

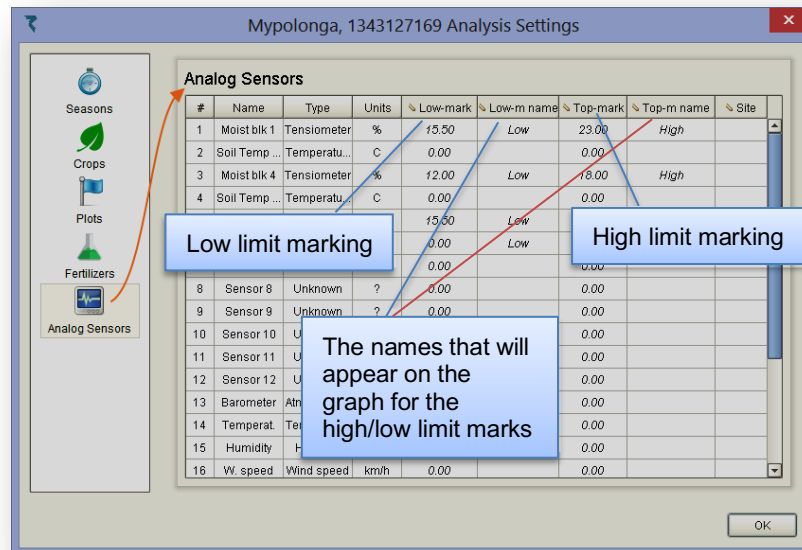
The **Analog sensors** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Analyze/ Analog sensors**.

The specialty of the **Analog sensors** perspective is that it can be divided into 1-5 charts, each chart with its own axes, this enables placing one against the other, sensors with highly different range of values without causing the lower values to become nearly flat line compared with the high values of the other sensor.



**Notice that –**

- We can still place on each chart several sensors if their range of values does not differ too much.
- The user may define a threshold in % from the last reading so that changes in the sensor's value will only be recorded if the change exceeds the threshold. The threshold definition is done at the [Dealers definitions](#).
- Analog sensors can be defined high/low limit lines to be presented along with the graph of the sensor. This helps the user to easily recognize when the graph of the sensor passes a certain limit. Defining these limit lines is done as follows:



## 6. Configure

The following chapter focuses on the data involved with the **Configuration** of the controller and with the process of adapting it to the specific application. This is the place to look for information about the system structure, the hardware in use, the connections list of all the accessories, the constant parameters, the user preferences and more.

### 6.1 Configure – Preferences

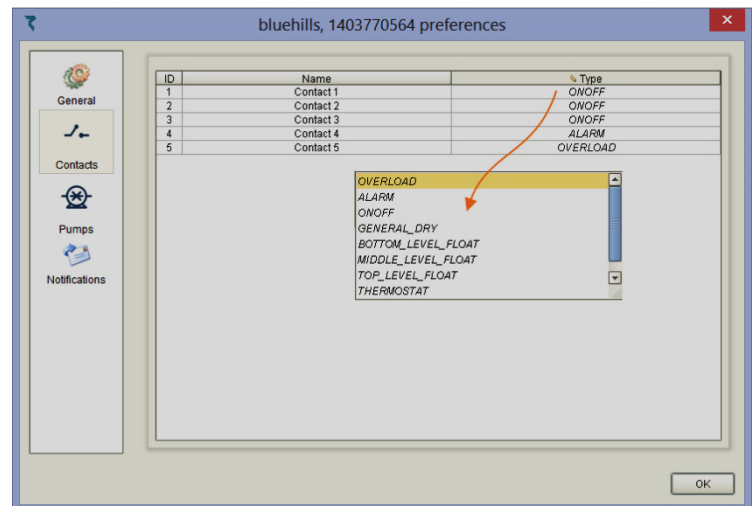
The **Preferences** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Configure/ preferences**.

When selecting the topic of **Preferences** the user gets the assistance of a wizard that helps him define some parameters that may enhance the usability and the friendliness of the software.

**General** - In the **General** preferences the user may see the serial number (ID) of the controller, the IP address of the controller and its current name. The name of the controller can be edited.



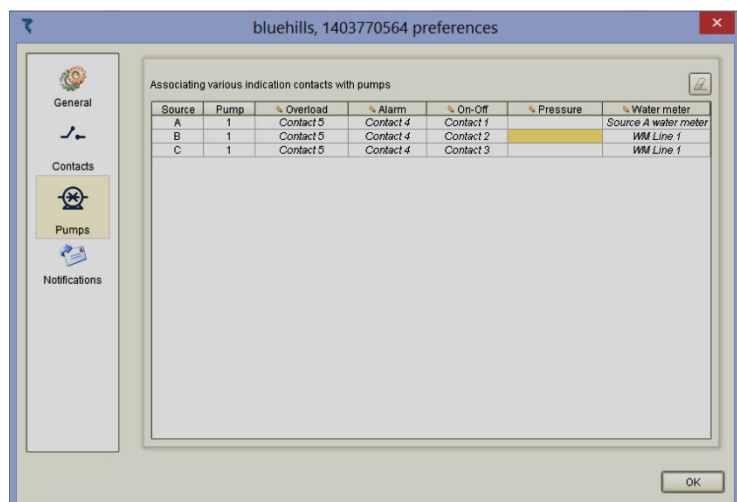
**Contacts** – When general contacts are included in the configuration of the controller, the function of each contact is not specified. Here we can categorize the contacts by defining the function they are used for.



**Pumps** – Water source pumps can be associated with some specially categorized contacts.

An **Overload** contact will indicate an overload problem, an **Alarm** contact will indicate an alarm reported by the electric box of the pump, the **ON/OFF** contact indicates whether the pump is running or not.

The pump can also be associated with a water meter that represents its flow.

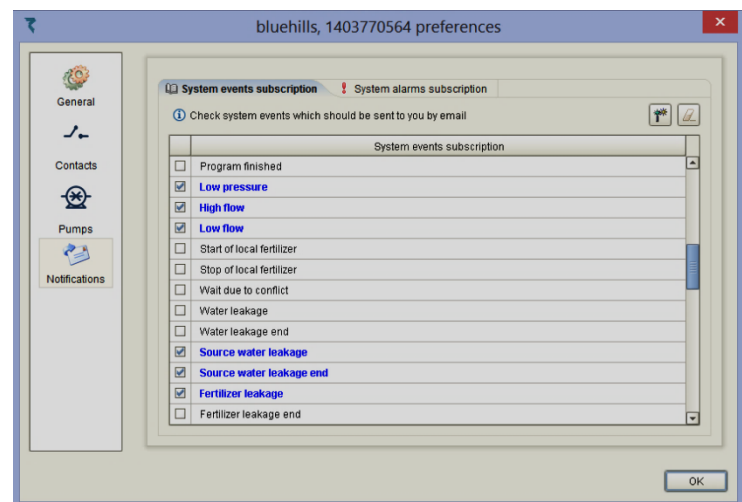


**Notifications** – there are two options of notifications the user may request:

1. Notification by Emails
2. Notification by popup window

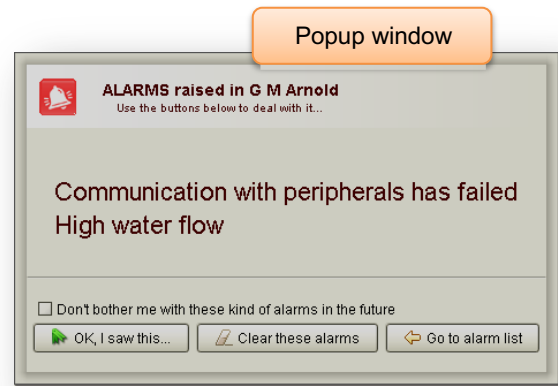
**Popup windows** are meant for notifying the user while he is next to his PC and **Emails** are meant for notifying the user while he is away from his PC.

In both cases the user is expected to check the boxes of the events they wish to be notified about.



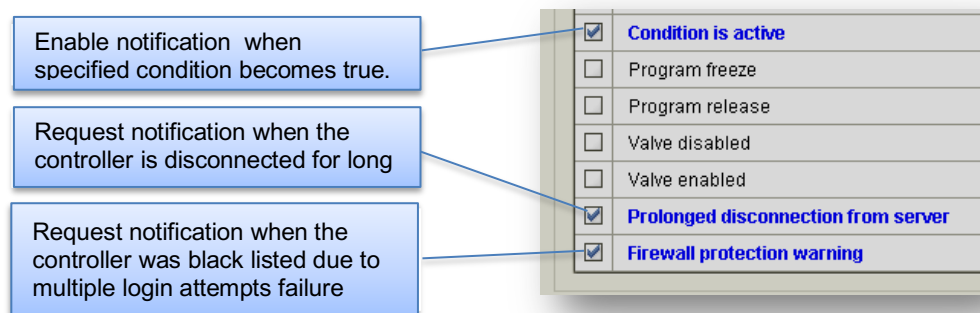
In the case of **popup windows**, the user can respond in three ways:

The user can **dismiss** the notification without doing anything, they may **clear the alarm** events that caused the notification, or they may **go to the alarm list** where they can not only clear the alarm but get additional information about the events.



**Notice that –**

- Notifications requests are set per target, so users of multiple targets need to define their notification requests per each target separately.
- In order to receive **Email notifications** the user must have his Email introduced to the system and **Email notifications** enabled. This is done at the [Console preferences/ My stuff](#) described at paragraph [7.1.2](#) below.
- There are three **Email notifications** that deserve special attention:



## 6.2 Configure – Constants

The **Constants** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Configure/ Constants**.

