IMS - Irrigation Management System

User Guide

IMS - Irrigation Management System

Revision 1.1





WATER-INSIGHT

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Contents

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Revision Details

1.0	July 2021	First Issue
1.1	September 2021	Updates to scheduling, RXPS data interchange and auto backup feature

Introduction

The Water-Insight Irrigation Management System (IMS) is an advanced web-based application which creates visibility of farm operations, by allowing you to control and monitor your solid set (fixed grid) sprinklers from anywhere at any time.

IMS also offers sensor options that can provide real data to help support your irrigation decisions and aid with on farm water management.

This guide assumes some familiarity with the Water-Insight product range and covers:

- System Planning Considerations
- Account Management and Access
- Site Creation, Expansion and Editing
- Site Monitoring and Management
- Maintenance and Troubleshooting

Additional resources such as product information and training videos can be found at www.waterinsight.co.nz.

Account Access and Management

Creating an IMS Account

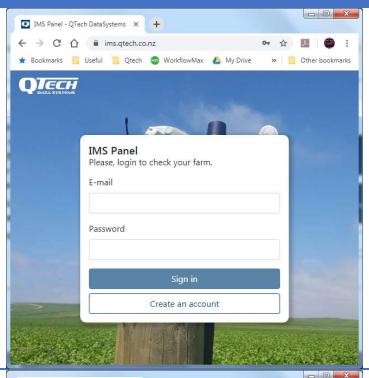
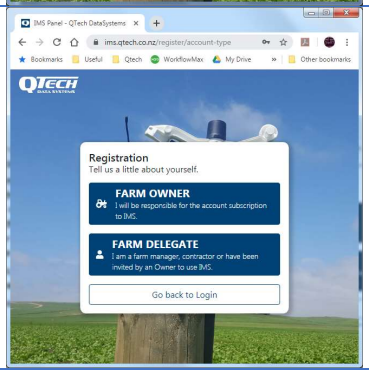
IMS can be used via a phone, tablet or desktop web browser. Farmers can sign up for the service and manage one or more farms or farm blocks.

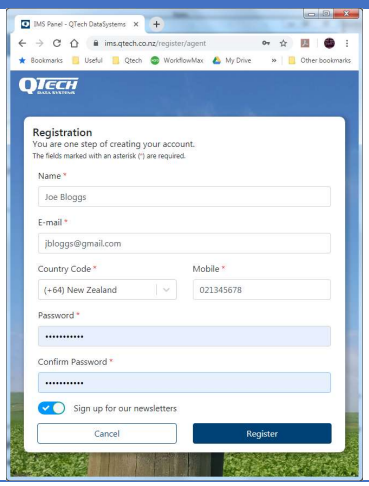
In addition, the farmer can delegate operations and monitoring to trusted entities such as irrigation installers or farm hands, if they also sign up for an IMS account.

In creating an account, you agree to the terms and conditions of using the IMS site in regards to privacy and usage.

Signing up to IMS

There are two ways to sign up, you can contact Water-Insight to do it for you or you can sign up yourself as follows:

Step	Process	Note
1.	Open a web browser like Google Chrome, Firefox, Safari or Microsoft Edge and in the address bar type ims.qtech.co.nz Select the **Create an account** button.	
2.	If you are the **primary** account holder and you have oversight over all farms and farm blocks, select **Farm Owner**. Anyone else who intends to access a Farm Owner's farms such as farmhands, installers, contractors, suppliers of services or even a delegated farm manager must choose **Farm Delegate** *If the farm you want access to has already been created in someone else's name you must select **Farm Delegate**.*	

Step	Process	Note
3.	Enter all your details, including a mobile phone number so that you can receive alert notifications from IMS. Create a password and make a note of it in a safe place. Once you are done click the **Register** button	
4.	You will receive a welcome email which includes a link for you to verify your account and complete the sign up process.	

Delegate Access

Farm Delegate's may receive invitations from a **Farm Owner** to access their site(s). This process is described in the **Managing Access to IMS** section.

Adding IMS to the Home Screen of your Phone

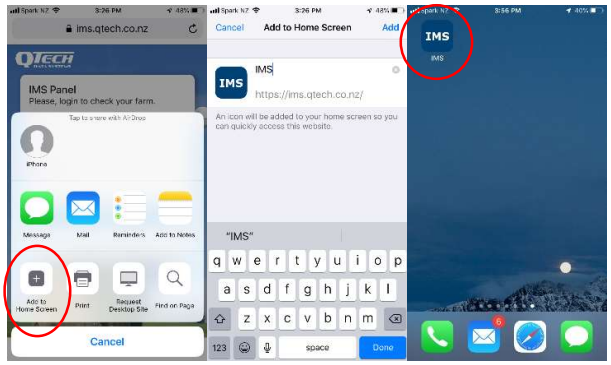
To simplify access to Water-Insight IMS you can add a website shortcut to your devices home screen. This allows one-touch access, in the same way as launching an app.

You'll need your sign in email address and your password to log in to IMS.

iOS iPhones and iPad devices

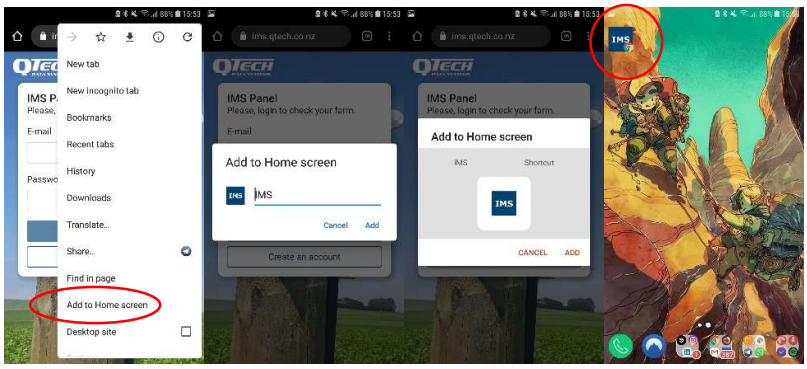
- First open Safari and enter ims.qtech.co.nz in the address bar, then tap the share arrow
- Find the **Add to Home Screen** button and tap it
- Edit the name of the shortcut to **IMS** - so you can see it all in the small icon label
- Tap **Add** to add it

Now, tap the home button (or your iPhone X equivalent) to return to the home screen. You'll see a new icon, which can be tapped to take you straight to the IMS site.



Android Phones and tablet devices

- First open Chrome and enter ims.qtech.co.nz in the address bar
- Tap the **three vertical dots** (more menu) in the top right corner then select **Add to Home screen**
- Name the shortcut IMS - so you can see it all in the small icon label
- Tap **Add** to add to your home screen



There will now be a new icon on your home screen which can be tapped to go straight to the IMS site.

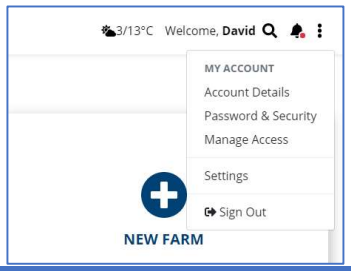
Managing Access to IMS

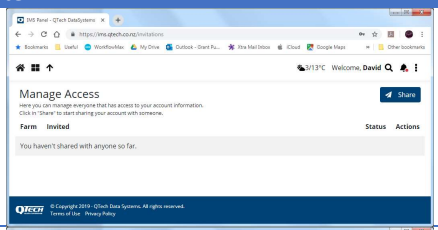
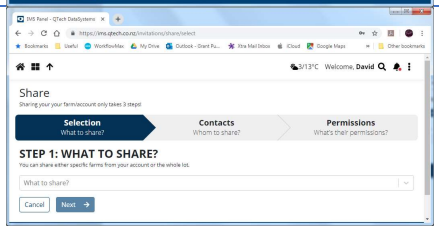
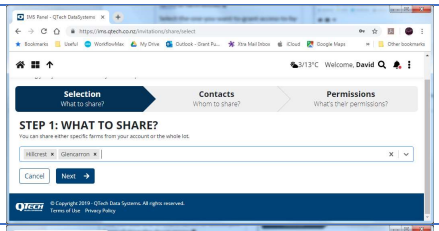
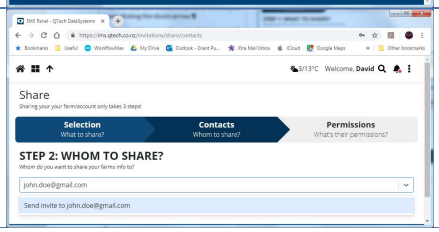
A **Farm Owner** (the primary account holder) can delegate operations and monitoring access to trusted entities, such as irrigation installers or farm managers. The intended delegate(s) must already have an IMS **Farm Delegate** account or will be required to create one.