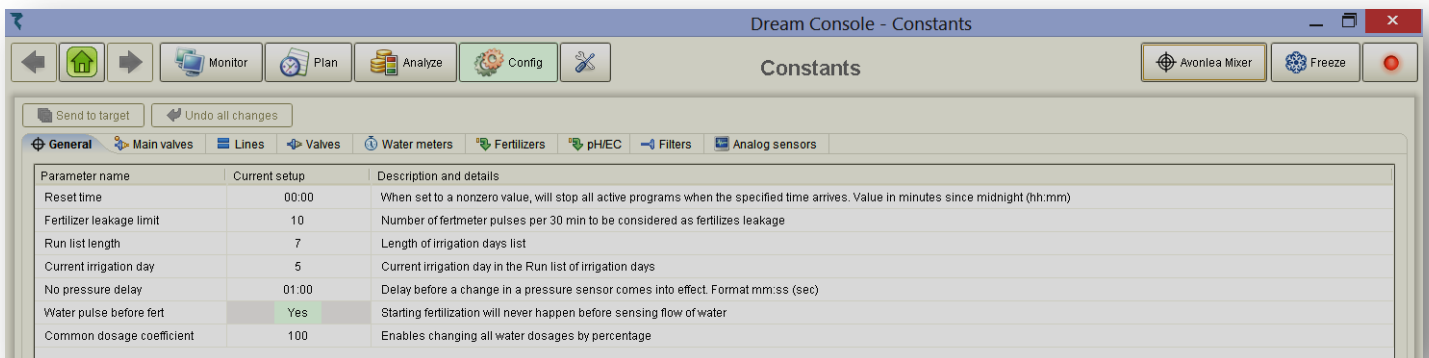
Under the **Constants** topic the user will find all the constant parameters of the items included in the system. The **Constants** are divided into categories accessible through separate tabs and discussed below in the following sections:

- General
- Main valves
- Lines
- Valves
- Water meters
- Fertilizers
- pH/EC
- Filters
- Analog sensors.

The following paragraphs present the various sections of the **Constants** definitions. Notice that some sections will not appear in case the specific item is not included in the image of the selected target.

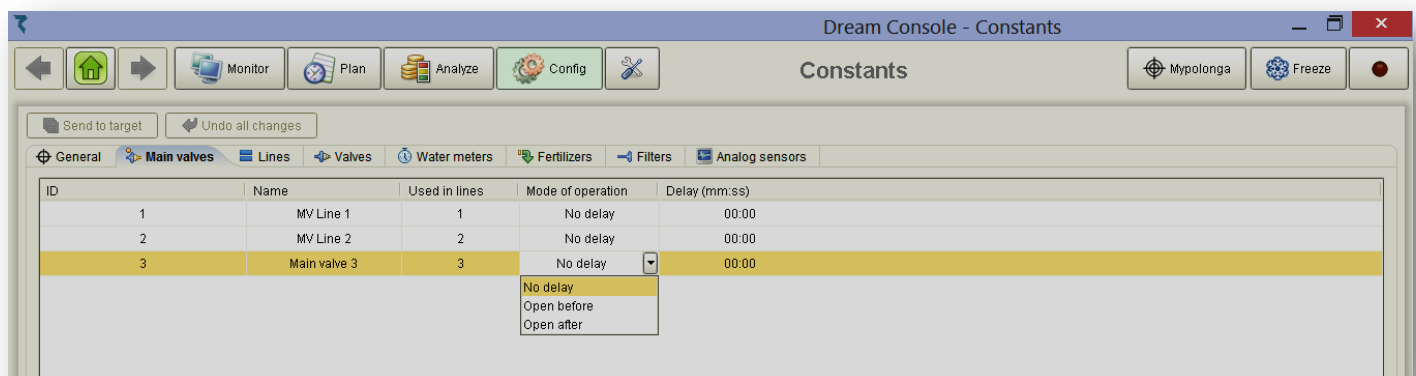
### 6.2.1 General

The following section deals with some **general** parameters of the system



### 6.2.2 Main valve

The following section deals with parameters defining the behavior of the main valves.

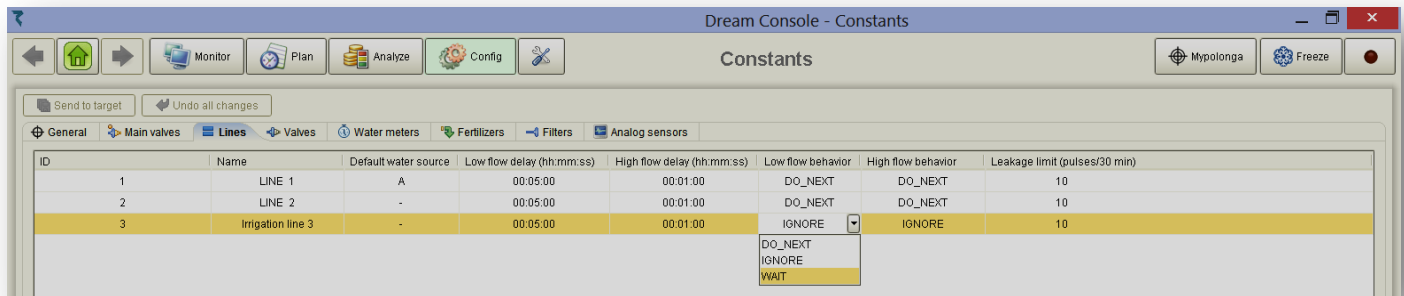


**Notice that –**

- Main valves can be defined to open before, after or together with the irrigation valves. When the main valve is defined to open before the irrigation valves, it will shut down after the closing of the last valve; the delay will be the same.

### 6.2.3 Irrigation lines

The following section deals with defining parameters of the Irrigation lines.

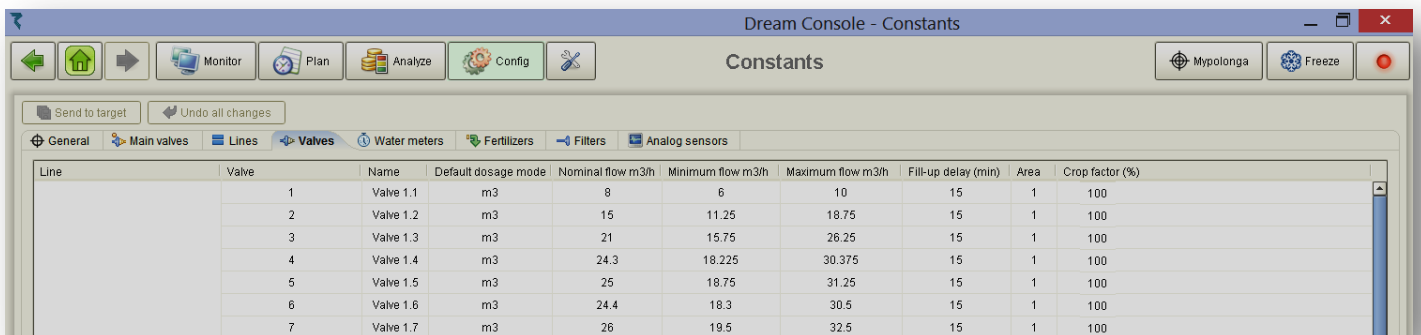


**Notice that –**

- The **Default water source** of the Irrigation line will be selected whenever a new irrigation job is defined without explicitly specifying the water source to take the water from.
- The **Low flow delay/ High flow delay** define the delay between the detection and the reaction to a High/Low flow event.
- The **Leakage limit** defines the number of pulses detected while the line is not supposed to irrigate, if the number of these illegal pulses surpasses the defined limit, a leakage alarm is raised.

### 6.2.4 Irrigation valves

The following section deals with defining parameters of the Irrigation valves.



**Notice that –**

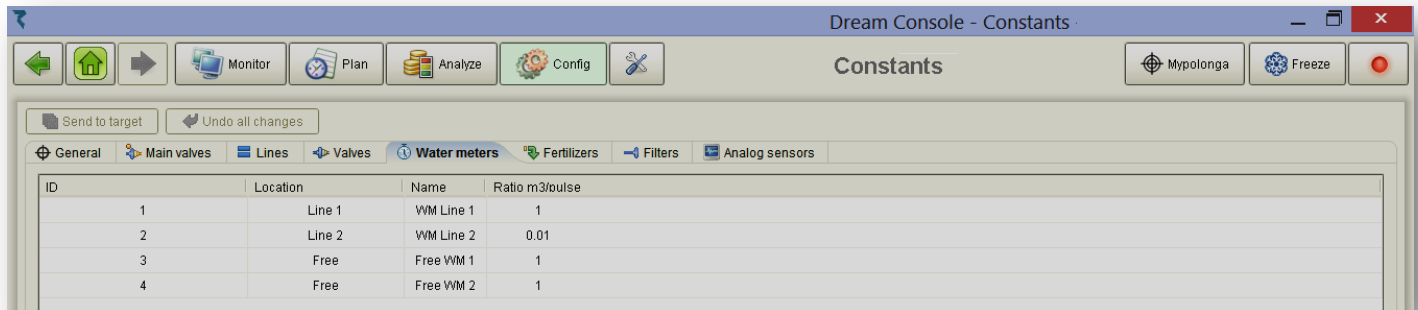
- The **Default dosage mode** will be selected automatically whenever a new irrigation job is defined. It saves the need to select each time the desired dosing mode.
- The **Nominal flow** of the valve is the expected normal flow of the valve, it is of high importance, and must not be left undefined.
- The **Minimal flow/ Maximal flow** of the valve define the limits of flow below/above which the flow will be considered out of order. If the user wishes to ignore low flow detection the **Minimum** should be set to "0". For ignoring high flow violations the **Maximum** should be set to a very high flow like 9999.



- The **Fill-up delay** defines in minutes the delay from opening the valve until the line gets full of water and flow stabilizes. During the **Fill-up delay** the system ignores flow violations and low pressure indication on the line.
- The **Area** parameter defines the area covered by the valve and it is taken into consideration when the water dosage is defined by **volume/area**, or when **Irrigation by evaporation** is used. The units by which the area is measured, are defined at the [Dealers definitions](#) in paragraph 6.3 below.
- The **Crop factor** is expressed in % and it is a coefficient that multiplies the calculated dosage when **Irrigation by evaporation** or by **volume/area** are in use.

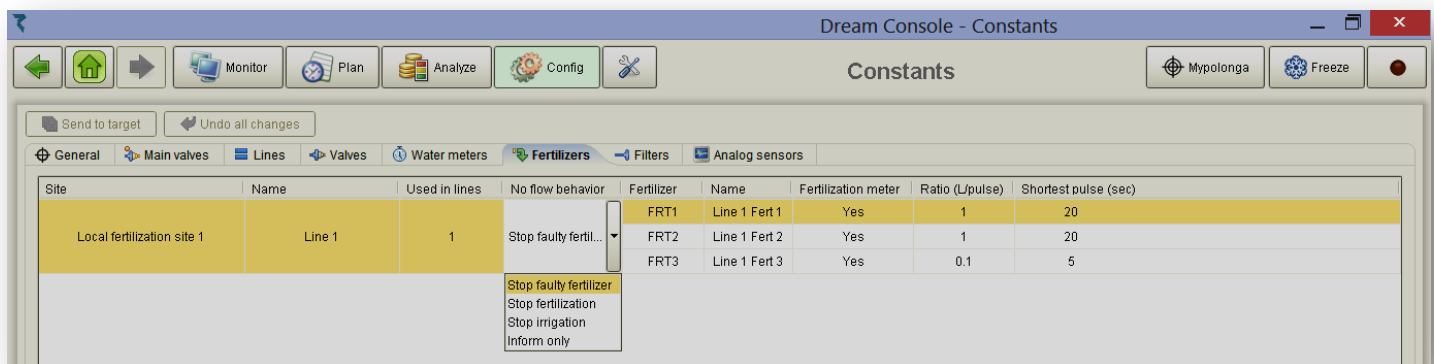
### 6.2.5 Water meters

The following section deals with defining the **Ratio** (volume/ pulse) of the **Water meters**.



### 6.2.6 Fertilizers

The following section deals with defining parameters of **Fertilizer sites**.



**Notice that –**

- When a **Fertilizer meter** is defined the **Ratio** (volume/ pulse) of the **Fertilizer meter** must be specified.
- The **Shortest pulse** parameter defines in seconds the time slice by which the fertilizer pulse will be divided in case of time based proportionate fertigation. The purpose is to get a better distribution of the fertilizer in the water.
- A special case – when the fertilizer meter gets damaged, then all the volumetric fertilizer dosages that were defined based on that meter, in all the programs, cannot be used anymore. In order to let the user keep working volumetrically until the fertilizer meter is repaired, he can go and erase the connection of the fertilizer meter from the connections list. This will notify the system that the fertilizer meter is not in use and instead the controller will use the **Ratio** and the **Shortest pulse** parameters for converting the volumetric fertilizer dosages into time and thus save the need to redefine all the fertilizer dosages. This of course requires the user to set the **Ratio** and the **Shortest pulse** properly so that the **Ratio** will really indicate the amount of fertilizer that the injector will inject within the time expressed by the **Shortest pulse**.



## 6.2.7 pH/EC

When the system includes **pH/EC control** the following parameters need to be defined:

The screenshot shows the 'Constants' window in the Dream Console software, specifically the 'pH/EC' configuration tab. The window has a menu bar with 'Monitor', 'Plan', 'Analyze', 'Config', and 'Tools'. Below the menu is a toolbar with icons for 'Send to target' and 'Undo all changes'. The main area is divided into a table on the left and a list of parameters on the right.

| Site   | Used in lines | Fertilizer | Nominal flow L/h | Injector mode |
|--------|---------------|------------|------------------|---------------|
| Line 1 | Line 1        | 1          | 400              | pH_CONTROLLED |
|        |               | 2          | 553              | EC_CONTROLLED |
|        |               | 3          | 480              | EC_CONTROLLED |
|        |               |            |                  | CONCENTRATION |
|        |               |            |                  | EC_CONTROLLED |
|        |               |            |                  | pH_CONTROLLED |
|        |               |            |                  | REGULAR       |

Callout boxes explain the following parameters:

- The type of material used for pH corrections: acid or base**: Points to the 'Unit type' parameter (pH correction materia... Acid).
- Permitted change in % of the concentration for correcting the pH/EC upward or downward**: Points to the 'Concentrations' parameters (Permitted change do..., Permitted change up..., Permitted change up ...).
- The pH and EC of the water source**: Points to the 'Water' parameters (Water (PH), Water (EC)).
- Enable/Disable control of EC and pH**: Points to the 'Control' parameters (Control enabled (EC), Control enabled (PH)).
- Low limit of pH and EC for alarming, including the delay and the reaction**: Points to the 'Low alarms' parameters (Low value % (EC), Low value delay (EC), Low value reaction (E...), Low value % (PH), Low value delay (PH), Low value reaction (P...)).
- High limit of pH and EC for alarming, including the delay and the reaction**: Points to the 'High alarms' parameters (High value % (EC), High value delay (EC), High value reaction (E...), High value % (PH), High value delay (PH), High value reaction (P...)).

**Notice that –**

- The accurate setting of the **Nominal flow** of each injector is highly important and directly affects the ability of the system to stabilize on the desired set-points. The values of the **Nominal flow** are obtained from the **pH/EC interface** by communication and they result of the fert flow calibration.
- Each injector connected to the **pH/EC interface** can function in one of the following modes:
  - Regular** – in this mode the injector functions as any regular fertilizer injector.
  - pH controlled** – in this mode the injector participates in the process of the pH control.
  - EC controlled** – in this mode the injector participates in the process of the EC control.
  - Concentration** – in this mode the injector will maintain the defined concentration as long as the vales of the pH/EC are within the permitted limits

### 6.2.8 Filters

When the system includes Filters Backflushing the following parameters need to be defined:

The reaction delay for a change in the DP status

The number of consecutive cycles by DP considered as endless looping alarm

What happens with the irrigation during the backflushing process?

When the system includes **Analog sensors** the following parameters need to be defined:

The type of the analog sensor

The maximal value of the sensor's range of values

The minimal value of the sensor's range of values

The sensor's signal type: current or volume

### 6.3 Configure - Dealers definitions

The **Dealers definitions** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Configure/ Dealers definitions**.

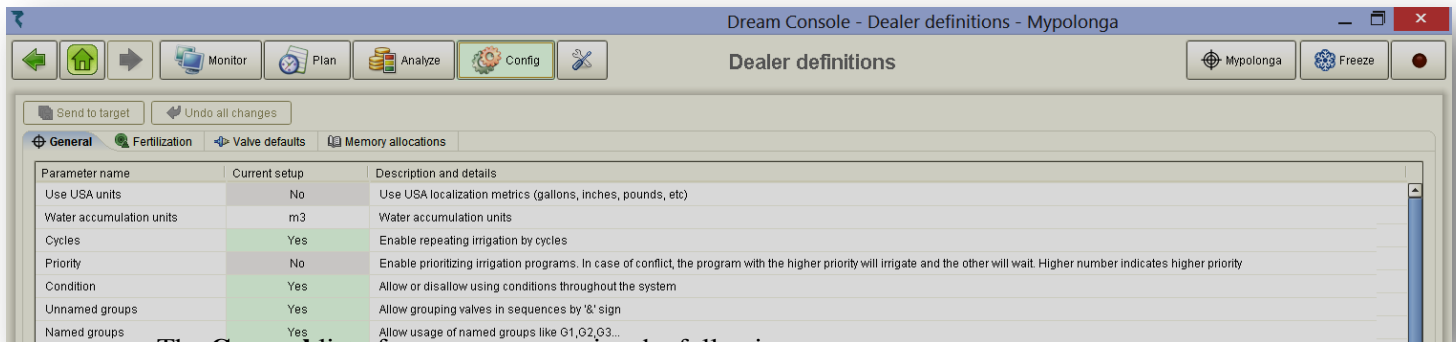
The person in charge of the system setup has been given some tools by which they can do some fine tuning of the system. This person can decide to hide unnecessary features and reveal useful ones. they can dictate some global default parameters, they can decide about the system behavior in some special cases and they can make changes in the memory allocation.

**Dealer definitions** are divided into the following categories and described in the following sections:

- General
- Fertilizers
- Valve defaults
- Memory allocations
- Data acquisition

### 6.3.1 Dealers definition – General

The following section contains numerous yes/no questions and a few numeric settings that influence the general appearance of the **CONSOLE** and some basic features of the controller.



The **General** list of parameters contains the followings:

- **Use USA units** – for using gallons, thg, inches and other American standard units
- **Water accumulation units** – when USA units were selected the accumulation can be by thg, acre-feet or acre-inch.
- **Cycles** – permit using cycles per start.
- **Priority** – permit using priorities for programs. The priorities go from 0 (lowest) to 9 (highest).
- **Condition** – permit using conditions.
- **Unnamed groups** – permit grouping valves in sequences by the “&” symbol that will make them share the same water and fertilizer dosage.
- **Named groups** – permit using named groups like G1,G2,G3 stored in a library of groups.
- **Start together** – permit combining valves in a sequence by “+” symbol which will make them start together but with separate water dosages. If the valves are sharing the same fertilizer site, they will have a common fertilizer dosage plan.
- **Dosage per area** – permit dosing water by volume/area.
- **Evaporation control** – permit dosing water by evaporation.
- **Accumulated radiation** – permit triggering the cycles of irrigation by accumulated radiation.
- **Special water before** – permit using for the first local fertilizer injector a special definition of water before fertilization.
- **Stop time => Max duration** – use the Stop time of a program not as a time at which irrigation must stop, but as a maximal duration period.
- **Reuse valve in sequence** – permit the same valve to appear in the sequence more than once.
- **Sequential fertilization** – instead of injecting fertilizers in parallel, they will be injected one after the other, with a flushing procedure between them. The flushing is done by the last injector.
- **Use fertilizer sets** – permit using predefined sets of fertilizers stored in a library.
- **Use global fert limits** – force using global limits per valve that will define the total amount of fertilizer to be supplied to the valve per season. Each amount injected will