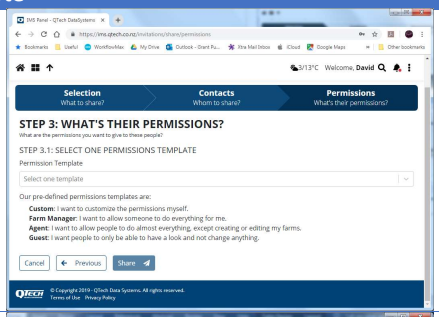
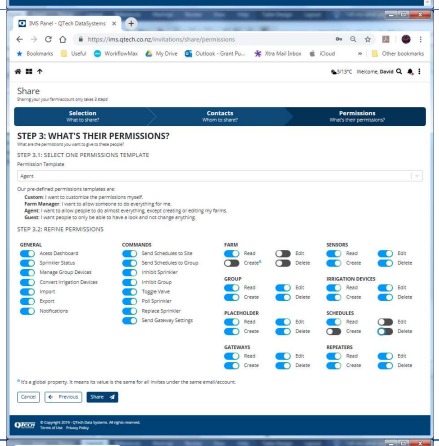
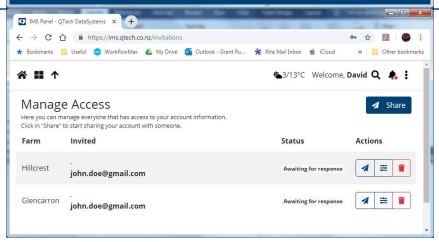
Inviting Delegates

To manage access to their farm(s) the **Farm Owner** must:

- Sign in to their IMS account (ims.qtech.co.nz)
- Click the "more" icon (three vertical dots) in the top right of the screen and select **Manage Access** from the pop-up menu



Step	Process	Note
1.	To invite someone to access your farm(s), click the share button.	
2.	First choose what to share. Click the down arrow at the end of the "what to share?" box. Select a farm/block you want to grant access to from the drop-down list. Repeat for as many farms/blocks as desired or you can remove a selection by clicking the cross at the end of the farm block name.	
3.	When you are happy with your selection click the next button.	
4.	Type in the email address of who you want to grant access to. Then click the pop up button that says "send invite to …" Then click the next button.	

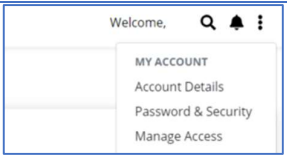
Step	Process	Note
5.	Now decide what role your delegate will play and what you want to let them have access to or manage. Make sure you limit access to activities that they will normally undertake because an inexperienced person has the potential to affect your operations adversely. If in doubt choose the guest template. You can customise exactly what they can do in the next step.	
6.	Here we have chosen the agent template and we can turn on or off various permissions. In this example we are not going to allow the agent to manage schedules for watering, so they have been turned off. Once the permissions are decided on click share to go to the next step.	
7.	The delegate will be sent an email inviting them to access each of the farms. You can adjust the permissions and resend the invite if you wish. You can also revoke the invite entirely by clicking the bin icon. The status of the invitation is shown. Once the recipient delegate signs up and accepts the invitation then then they will be able to see your farm information when they sign in and undertake whatever activities you allow.	

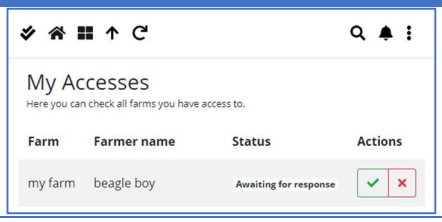
Revoking Delegate Access

Delegates can be removed at any time by signing into your account, choosing **manage access** from the menu then clicking the bin icon next to the delegates name to revoke access.

Accepting an Invitation (Farm Delegate)

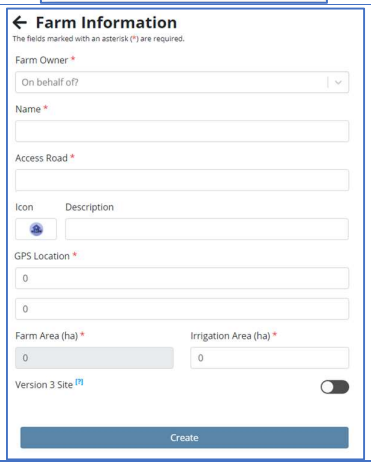
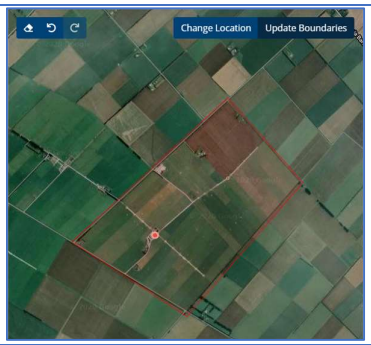
A IMS **Farm Delegate** account is required in order to accept the invitation. You will have received an invitation by e-mail to access a farm(s) which contains links for whether you have an existing account or not.
Alternatively, to accept an invitation:
*If you don't already have a **Farm Delegate** account, follow the **Creating an IMS Account** process.*

Step	Process	Note
1.	Sign in to your IMS account	ims.qtech.co.nz
2.	Click the "more" icon (three vertical dots) in the top right of the screen and select **Manage Access** from the pop-up menu	

Step	Process	Note
3.	Select ✓ to accept the new invitation	

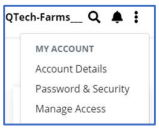
Creating a Farm in IMS

To create a new farm you must either be the **Farm Owner,** or a **Farm Delegate** who has been granted permission to do so by the **Farm Owner**.

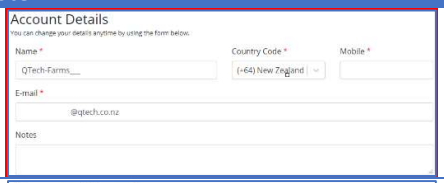
Step	Process	Note
1.	Sign in to your IMS account	ims.qtech.co.nz
2.	Click the Add New Farm button	
3.	Enter the farm details - Select the **Farm Owner** (Delegate account only) - **Name** of the farm - **Access Road** – will offer suggestions once you start typing - **Description** (optional)	
4.	Farm GPS Location - Click on the map to refine the position - A house or dairy shed is a good option	
5.	Define the farm boundaries - Select the **Update Boundaries** button - Draw an outline of the farm by clicking on the map - The boundary shape must enclose all of your solid set irrigation - Use the erase and undo buttons if needed	
6.	Once completed, click the **Create** button	

My Account & Settings

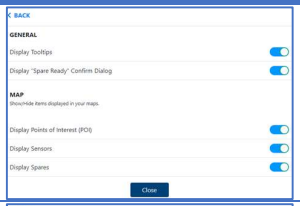
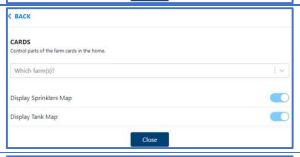
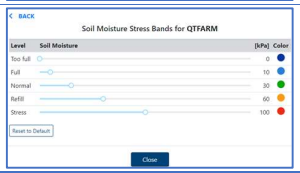
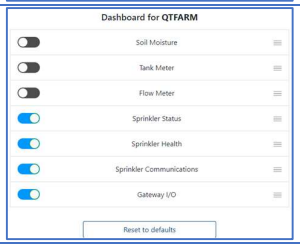
The **My Account & Settings** menu ⋮ is always available in the top right corner of your IMS screen.



My Account

Option	Details	Note
Account Details	**Name** – The account name displayed **Country Code & Mobile** – mobile number that alerts are delivered to **e-mail** – e-mail address associated with your account	
Password & Security	The account password can be changed here	

Settings

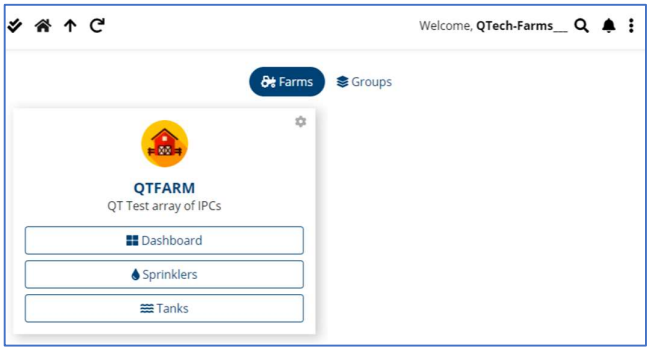
Option	Details	Note
General	Choose what is displayed in this IMS account	
Home/Farm Cards	Choose which buttons are displayed on each farm card	
Soil Moisture Stress Bands	Choose settings and colours for soil moisture stress bands (if soil moisture sensor is installed)	
Dashboard Card Order & Visibility	Choose which information is displayed on the dashboard. Drag each item to change order displayed in.	
Alerts	Choose how alert notifications will be delivered	

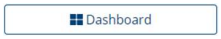
MAC Address Lookup

Choose this option then enter an IPC serial number to display its MAC address.

Site Monitoring and Management

Basic IMS Navigation





– Displays the farm dashboard with sensor data and sprinkler health information

– Displays the farm map with device status indicators

– Displays the farm map showing only tank level sensors (if applicable)

– Toggles between Farm view and Groups view

– Account information and settings

– Farm specific settings and options

Sprinklers View

The sprinklers view displays a map of the farm populated with device status indicators

IPC Status Indicators

IMS uses a colour coding system when displaying sensors, equipment and sprinkler controllers (IPC) on the screen. Units will update as a periodic status response is received, this can be adjusted to be more frequently if the site is busy (in summer say) or infrequently in winter when watering does not normally occur.

This table provides a summary of the colour codes:

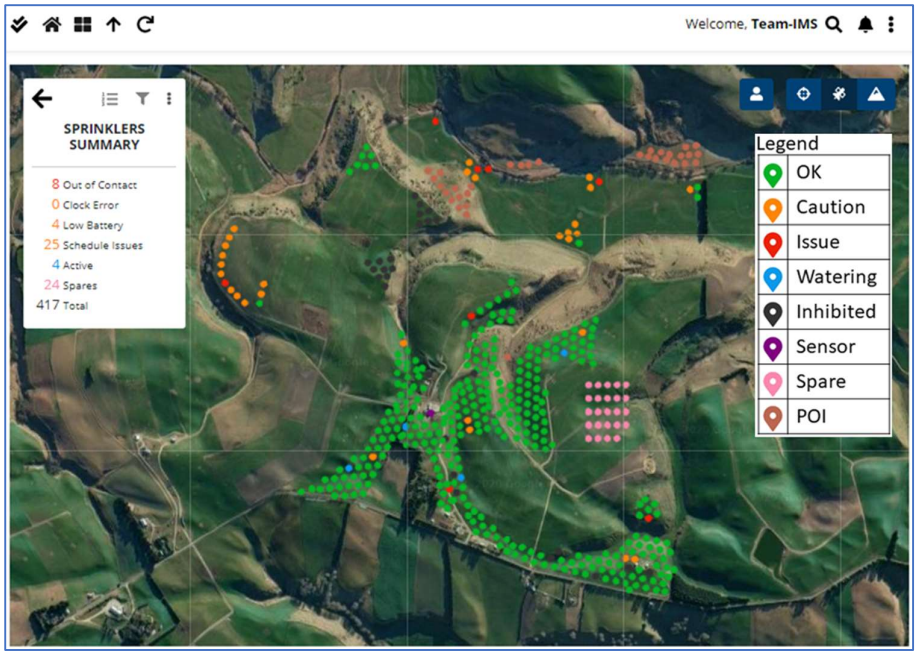
	OK	Status is normal
	Caution	IPC low battery, schedule problem, clock error
	Issue	IPC out of contact for more than 30 days
	Watering	IPC is active, valve open based on schedule
	Inhibited	IPC will not water, schedule interrupted
	Sensor	Position of sensor or gateway
	Spare	IPC is a spare or out of service
	POI	Point of interest, feature marker not an IPC
	Filter	Excluded items when filtering is applied

For the most part operators will check the condition of IPCs to see if they are **scheduled to water (blue)** and for any conditions that may need further investigation. Orange indicates a warning and should be attended to and red indicates that the unit has gone completely out of contact and should be visited.

More detailed explanations can be found in the **Maintenance and Troubleshooting** section.

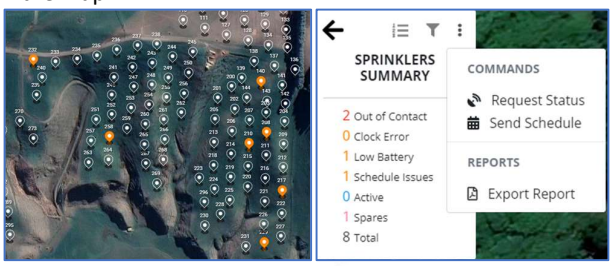
Spares (Pink) can be held on site ready to replace non-functioning units in the field (see **Managing Spares**).

The figure below shows how these colour codes look on a site.



Filtering

The filter tool in the **Sprinklers** view of IMS can be used to highlight or perform tasks on only a specific selection of the site.
Selecting the filter icon provides a number of different options to filter by. Only the filtered selection will be displayed in their colour on the map.



Any commands, found under the more options menu , are only actioned on the filtered selection, for example:

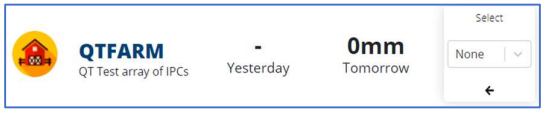
- Sending a schedule to IPCs reporting a schedule error, or inhibited IPCs
- Requesting the status of out of contact IPCs
- Generating a report of out of contact or low battery IPCs for a maintenance record

Dashboard View

Displays the farm dashboard with sensor data and sprinkler health information.
Which information is displayed and in what order is configurable from the **My Account & Settings** menu.

Headlines

Headlines are a quick reference to information such as a rain forecast or current sensor readings and are displayed at the top of the Dashboard screen.

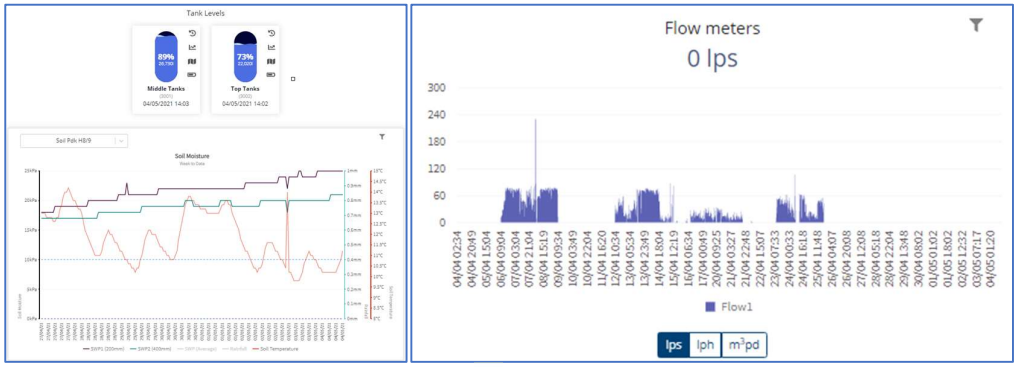


To configure simply double click the headline, choose which option to display, then save/close by selecting the arrow.

Soil Moisture – the time at which the soil moisture reading is displayed for is selected, e.g. the value at 9am every day.

Sensor Data

Sensor data (if applicable) is displayed on the dashboard. This could include tank levels, flow and soil moisture trends.



The time scale for graphs can be changed using the ▼ and further tank level information (level history, usage, location and battery charge (if applicable)) can be accessed by selecting the appropriate icons.

Sprinkler Status, Health and Comms

These sections display the current status of the site, site "health" compared to all time maximum and minimum values and a communication summary.

Selecting any of the entries in Sprinkler Status will take you to a filtered map view of the selected item.

Due to factors such as obstacles, the lay of the land and weather conditions some IPCs will not be contactable by radio as often as others.

The Sprinkler Comms graph shows how many of the IPCs in your system are regularly in contact with IMS (this means they tend to get messages quickly), the number of IPCs that consistently struggle to get every message and lastly the number of IPCs that are completely out of contact.

Gateway I/O

The IMS gateway has 6 x digital inputs and 6 x digital outputs – refer to the **Irrigation Network Controller User Guide** for details.

- The displayed name for all I/O can be edited as desired in IMS.
- Input states are displayed and alerts can be configured for on, off or change of state conditions.
- Outputs can be manually turned on or off from IMS.