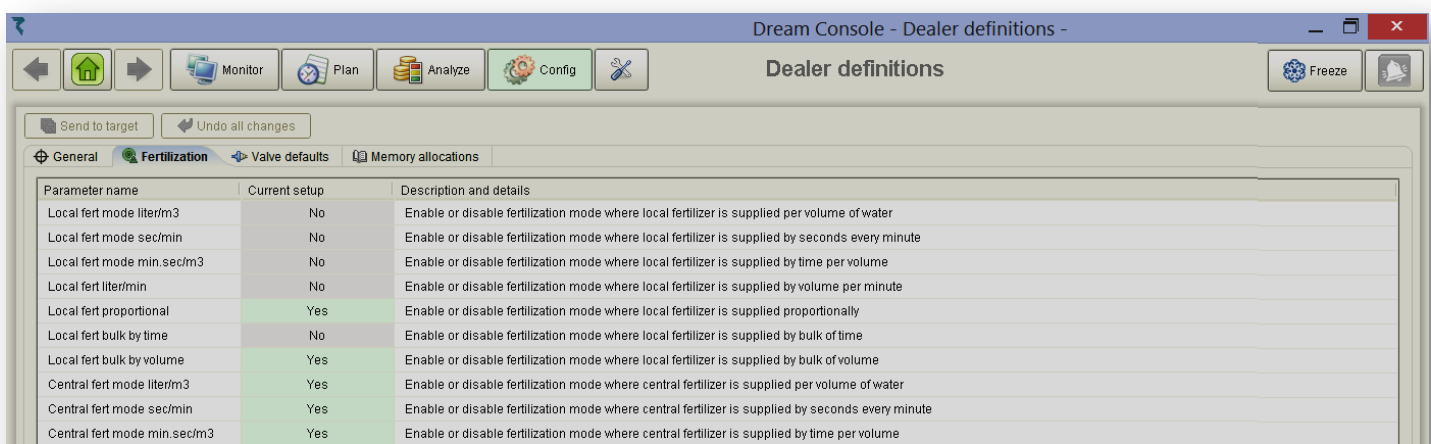


be deducted from the global limit until no more is left and then the injection of that fertilizer will be blocked for that valve.

- **Parallel programs in line** – permit irrigation of several programs at the same time on the same irrigation line as long as they do not irrigate the same valve at the same time.
- **Halt on repeated problems** – halt irrigation and freeze irrigation line when a high/low flow problem occurs repeatedly three times.
- **DP control** – permit the flushing to be triggered by the DP sensor during the line filling delay.
- **Frost protection** – permit using the frost protection mechanism.
- **Rain delay** – permit using the rain delay mechanism.
- **Sound alarms** – permit the alarm sound at the main menu of the controller while there exist alarm events.
- **Show I/O problems** – show communication problems at the display of the I/O status.
- **Gradual opening delay** – When irrigating groups of valves, the opening/closing will be gradual with a delay between the valves.
- **Delay for checking valve status** – The delay between the open/close command and the checking of execution, when the system contains sensors (flow switches or similar) to detect physical opening/closing of the valves.
- **Enable long sequences** – by default the length of sequences is limited to 28 members, the use of longer sequences must be explicitly enabled and then editing of sequences will not be permitted at the controller's MMI.
- **Collect communication log** – enable logging of the communication between the controller and its peripherals.
- **Collect time accumulations** – request accumulation by time additionally to volumetric accumulation.
- **Flow log data threshold** – in order to reduce the amount of the flow log data, we define a threshold that only when the change of the flow exceeds the threshold, it will be considered a change, otherwise the last value will be considered and no new value be recorded. The threshold is expressed in % from the last value.
- **Sensor log data threshold** – in order to reduce the amount of the analog sensors log data, we define a threshold that only when the change of the analog value exceeds the threshold, it will be considered a change. The threshold is expressed in % from the last value.

### 6.3.2 Dealers definition – Fertilizers

In the following section the person in charge of the system setup can decide which options of fertilizer dosage will be revealed to the user. Those that are not going to be utilized will be hidden.



### Notice that –

- The list of **Fertilizer dosing** options is the following:
  - a. **Liter/m3** – volume of fertilizer / volume of water.
  - b. **Seconds/minute** – time of fertilizer / time of water.
  - c. **Min:sec/m3** – time of fertilizer / volume of water.
  - d. **Liters/min** – volume of fertilizer / time of water.
  - e. **Proportional** – the proportion is calculated by dividing the desired amount of fertilizer with the desired amount of water.
  - f. **Bulk by time** – continuous injection specified as bulk of time.
  - g. **Bulk by volume** – continuous injection specified as bulk of volume.

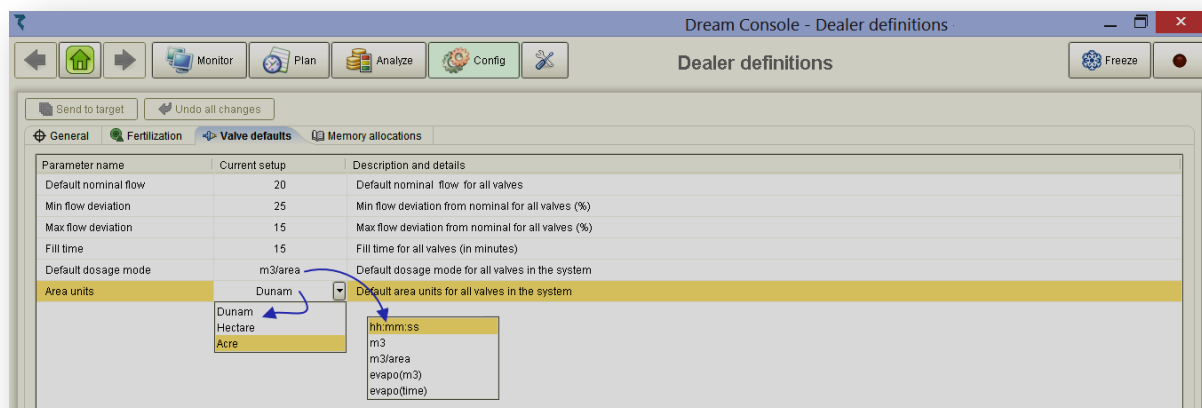
The options “a-e” are all proportional modes of fertigation, in which the fertilizer is injected proportionally to the water. In options “a-d” the user defines the desired proportion, but in option “e” the proportion is obtained by calculation.

The selection of the dosing options is done both for the local and for the central fertilizer sites.

- One of the dosing options can be set as the default dosing mode.
- When the fertilization is controlled by pH and EC the only option permitted is **liter/m3**.

### 6.3.3 Dealers definition – Valve defaults

The following section deals with default values belonging to the irrigation valves.