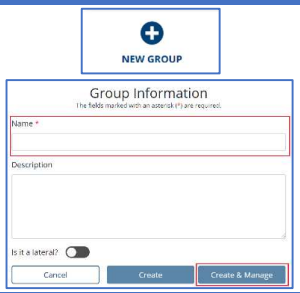
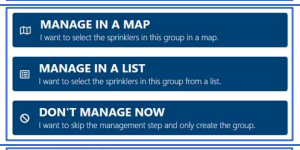
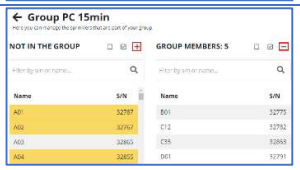
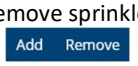
Managing Groups

IMS enables the user to create groups of sprinklers so that they can be managed collectively, for reason such as:

- Assigning all the sprinklers in paddock groups so that they can be inhibited to prevent watering if work is being carried out, for example, paddock is being ploughed or sown.
- Assigning IPCs to groups for scheduling purposes (management zones)
  - On a hill or in a gulley, beside a road, wet areas, part circle sprinklers
- Assigning IPCs to a group so that network communications can be optimised by using mesh, repeater or local (direct) communications.

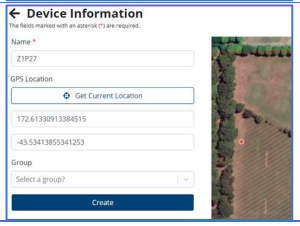
Creating a Group and Adding Sprinklers to the Group

Step	Process	Note
1.	- Select Groups at the top of the screen	

Step	Process	Note
2.	If you want to add sprinklers to an existing group skip to step 3, otherwise create one as follows - Select **New Group** - **Name** the group - Give the group a **description** if desired - If this group defines its own lateral/zone, turn the slider on - Select **Create & Manage**	
3.	Select either the **Manage in a List** or **Manage in a Map** option ***Accessed from the Group Settings menu of an existing group***	
4.	**Manage in a List** Two lists are displayed, the **right hand** list shows **devices in the group** and the **left hand** list shows **devices not in the group.** **Add units to the group** - Select the desired units in the **left** list - Select the **+** to add **Remove units from the group** - Select the desired units in the **right** list - Select the **–** to remove	
5.	**Manage in a Map** Navigate to the location of the sprinklers of interest - Select the  , then click on each sprinkler you want to add to the group **Or** - Select the  option, then left click around an outline to select the target sprinklers (a white shape is displayed) • *There are options to **erase** the shape and start over, **undo** 1 point or **redo** 1 point.*  - Add or remove sprinklers from the group by selecting 	 ***Green sprinklers are in the group, grey ones are not***

Adding Points of Interest

Points Of Interest, displayed as brown dots, can be used as placemarks for anything you want to remember the location of. Examples include planned sprinkler locations, drain points or slave sprinkler locations.

Step	Process	Note
1.	- Open the **Farm Settings menu** - Select **Manage Assets > Points of Interest (POI)** - Select **Add New POI**	
2.	- Enter a **Name** - Click on the map to assign the **location** - Select **Create** Repeat for as many POI as desired.	
3.	- POI can be edited at any time using the 	

IPC Operational Commands / Tasks

IMS Information Update Frequency

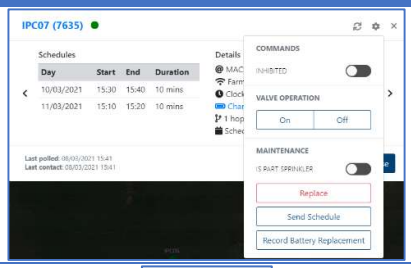
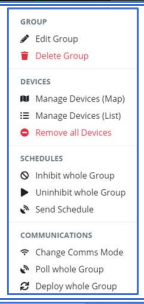
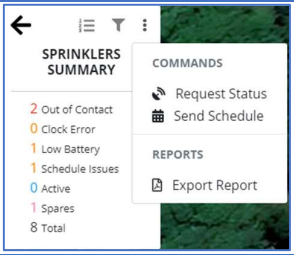
There are two aspects of updating information in IMS.

1. IPC status information retrieved by the IMS Gateway
   - The IMS Gateway is configured to request IPC status information on a periodic basis.
   - Typically this is every 3 – 7 days.
2. IMS website updated with latest information from the IMS Gateway
   - The information displayed in IMS will update hourly.
   - When a command is sent from IMS the information relating to the devices the command was related to is updated after two minutes.

If the IMS Gateway is performing other tasks, or simply due to their location, communication with IPCs can take longer than 2 minutes. Once the IPC has responded to the IMS Gateway the information on the website will be updated via the hourly update or if another request is sent from IMS.

Accessing Commands

Commands can be sent to individual IPCs, a group or a filtered selection. Commands for each option can be accessed as follows.

Type	Process	Note
Individual IPC	1. To check on an IPC simply select it from the Sprinklers view or search for it by name or serial number using the search icon . 2. Select **open card** (sprinklers view) or the search result to display the sprinkler card.	
Group	1. Select the Group view 2. Open the **Group Settings** menu for the desired group	
Filtered Selection	1. **Filter** on the desired option 2. Open the **more options** menu and select the desired command The command will be sent to the filtered selection only	

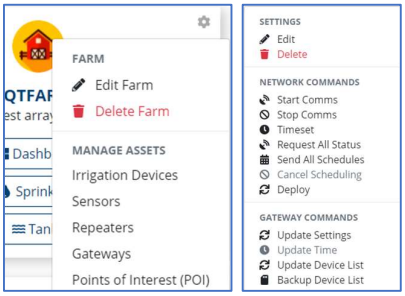
Command Options

Command	Individual IPC	Group	Filtered Selection
Status Request	The refresh icon will request the status of the IPC	Under the communications section, select **Poll Whole Group**	Choose **Request Status**
Inhibit	Turn the **Inhibited** slider **ON** to send the inhibit command	Under the schedules section, select **Inhibit Whole Group**	
Valve Manual Control	Under **valve operation** choose either the **On** or **Off** command to send		
Send Schedule	Under **maintenance** choose **Send Schedule**	Select **Send Schedule** Select the schedule to send, then **Send to Devices**	

Command	Individual IPC	Group	Filtered Selection
	Select the schedule to send, then **Send to Devices**		
Replacing IPCs	The replacement procedure is described in the **Managing Spares** section.		
Battery Replacement	Select the **Record Battery Replacement** option make note that a battery has been replaced on this IPC.		

Gateway Commands and Settings

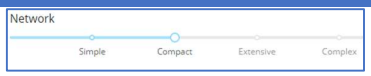
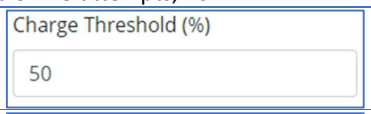
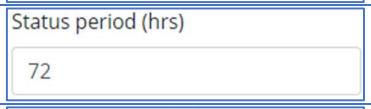
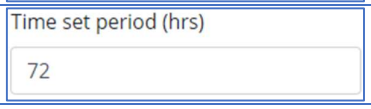
To access the gateway commands and settings navigate to **Farm Settings** > **Manage Assets** > **Gateways**, then open the **Gateway Settings** menu ⋮



Settings

Select **Edit** to review and change gateway settings.

Type and Serial number should not be changed.

Setting	Description	Note
Network	How the radio network behaves for each transaction - Number of communication attempts - How long to wait for a reply (TTL)	 Simple – 3 attempts, 4 TTL Compact – 3 attempts, 8 TTL Extensive – 5 attempts, 16 TTL Complex – 3 attempts, 16 TTL
Charge Threshold	If an IPC battery charge falls below this setting it will show as **Low Battery**	
Clock Threshold	IPC times more than this number of seconds different to the gateway time will show as a **Clock Error**	
Status Period	How often the status is queried from all IPCs on the site	
Timeset Period	How often IPC time is synchronised with gateway time	
Location	Click on map to set	

Network Commands

Command	Description
Start Comms	Starts gateway communication cycle. Any previous unsuccessful communication tasks to IPCs are reattempted
Stop Comms	Stops gateway communication cycle and clears all stored communication tasks
Timeset	Sends a command to synchronise IPC time with gateway time
Request All Status	Sends a status request to all IPCs on site
Send All Schedules	Sends the currently active schedule to all IPCs on site

Gateway Commands

Command	Description
Update Settings	Send gateway settings to gateway
Update Device List	Update gateway with current device list (podlist) from IMS and save to SD card
Backup Device List	Save backup of device list to SD card

Creating Schedules

The scheduling function in IMS is aimed at being easy to use while still being able to cater for the majority of common scheduling requirements.
If more complex scheduling is desired

- The IPC Manager or RX Pod Scheduler applications can be used, then the resulting schedules can be imported into IMS
- Schedules in a list form (csv) can also be imported into IMS

Only schedules that have been created in IMS can be edited in IMS. Any schedules that have been imported can be viewed and distributed from IMS, but not edited.

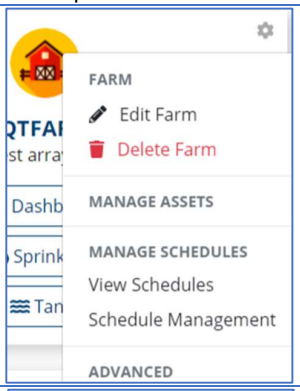
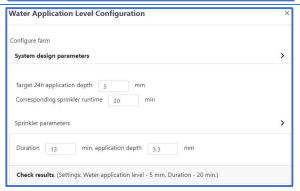
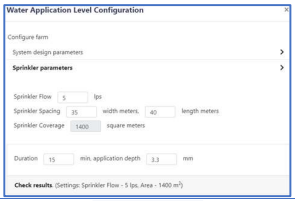
Scheduling in IMS

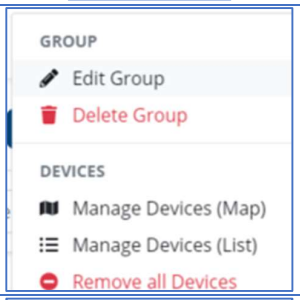
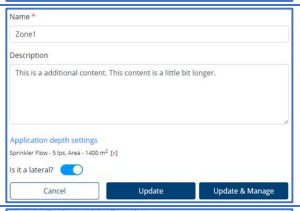
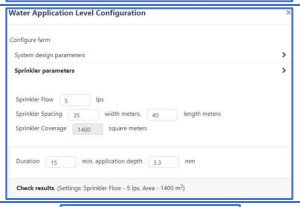
Groups

The configuration of groups is key to creating schedules and is the first step in scheduling in IMS. In the most basic form sprinklers should be grouped by their designed sublateral/zone groupings. This ensures the hydraulic design operational requirements can be accounted for in the scheduling.
Any additional collection of sprinklers that you intend to have different scheduling rules should be assigned to group(s).

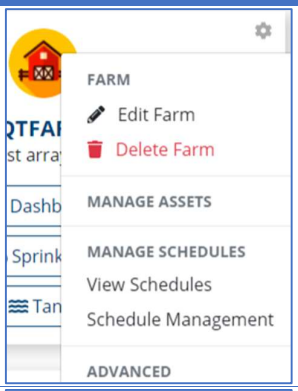
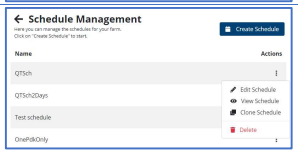
Application Depth Configuration

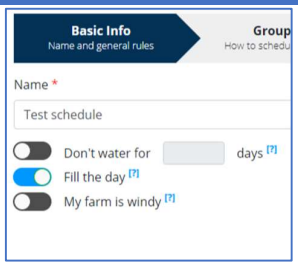
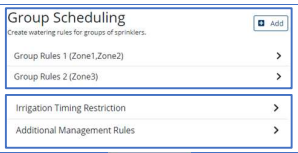
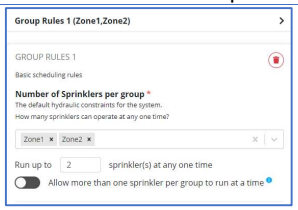
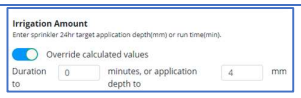
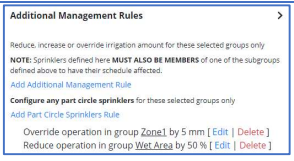
With some additional configuration sprinklers can be scheduled by application (mm) or operation time.

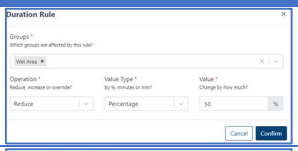
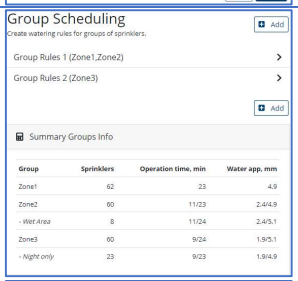
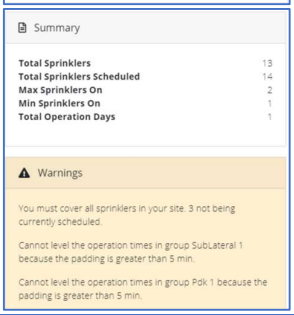
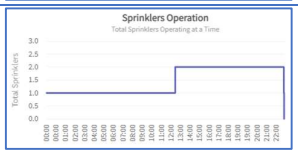
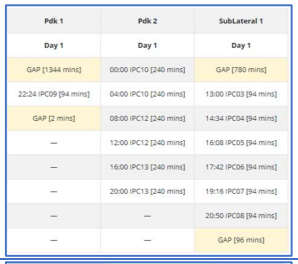
Step	Process	Note
	Site Wide Configuration	Configured properties apply to all sprinklers on site
1.	From the Farm Card - Open the **Farm Settings** menu - Select **Edit Farm**	
2.	- Select **Application Depth Settings**	
3.	**Option 1 – System Design Parameters** - Configure the target 24hr application depth and the corresponding sprinkler runtime **Option 2 – Sprinkler Parameters** - Configure the sprinkler flow rate and spacing	 
4.	- Select **Confirm**	

Step	Process	Note
	Modify by Group Configuration	Properties can be modified per group (e.g. lateral / Zone)
1.	- Select Groups from the top of the home screen	
2.	- Open the **Group Settings** menu for the desired group - Select **Edit Group**	
3.	- Select Application depth settings	
4.	- Configure properties for this group - Select **Confirm**	
5.	- Update group information	

Create New or Edit Existing IMS Schedule

Step	Process	Note
1.	From the Farm Card - Open the **Farm Settings** menu - Select **MANAGE SCHEDULES** > **Schedule Management**	
2.	To create a new schedule - Select **Create Schedule** To edit or clone(copy) an existing schedule - Select the actions menu for the schedule of interest - Then select the desired action	
3.	A draft of your schedule can be saved at any time, to go back and edit later, using the **Update Draft** button	

Step	Process	Note
4.	**Basic Info – Name and general rules** - **Name** – A name for this schedule - **Don't water for __ days** – number of non-watering days in schedule cycle - **Fill the day** – Use all available 24hrs by evenly distributing between all sprinklers - **My farm is windy** – Creates a 2 day schedule. Sprinklers running in the morning of day 1 will run in the afternoon of day 2 and vice versa	
	Groups – How to schedule what? All rule sections can be expanded and collapsed for ease of viewing by selecting the heading with a **>**	
5.	**Group Rules** - Each set of Group Rules applies to the defined group(s) in that rule. - You can have multiple Group Rules	 To add a new set of Group Rules  To delete a set of Group Rules
6.	**Number of Sprinklers per group** Here the basic system limits are set - Define which group(s) that you want to apply these scheduling rules to (e.g. a zone / lateral) - Select the drop down box to add available groups - Choose how many sprinklers can run at a time - Turn the slider on to allow more than one sprinkler in a group to run at a time *Example* - Zone1 & Zone2 are configured groups - Number of sprinklers is set to 2 - Slider off – 1 sprinkler in each of Zone1 & Zone2 is allowed to run at any one time Slider on – 2 sprinklers across all sprinklers in zone1 & zone2 are allowed to run at any time (could be 2 sprinklers in one zone)	
7.	**Irrigation Amount** Turn this slider on to override sprinkler run times calculated by the scheduling engine for the selected groups. - Set duration in min or application depth in mm (requires configuration)	 Defined settings are for a day (24hrs), e.g. 4mm per day
8.	**Irrigation Timing Restrictions** Restrict the operation time for the selected groups - **Only irrigate** between selected times - **Do not irrigate** between selected times - Choose the desired option - Configure the time period Multiple entries are possible	
9.	**Additional Management Rules** Additional groups can have their operation times decreased, increased or overridden. Part circle sprinklers can be configured by their degree of rotation (reduction). *Examples*	

Step	Process	Note
	- Half circle sprinklers, sprinklers in an overly wet area	
10.	A group operation summary is displayed under the scheduling rules. An overall schedule summary and any warnings or errors are displayed in the right hand pane e.g. sprinklers not covered by schedule	 
11.	**Review – Is everything ok?** Review the resulting operation times from your configured rules - Gaps in the scheduling can be identified from the graph showing the number of sprinklers on at any time across your schedule period - A table of all start times and durations is also displayed	 
12.	When you are happy with your schedule select **Generate** - Now the schedule is available to be distributed in IMS	

Refer to appendix for a worked scheduling example.