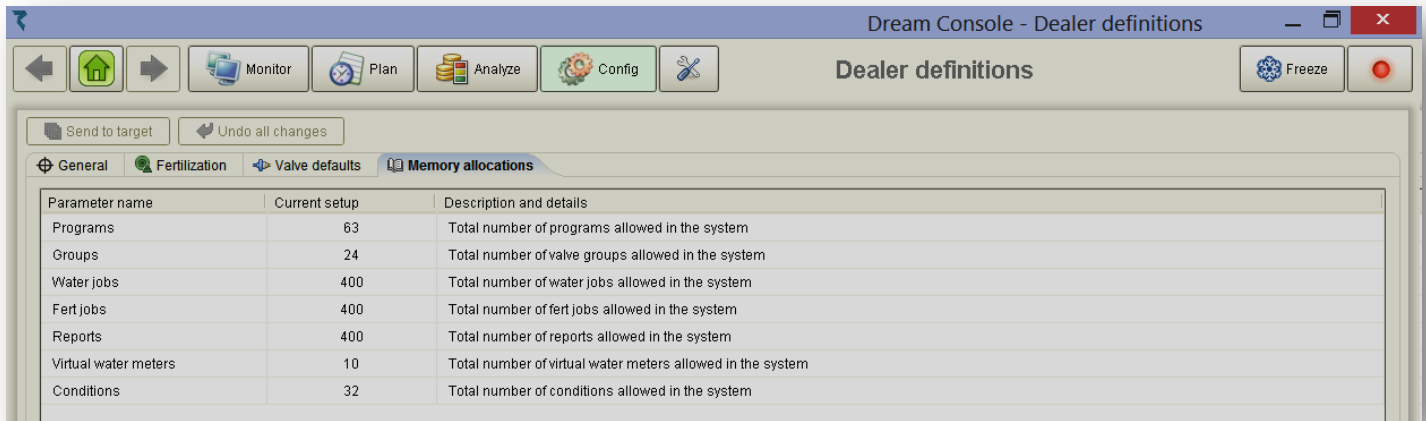


### Notice that –

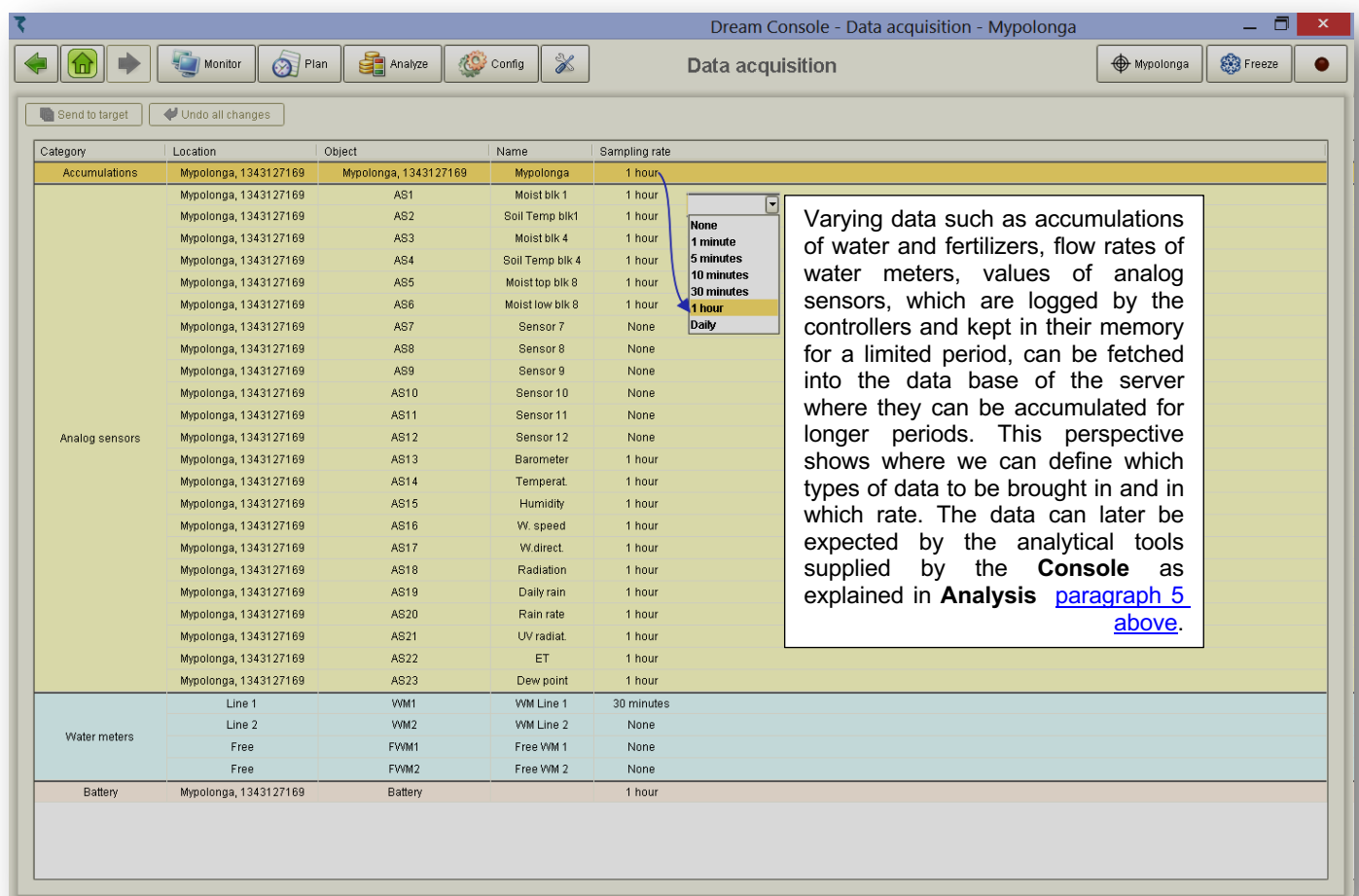
- The values of the **Nominal flow**, **Minimal / Maximal flow** and the **Fill time** will be used as default values for all valves, the user will be able to change and set the accurate values at [the Constants of the Irrigation valves](#) (paragraph 6.2.4 above).
- The **Default dosage mode** will be used whenever a new irrigation job is created.
- The selected **Area units** will be used whenever there will be reference to area based calculations.

### 6.3.4 Dealers definition – Memory allocations

The following section shows how much memory was allocated for various uses in the system. Usually there will be no need to make any changes here, however memory allocations can be increased when needed without losing any information.



## 6.4 Configure – Data Acquisition



**Notice that –**

- How long will the **Server** keep the various types of logged information? The answer depends on the **Data retention** settings done at the **ADMINISTRATION** software. Check with the person in charge of the system setup that the **Data retention** parameters were properly set.

## **6.5 Configure – System**

The following section is informative only; it contains information about the **System configuration**, including the contents of the hydraulic network to be controlled, the hardware used for setting up the system and a detailed list of where each item is physically connected.

### 6.5.1 System – Water sources

When the hydraulic network includes **Water sources** the following information is supplied:

| ID | Name   | Src | Used in lines | Number of pumps | Water meter |
|----|--------|-----|---------------|-----------------|-------------|
| A  | Src. A |     | 1             | 2               | No          |

### 6.5.2 System – Lines

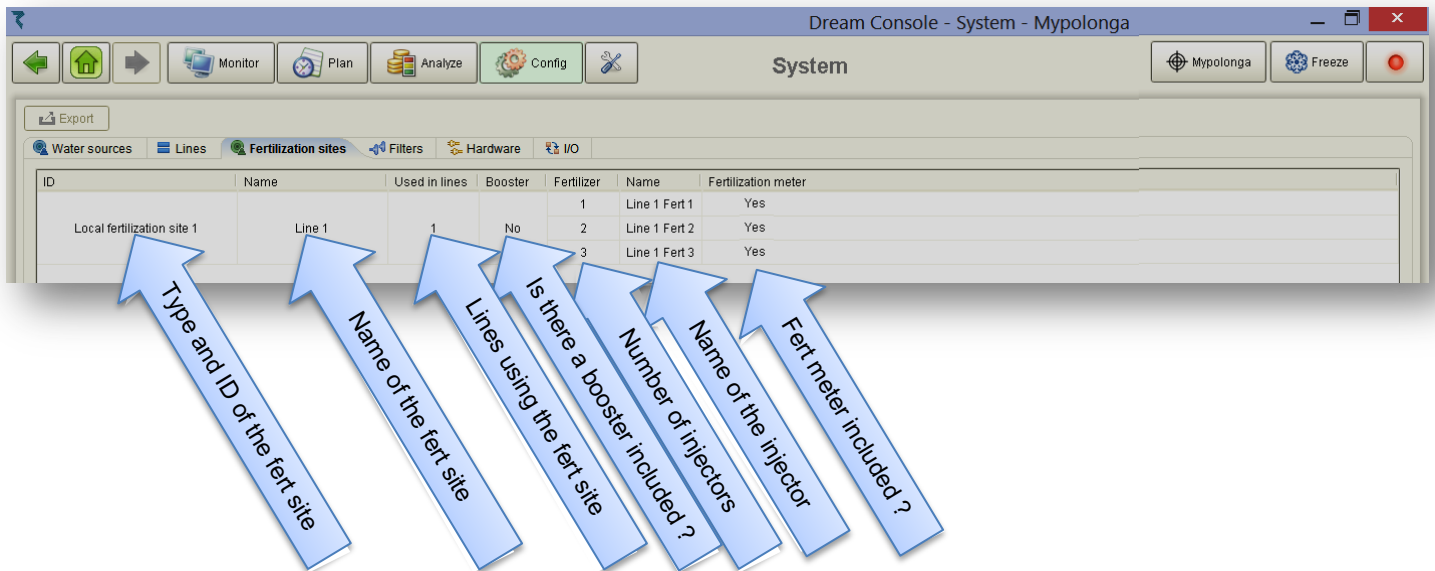
This section supplies details about the contents of the **Irrigation lines**.

| ID | Name              | Number of valves | Water meter | Main valve | Water source | Local fert site | Central fertsite | Local filter site | Central filter site | Pressure sensor |
|----|-------------------|------------------|-------------|------------|--------------|-----------------|------------------|-------------------|---------------------|-----------------|
| 1  | LINE 1            | 25               | Yes         | 1          | A            | Yes             |                  | Yes               |                     | Yes             |
| 2  | LINE 2            | 25               | Yes         | 2          |              | No              |                  | No                |                     | Yes             |
| 3  | Irrigation line 3 | 10               | No          | 3          |              | No              |                  | No                |                     | No              |



### 6.5.3 System – Fertilization sites

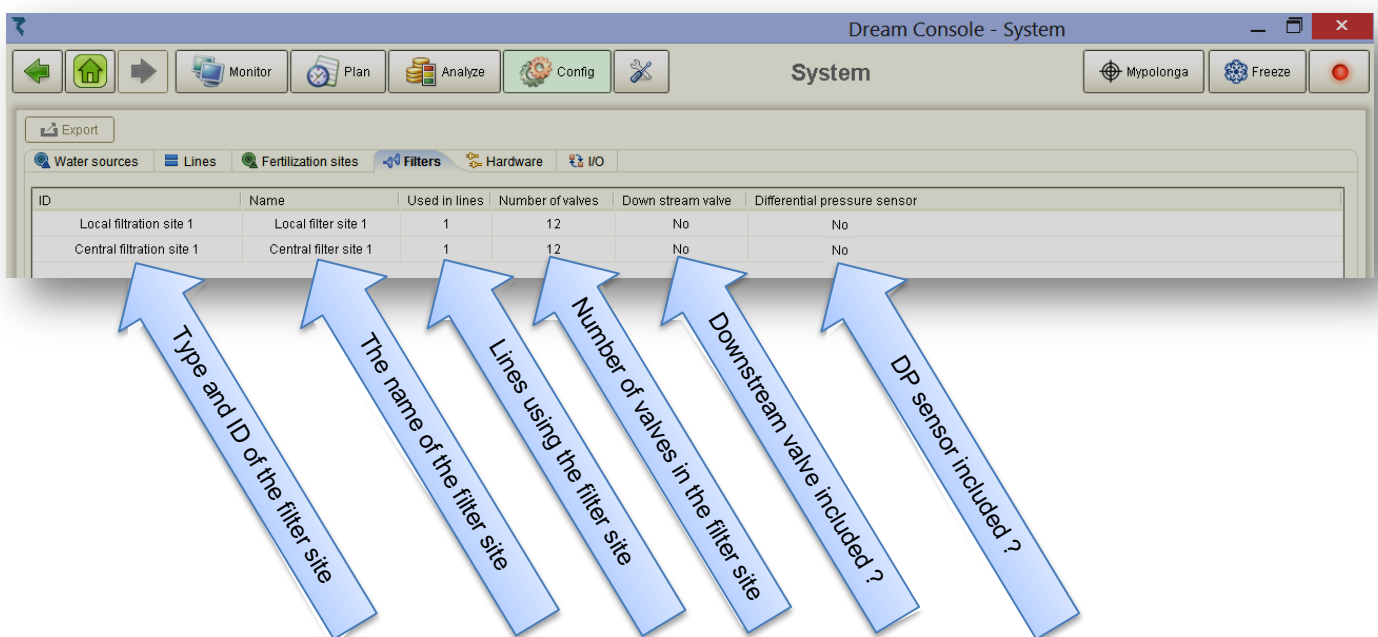
This section supplies information about the contents of the local and central **Fertilization sites**.



| ID                         | Name   | Used in lines | Booster | Fertilizer | Name          | Fertilization meter |
|----------------------------|--------|---------------|---------|------------|---------------|---------------------|
| Local fertilization site 1 | Line 1 | 1             | No      | 1          | Line 1 Fert 1 | Yes                 |
|                            |        |               |         | 2          | Line 1 Fert 2 | Yes                 |
|                            |        |               |         | 3          | Line 1 Fert 3 | Yes                 |

### 6.5.4 System – Filter sites

This section supplies information about the local and central **Filter sites**.