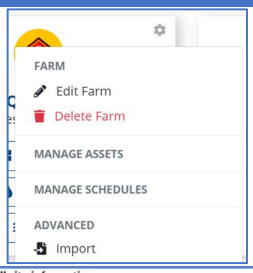
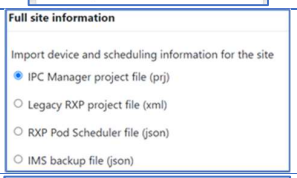
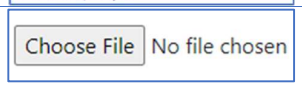
Importing a Schedule from a Project File

Scheduling changes can be made in IPC Manager or RX Pod Scheduler applications and then the associated project file imported into IMS.

As these project files contain sprinkler name and IPC serial number information in addition to the scheduling details, it is important this is consistent with IMS. Any changes to naming or assigned IPCs (replacements or additions) made in IMS need to be made in the scheduling application also.

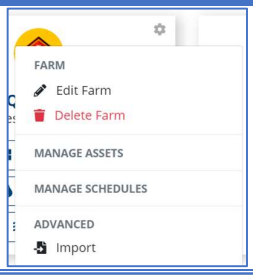
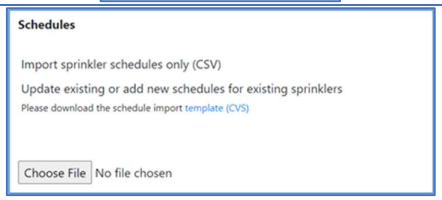
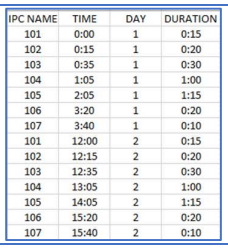
Failure to ensure consistency could result in duplicate and/or additional sprinklers/IPCs being created which can lead to a lot of confusion.

Importing the Project File

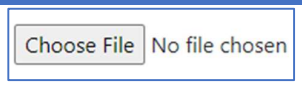
Step	Process	Note
1.	Access the Import menu from the IMS home screen **Farm Settings** > **Advanced** > **Import**	
2.	From the IMS **Import** menu - Select **Full Site Information** - Choose the type of file to import ***The RXP Pod Scheduler file (json) option is intended for two way compatibility with the RXP Pod Scheduler software***	
3.	- Select **Choose File** - Navigate to your file - Select **Open** to start the import process	
4.	The import should take less than a minute to complete and the number of successfully imported Schedule sets will be indicated	As long as your sprinkler/IPC data is consistent with IMS there should be no imported IPCs indicated
5.	To view the new schedule details, navigate to **Farm Settings** > **Manage Schedules** > **View Schedules**	This schedule can now be distributed from IMS as desired
	If you decide what has been imported is not correct the previous state can be restored using the **Backup & Restore** feature	Refer to **Backup & Restore** section

Importing a Schedule from a List (csv)

Schedules can be imported in a list form using the provided template. Complex scheduling can be defined, but care needs to be taken to ensure all desired sprinklers are covered and to avoid undesired behaviour such as unwanted overlaps in run times.

Step	Process	Note
1.	Access the **Import** menu from the IMS home screen - **Farm Settings** > **Advanced** > **Import**	
2.	From the IMS **Import** menu - Select **Schedules** - A template can be downloaded via the link (if required) *Template available here* https://www.waterinsight.co.nz/importing-and-exporting-using-ims/	
3.	Complete the scheduling template with the desired scheduling details and **save as a CSV**. - **IPC NAME** – Name of the sprinkler to schedule - **TIME** – Scheduled start time (h:mm, 24hr format) - **DAY** – Day of schedule - **DURATION** – how long to run sprinkler for (h:mm) *Multiple start times and/or days of operation can be defined*	

IPC NAME	TIME	DAY	DURATION
101	0:00	1	0:15
102	0:15	1	0:20
103	0:35	1	0:30
104	1:05	1	1:00
105	2:05	1	1:15
106	3:20	1	0:20
107	3:40	1	0:10
101	12:00	2	0:15
102	12:15	2	0:20
103	12:35	2	0:30
104	13:05	2	1:00
105	14:05	2	1:15
106	15:20	2	0:20
107	15:40	2	0:10

Step	Process	Note
4.	- Select **Choose File** - Navigate to your file - Select **Open** to start the import process *The file name will be used as the schedule name*	 *If the schedule name already exists in IMS, the schedule will be overwritten with the imported data*
5.	The import will take less than a minute to complete and the successfully imported Schedule sets will be indicated	Any sprinklers named in the scheduling, that don't exist in IMS will be indicated
6.	To view the new schedule details, navigate to **Farm Settings** > **Manage Schedules** > **View Schedules**	This schedule can now be distributed from IMS as desired

Managing Spares

IMS uses the concept of spares which enables you to hold surplus IPC units on the farm and have them ready to swap out for non-functioning units in the field.

Spares may be used for quick replacements but if the battery of a device is at the end of its life it is preferable to replace the battery rather than swap out the unit. This means that no changes to IMS are generally required.

It is important that any Spare IPCs are configured with the correct Channel and Farm ID for use on the target site, the Deploy feature in IMS will attempt to achieve this.

Creation

In the same way as any other IPCs, spares can be added to a site individually or imported, as described in the **Site Creation, Expansion and Editing** section.
Create a **Spares** group (if there is not already one) and add your spares to the group.

Deploying IPCs

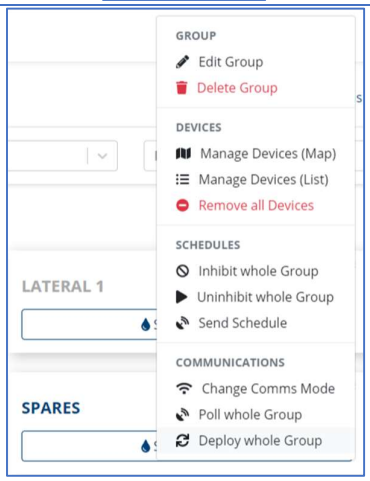
The Deploy feature will attempt to configure your IPCs with the correct channel and farm ID for use on your site using the IMS gateway. IPCs can be deployed as a group or selected individually.

Before running the deployment process for IPCs

- Place them in the sun, near to the IMS gateway
- Remove the storage magnets

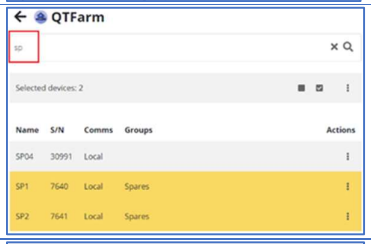
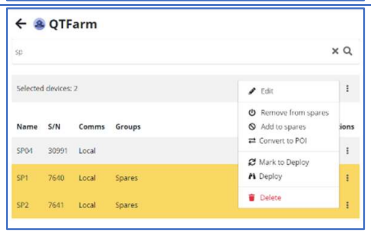
If the IPCs have been in storage for some time, they may need a day or two of sun to charge before they will communicate and be able to be deployed.

Deploy a whole group

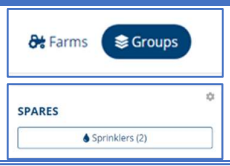
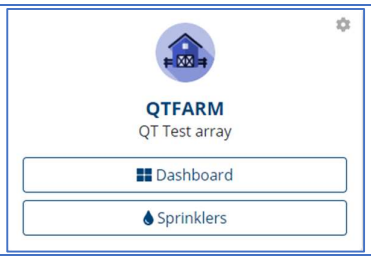
Step	Process	Note
1.	- Select Groups at the top of the screen	
2.	- Open the **Group Settings** menu for the **Spares** group - Select **Deploy whole Group** The INC will scan each selected IPC and attempt to reconfigure it to the desired channel and Farm ID. This process can take up to a minute per IPC, so depending on how many IPCs have been added may take quite a while. Allow 1min per IPC being added before moving to the next step. ***Note: If the site is in the middle of a poll cycle it might take some time for this command to be processed***	

Deploy Individually

If you do not need to configure the whole Spares group (e.g. units returned from service/repair), IPCs can be selected individually for deployment.