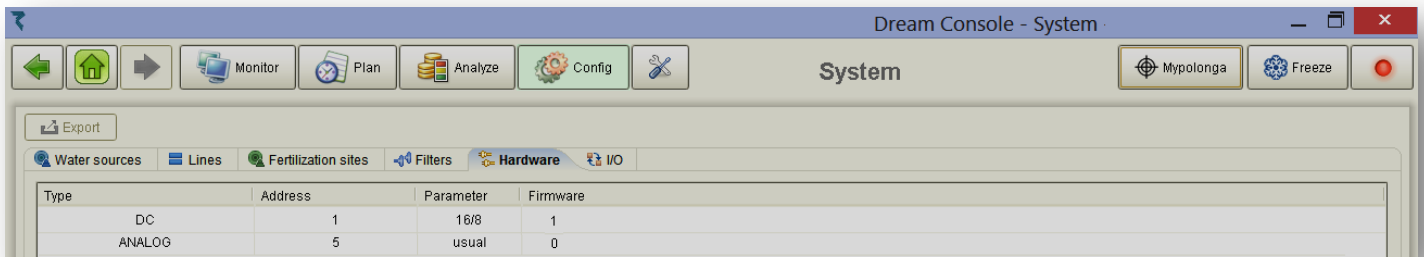


| ID                        | Name                  | Used in lines | Number of valves | Down stream valve | Differential pressure sensor |
|---------------------------|-----------------------|---------------|------------------|-------------------|------------------------------|
| Local filtration site 1   | Local filter site 1   | 1             | 12               | No                | No                           |
| Central filtration site 1 | Central filter site 1 | 1             | 12               | No                | No                           |

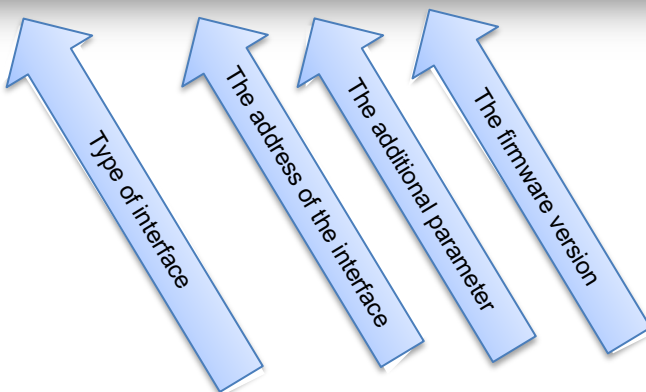


### 6.5.5 System – Hardware

Supplies information about the **Hardware** used for building up the control system. When speaking about the **Hardware** of the **VISION 2** we actually mean the ensemble of **Interfaces** through which the **Central Processing Unit** communicates with the peripheral I/O boards, to which all the hydraulic accessories are connected. To each type of **Interface** there is a parameter supplying some additional information about that specific type of interface.



| Type   | Address | Parameter | Firmware |
|--------|---------|-----------|----------|
| DC     | 1       | 16/8      | 1        |
| ANALOG | 5       | usual     | 0        |



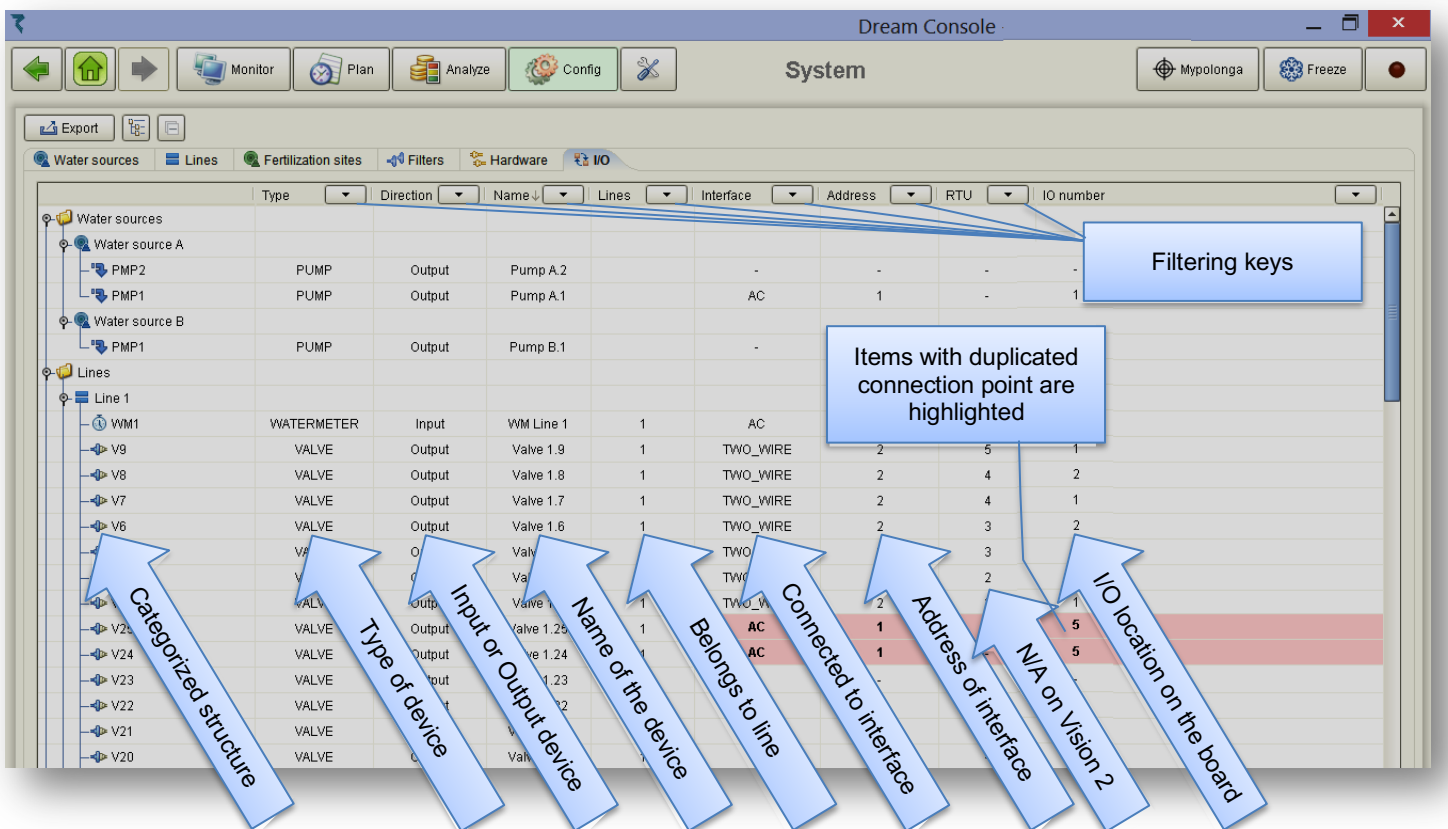
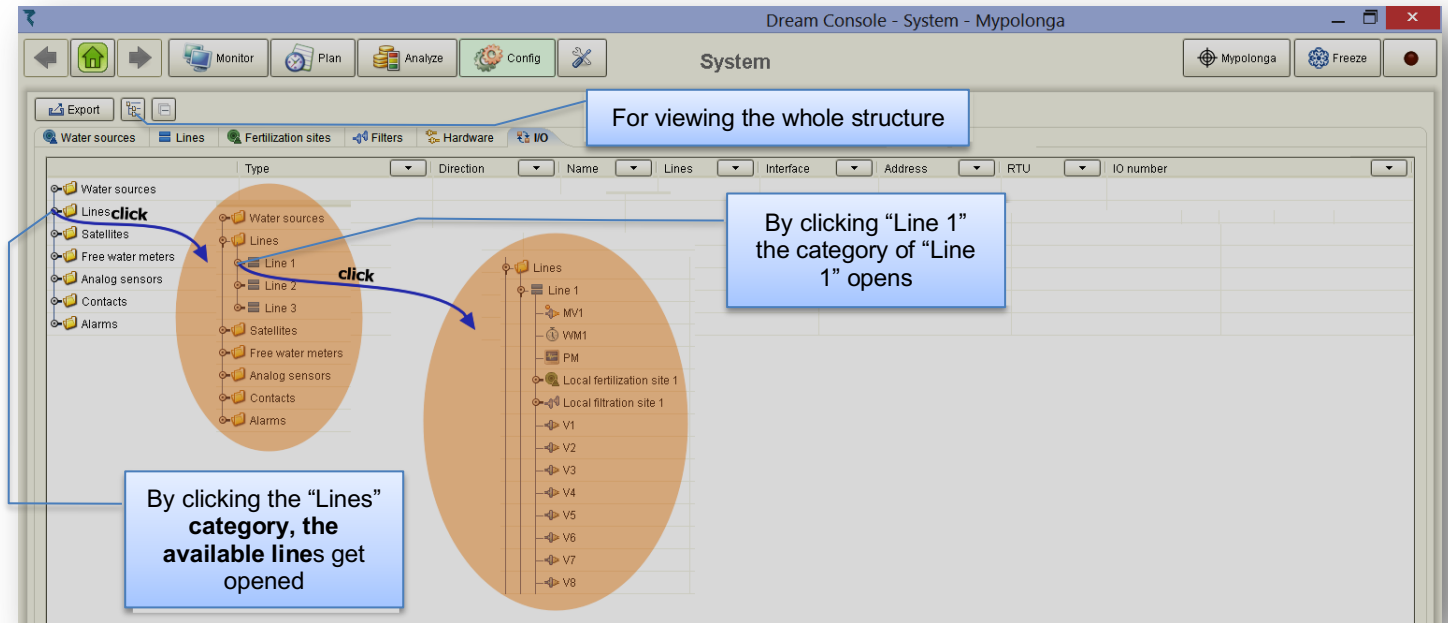
#### Notice that –