Step	Process	Note
1.	Ensure the IPCs have had their magnets removed, are in the sun and are close to the IMS gateway. - Open the **Farm Settings menu** - Select **Manage Assets** > **Irrigation Devices**	
2.	- **Scroll** or use the **filter** option to display newly added IPCs and **select** each of them (e.g. filter on SP, then select SP1 & SP2)	
3.	- Select the **more menu** ⋮ - Select **Deploy** The INC will scan each selected IPC and attempt to reconfigure it to the desired channel and Farm ID. This process can take up to a minute per IPC, so depending on how many IPCs have been added may take quite a while. Allow 1min per IPC being added before moving to the next step.	 ***Note: If the site is in the middle of a poll cycle it might take some time for this command to be processed***

Confirming IPCs are Ready to be Installed

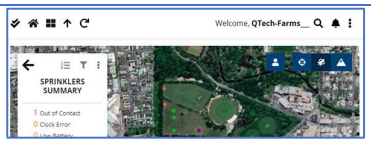
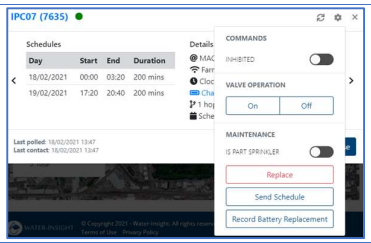
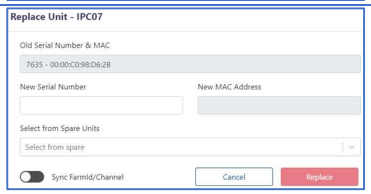
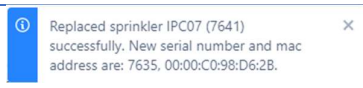
Step	Process	Note
1.	- From the **Home screen** select **Groups** - Open the **Group Settings menu** ⚙ for the **Spares** group - Select **Poll Whole Group**	
2.	- Wait for the polling completed message (approx. 2min) - Repeat step 1 - Again, wait for the polling completed message.	
3.	- Go back to the **Farms** view and select **Sprinklers** on the **farm card**. - Select the **list icon** ☰ to view the list of IPCs.	
4.	Scroll or filter the list as needed and check the newly added IPCs. Icons beside the serial number indicate the status of the IPC. - **Green tick** – **Ready** to be installed - **Red cross** – **Not ready** – has not communicated or battery charge is below 70% The indication will update as communication is achieved with the IPCs (you may need to refresh the page ↻).	 For any IPCs that do not move to a green tick, follow the **Deployment Troubleshooting Guide** (appendix) or contact Water-Insight or your irrigation provider

Your Spare IPCs are now ready to be used on site to replace a non-functioning unit.

If they are not to be used immediately the storage magnets can be reinstalled or they can be stored in a position that allows sun to the solar panel to keep the battery charged.

Replacing an IPC in IMS

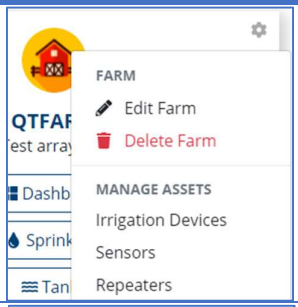
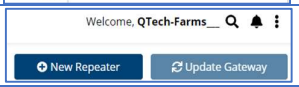
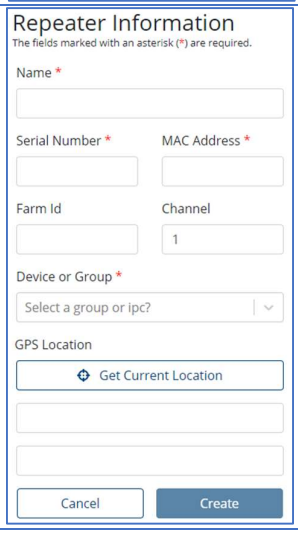
The IPC replacement procedure in IMS can be carried out using your smartphone, tablet or PC as long as you have internet access.

Step	Process	Note
1.	Login to your IMS account - Go to ims.qtech.co.nz - Sign in using your e-mail address and password	
2.	- Select the **Sprinklers** button from the farm card Select the IPC you want to replace - Select sprinkler on map **> open card** - Select the **list icon** to view the list of IPCs and select from list - Click the **search icon** **>** enter the **name** or **serial number** of the unit to be replaced **>** select the result to bring up the **sprinkler card**	
3.	- Select the **cog icon** from the sprinkler card - Under the maintenance heading select **Replace**	
4.	- Select the "new" **Spare** from the drop down list - Turn off the Sync FarmID/Channel slider if your spare has been confirmed ready for use - as described above - Select the **Replace** button The old unit being replaced will become the Spare and the "new" Spare will get assigned to the sprinkler. Alternatively, you can enter the serial number of the new IPC and keep the sync FarmID/Channel slider on. - The IPC will need to meet the conditions described above in the **Deploying IPCs** section	
5.	After two minutes the app will notify you that the device has been replaced. - IMS will attempt to schedule, then request the status of the new IPC. - You will see the new device status if you refresh the screen using the refresh icon If communication with the new unit takes longer than two minutes you may need to send a status request later to confirm it has received its schedule	

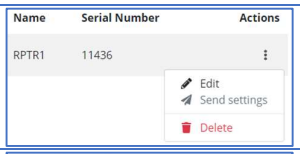
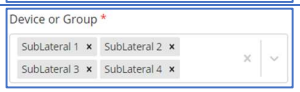
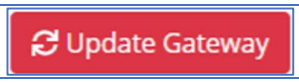
Managing Repeaters

Repeaters provide an option when obstacles or long distances prevent line of sight from the IMS gateway to IPCs. The repeater(s) must be within **local** communication range of the IMS gateway and repeater to repeater communication is **not** supported.

Adding a Repeater to IMS

Step	Process	Note
1.	- Login to your IMS account - Open the **Farm Settings menu** - Select **Manage Assets** > **Repeaters**	
2.	- Select the **Add New Sensor** button	
3.	- Give the repeater a **Name,** e.g. RPTR1 (5 characters or less) - Enter the **serial number** of the repeater - Enter the **MAC Address** of the repeater - Enter the **Farm ID and Channel** for the site - Select the **location** of the repeater on the map - Select **Create** to add the device to IMS **Note** ***The repeater will need to be programmed with the correct channel and farm ID for the site.***	

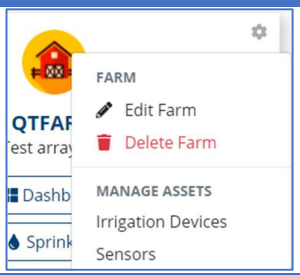
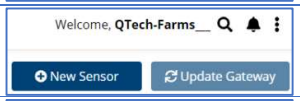
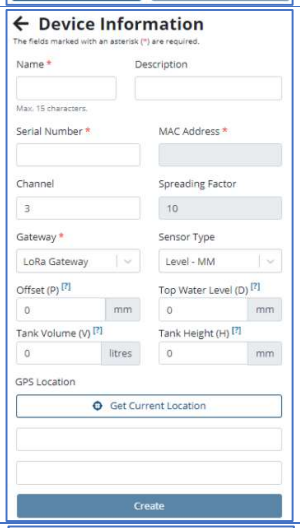
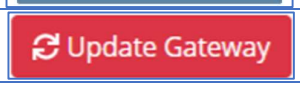
Configuring a Repeater

Step	Process	Note
1.	- Login to your IMS account - Open the **Farm Settings menu** - Select **Manage Assets** > **Repeaters**	
2.	- Open the **Repeater Settings** menu ⋮ > **Edit**	
3.	- Select the **Device or Group** drop down menu - Select all groups or devices that will be communicating via this repeater - Select **Update**	
4.	- Select **Update Gateway**	

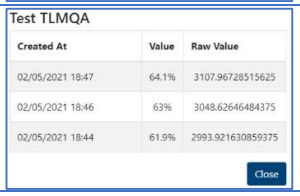
Managing Sensors

IMS offers several sensor options including tank level, water flow, soil moisture and temperature.
The general process is described here, refer to www.waterinsight.co.nz for individual manuals with specifics on installing and setting up sensor options in IMS.
Refer to **Dashboard View** section for how sensor data is displayed in IMS.