- Each **Interface** must be given a unique address, the address appearing in the hardware list must be equally set at the **DIP switches** (the address switches) of each **Interface**. The addresses need not be sequential.
- The following type of interfaces exist:
  - a. **Interface DC** - the additional parameter defines how many outputs and inputs will the interface control: 16/8 or 32/16 (output/inputs). The outputs are **12 DC latching** and the inputs are of dry contact type.
  - b. **Interface AC** - the additional parameter defines how many outputs and inputs will the interface control: 16/8 or 32/16 (output/inputs). The outputs are of **24v AC** and the inputs are of dry contact type.
  - c. **Interface of 4 wired RTUs** – N/A on Vision 2 controllers
  - d. **Interface of 2 wired RTUs** – N/A on Vision 2 controllers
  - e. **Interface of RF RTUs** – N/A on Vision 2 controllers
  - f. **Interface of pH/EC control** - the additional parameter defines the fertilizer site to which the interface belongs.
  - g. **Interface of Analog inputs** - the additional parameter defines the type of analog interface in use. The following options exist: **Usual**, **Davis**, **THD**. The **Usual** is for standard Analog inputs, the **Davis** is for a weather station and the **THD** is for a special device that measures **Temperature**, **Humidity** and **Dew point**.

## 6.5.6 System – I/O

The following section deals with the connections list of all the items included in the **Hydraulic network** definition, to the available Inputs and outputs (I/O) boards.

The connections list is arranged in a categorized structure, so that the user can decide to view only the categories he is interested in or the whole structure if he likes to.



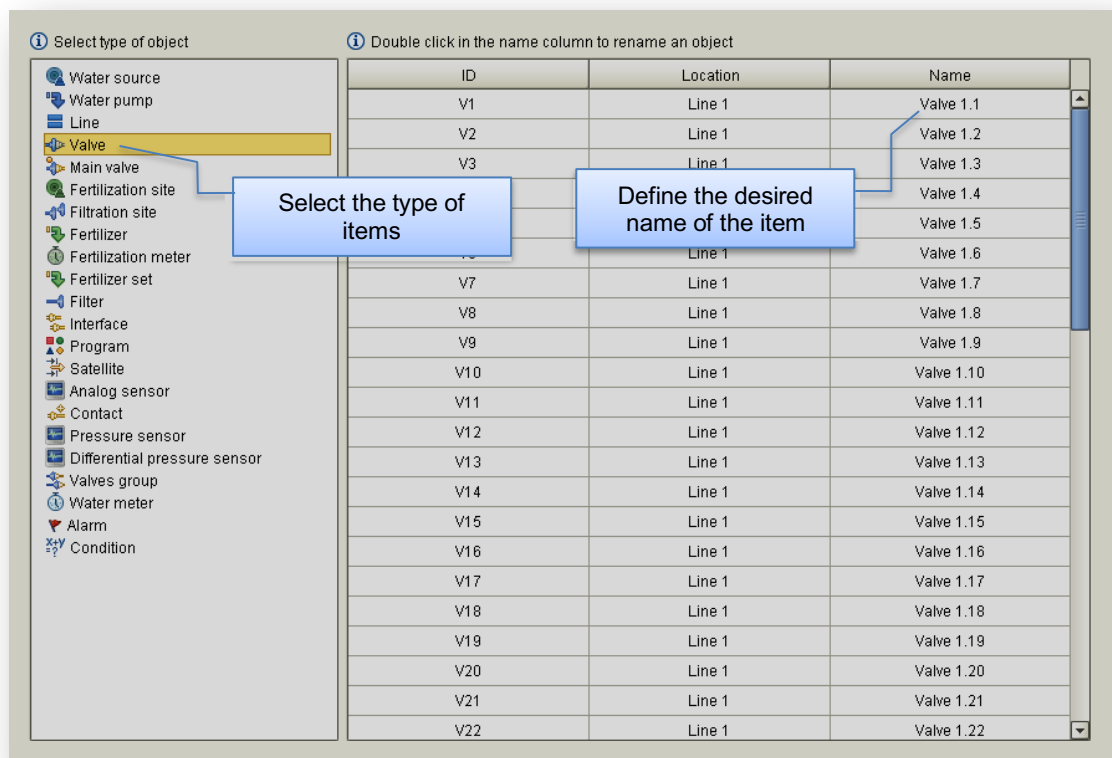
**Notice that –**

- The list can be filtered by any category, so one can ask to see for example only the inputs connected to interface 1.
- When more than one output or input is assigned to the same connection point, the items will be highlighted.
- The contents of the displayed part of the list can be exported into a “csv” (Excel) file, and then saved or printed as needed.

## 6.6 Configure – Names

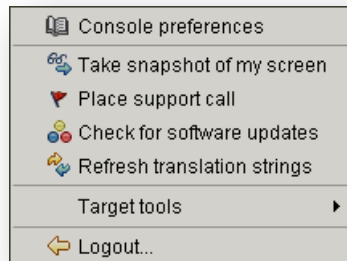
The **Names** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Configure/ Names**.

The **Names** section enables the user to define desired names to all the items included in the **Target’s image**, including abstract items such as irrigation programs and conditions. All items are given default names by the system; however it makes it much friendlier when the user can define each item a name which is more descriptive and better suiting the particular case.



## 7. Tools

The following chapter supplies information about some useful tools for setting some preferences, checking for updates, sending support calls and doing some operations with the target. Some of the tools may serve the end users and some are meant for the people in charge of the system setup and maintenance, let's call them technicians



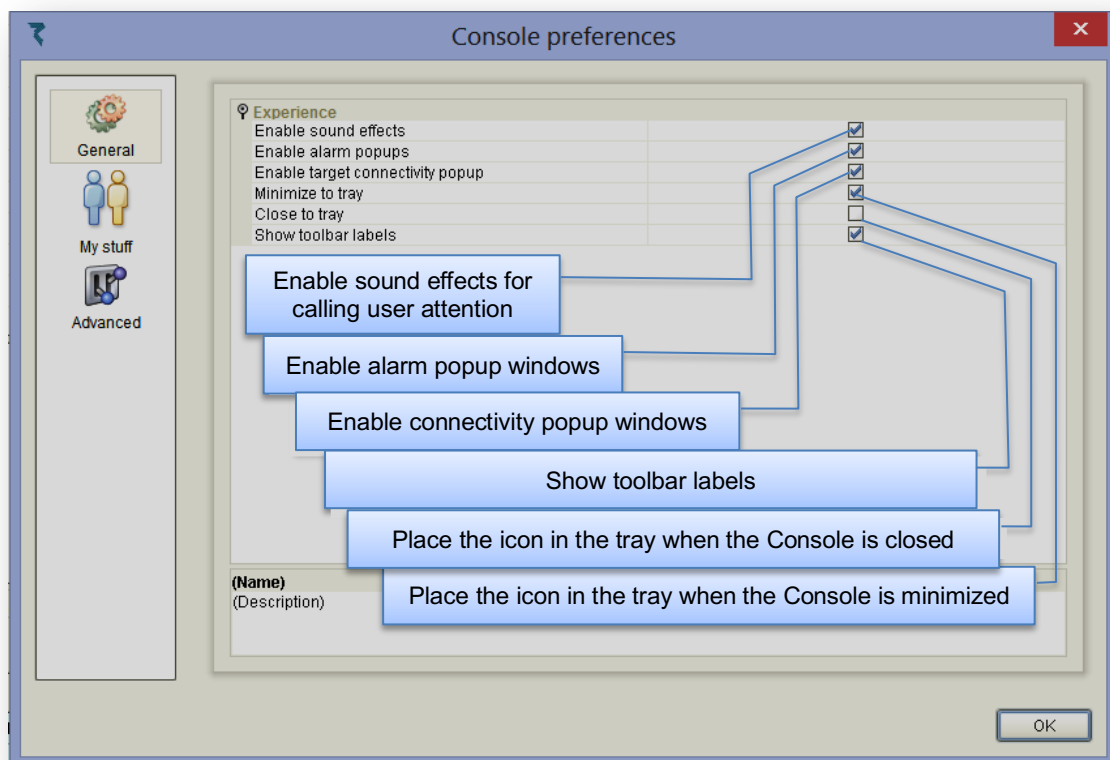
For end users

### 7.1 Tools – Console preferences

The **Console Preferences** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Tools/ Console preferences**.

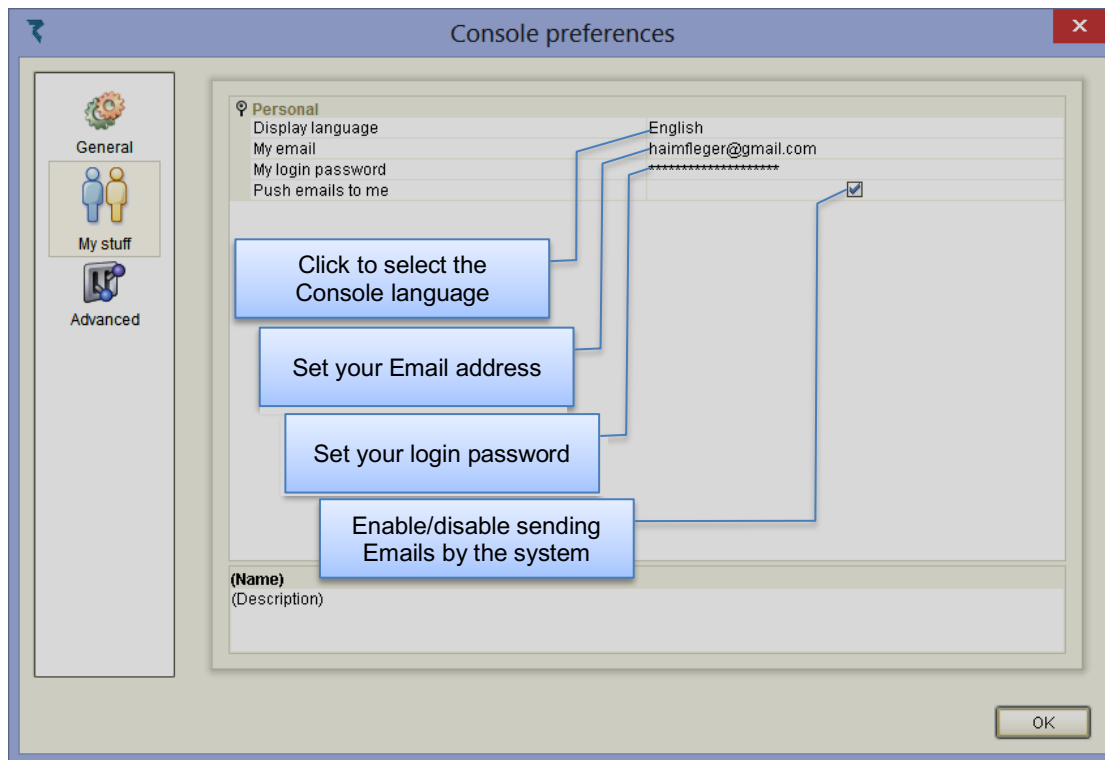
Obviously this section deals with setting some parameters that will affect the appearance and the behavior of the **Console**.

#### 7.1.1 Console preferences – General



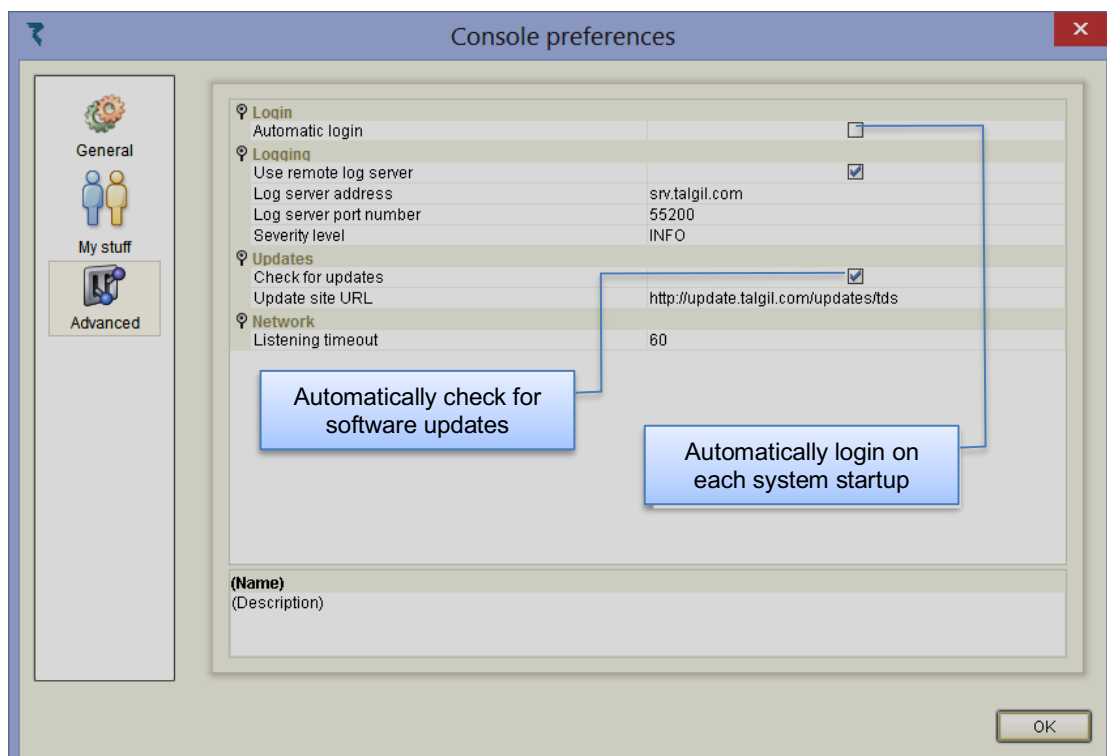


### 7.1.2 Console preferences – My stuff



### 7.1.3 Console preferences – Advanced

The **Advanced** preferences are meant for use mostly by the professional people. Except for **Automatic login** setting and **Check for software updates**, any changes made by nonprofessional users may have undesired consequences.



## 7.2 Tools – Taking snapshots of my screen

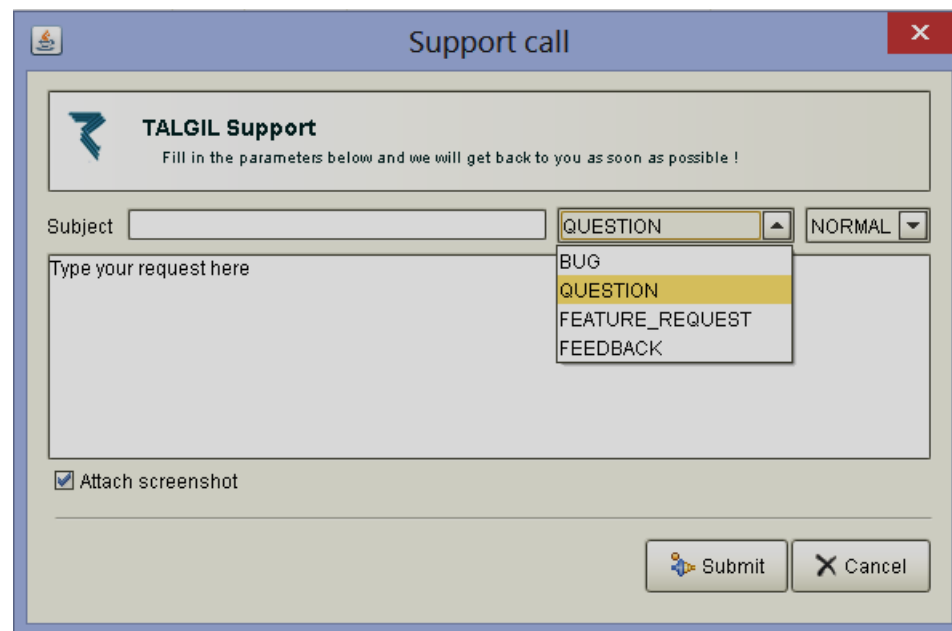
The **tool of taking screen snapshots** can be reached from the **Main menu** or the **Pull down menu** by selecting **Tools/ Take snapshots of my screen**.

The outcome of this tool is a “png” type file that contains a screenshot of the current perspective of the **CONSOLE**.

## 7.3 Tools – Place support call

The **Place support call tool** can be reached from the **Main menu** or the **Pull down menu** by selecting **Tools/ Place support call**.

The **Place support call tool** enables the user to report errors, send feedback, ask questions the technical support team of Talgil. Once the Support call is submitted, an Email is sent automatically to the support team.



## 7.4 Tools – Check for software updates

The **Check for software updates tool** can be reached from the **Main menu** or the **Pull down menu** by selecting **Tools/ Check for software updates**.

The technical staff of Talgil releases a new version of the **CONSOLE** software from time to time. The new versions usually contain bug fixes and new features. It is strongly recommended to have the **CONSOLE** up to date. The software updates are supplied free of charge. In paragraph [7.1.3](#) above it is shown that an **Automatic Check for updates** can be requested, however the user may issue a check for update command whenever he wishes to do so, by use of the **Check for software updates** tool.

## 7.5 Tools – Refresh translation strings

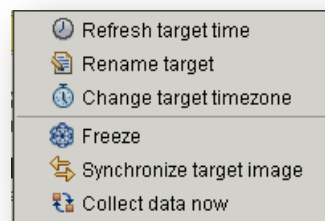
The **Refresh translation strings tool** can be reached from the **Main menu** or the **Pull down menu** by selecting **Tools/ Refresh translation strings**.

The purpose of the **Refresh translation strings tool** is to enable viewing the result of translated strings right on the perspectives of the **CONSOLE**. This is a helpful tool for those who are translating the screens of the **CONSOLE** to other languages.

## 7.6 Tools – Target tools

The **Target tools** can be reached from the **Main menu** or the **Pull down menu** by selecting **Tools/ Target tools**.

The list of **Target tools** for the end user and for the technicians is not the same, the additional target tools of the technicians will be discussed in [chapter 8](#) below.



For end users

The end user target tools enable doing the followings:

**Refresh target time** – the targets are running their own internal clock, this clock is synchronized from the **SERVER** each time the target reconnects to the **SERVER**. However if the user wishes to refresh the target clock he can use this target tool.

**Rename target** – this tool enables the user to define a new name to the target.

**Change target time-zone** – each target has its **time-zone** defined according to its physical location. When the **SERVER** is sending the current time to the target for synchronization it is sending the **GMT (Greenwich Mean Time)** and the target adjusts its internal clock by adding its displacement based on its **time-zone**.

**Freeze** – the **Freeze** command halts all activities of the target closing all outputs and staying in that position until the **Resume** command is issued.

**Synchronize target image** – the **SERVER** keeps an updated image of each of the targets, so that when a user needs any information from the target, he actually gets it from the target's image stored at the **SERVER**, however if the user has reason to believe that the image of the target kept at the **SERVER** is not perfectly up to date, he can use the **Synchronize target image** tool for updating.

**Collect data now** – the **Data acquisition** settings define the rate at which various types of data will be sampled and logged. The information is kept at the target log files and fetched into the **SERVER's** data base from time to time. If the user wishes to get that logged data right away, he can ask to **Collect data now**.