Adding a Sensor to IMS

Step	Process	Note
1.	- Login to your IMS account - Open the **Farm Settings menu** - Select **Manage Assets** > **Sensors**	
2.	- Select the **Add New Sensor** button	
3.	- Give the sensor a **Name, e.g.** Top Tank (must be 15 characters or less) - Enter the **serial number** of the sensor - Select the **Gateway** the sensor will communicate with (INC or LoRa) - Select the **Sensor Type**, e.g. Level-MM - Enter any other required information, e.g. tank details for a level sensor - Select the **location** of the sensor on the map - Select **Create** to add the device to IMS	
4.	If prompted - Select **Update Gateway**	

Editing a Sensor and Checking Sensor Readings

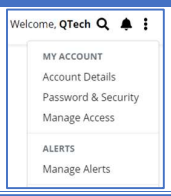
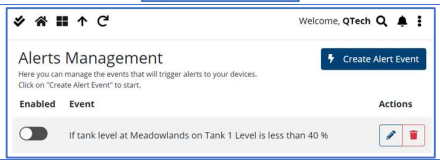
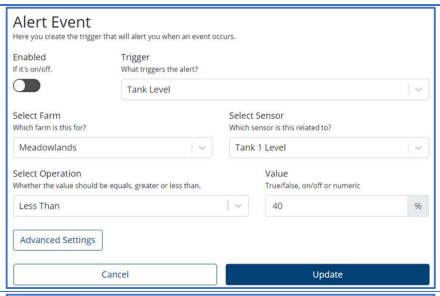
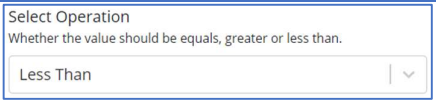
Step	Process	Note
1.	- Login to your IMS account - Open the **Farm Settings menu** - Select **Manage Assets** > **Sensors**	
2.	To Edit sensor details - Select the 	
3.	To view the 3 most recent readings from a sensor - Select the status heartbeat icon  - Data displayed by IMS refreshes every 10s (actual values dependent on how often sensor is transmitting data)	

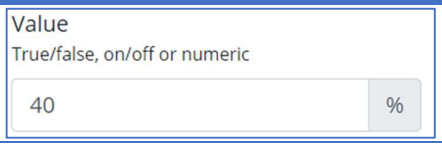
Defining an Alert Notification

IMS has the capability to create alerts and notifications to inform you when the state of your sensor or irrigation system has changed. Alerts are defined for a particular IMS account, if multiple accounts have access to a particular site then alerts can be configured for each account.

Defining an alert has two parts – What triggers the alert & How is the alert notification delivered.

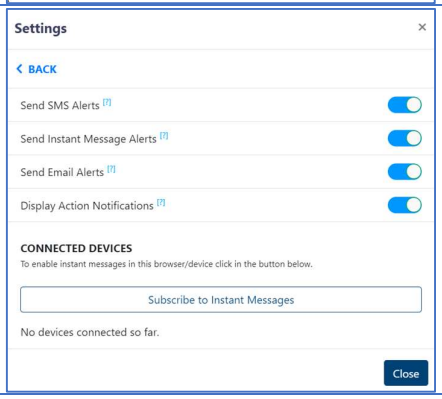
What Triggers the Alert

Step	Process	Note
1.	**Accessing the Alerts menu** From your IMS home screen - select **My Account & Settings** **Manage Alerts**	
2.	- To add a new alert select  - To edit an existing alert select  - To enable/disable an alert select the slider 	
	Configuring an Alert Event	
3.	What will **Trigger** the Alert Choose from the drop down menu - Sensor trigger (e.g. Tank Level) - IPC replacement (Sprinkler swap) with IMS	
4.	Which **Farm** is the alert for - Choose the desired farm from the drop down menu	
5.	Which **Sensor** will trigger the alert - Select the desired sensor from the drop down menu	
6.	The **Operation** (condition) that triggers the alert - Select from the drop down menu *Less than, greater than, equal to*	

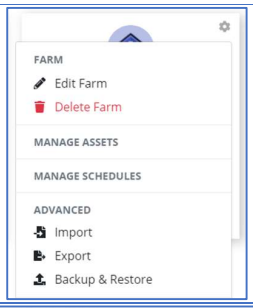
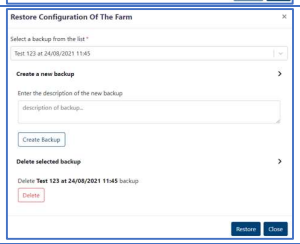
Step	Process	Note
7.	The condition **Value** that triggers the alert - Enter the desired value	

How is the Alert Notification Delivered

These settings cover how all alerts are to be delivered for your IMS account.

Step	Process	Note
1.	From your IMS home screen - Select **My Account & Settings** ⋮ - **Settings** - **Alerts**	
2.	Turn on the slider for the desired notification type(s) - Your account profile must have an e-mail address and mobile number configured in order to use theses notification types These are updated from **My Account & Settings** ⋮ **> Account Details** - **Instant messages** need to be subscribed to on the device you want to receive them on. *iOS (Apple) devices currently do not support this method*	

Backup & Restore

Step	Process	Note
	Whenever an import process is run in IMS a backup of the previous state is created. Backups can also be manually created & deleted.	Sprinkler/IPC details, Sprinkler locations, Groups & Schedules are backed up.
1.	To restore the IMS configuration from a backup access the menu from the IMS home screen **Farm Settings** ⚙ **>** **Advanced** > **Backup & Restore**	
2.	- Select the backup to be restored from the drop down list - Select **Restore**	
3.	Backups can be manually **Created** and **Deleted** using the available options	

System Planning Considerations

The following information is required before IMS can be configured & installed on a site.

1. **Completed Site Details/Farm ID Application Form**
   - Template provided by Water-Insight on request.
   - All mandatory fields filled and including as much other detail as known.
     Farm name, contact person and details (phone, e-mail), site location including GPS coordinates and equipment supplier and contact person.
   - If a farm ID has not already been allocated for the site, this will happen as part of the IMS deployment process.

2. **Subscription Billing Account**
   - Contact details (if different from above) for the primary account holder.
   - Name, e-mail address and phone number required.

3. **Additional Delegate Access**
   - Name, e-mail address and contact number of any additional users to be given Delegate access to IMS.

4. **IPC Details**
   - List of sprinkler (post/pod) names.
   - List of IPC serial numbers and (if applicable) which names they are assigned to.
   - These could be as a project file from an IPC scheduling application (QTech IPC Manager or RXP pod scheduler).

5. **Sprinkler (Post/Pod) Location Details**
   - A Google Earth (kml/kmz) file showing GPS coordinate information for each post/pod location.
   - Naming to match that provided under IPC Details.

6. **Scheduling Information** (if an existing site)
   - Any existing scheduling information.
   - A project file from the IPC scheduling software (QTech IPC Manager or RXP pod scheduler).
   - Often the scheduling can be created in the IMS scheduling tool once the site is configured.

Sprinkler (post/pod) naming

Naming is limited to 5 characters, commonly used options are:

Zone/Position

- Hydraulic zoning of sprinklers is used in naming
- Simply zone number followed by position in zone, e.g. Z2P17, Z3P09, etc

Paddock/sprinkler

- Paddock identifier followed by sprinkler number.
- Sprinkler number may restart each paddock or be 1 – (total IPCs on site)
- Example – 12004 (paddock 12, sprinkler 4), E5112 (paddock E5, sprinkler 112)

Site Survey

The next step is a site visit to undertake a radio survey to identify potential installation locations for the IMS gateway & antenna, the key aspects being:

- Physical mounting location – Acceptable location to physically mount the cabinet that also satisfies all other requirements.
- Power availability – 230V mains.
- Internet availability – This is required. Cabled ethernet connection available.
- Radio survey – Determine coverage to all existing IPCs or proposed locations and identify suitable antenna positioning.
- Any site access issues.

IPC Configuration

Firmware Upgrades (if required)

Version 5.01 or above firmware is a requirement for an IMS installation. All IPCs on the site must be upgraded (if required) prior to IMS installation/commissioning.

Channel and/or FarmID Programming

If the site needed to be upgraded to v5 firmware a FarmID will also need to be allocated by Water-Insight and programmed as part of the firmware upgrade process.
Based on the results of the site radio survey an IPC radio channel change may be required to give the most reliable performance.

Scheduling

Hydraulic Design

How the sprinklers are grouped (laterals/zones) based on water delivery constraints, where usually one sprinkler in each lateral/zone can run at any one time.
The maximum duration each sprinkler should irrigate for (per 24hrs) to achieve the designed application rate. This is often tied to the number of sprinklers in each lateral/zone, e.g. 48 sprinklers running for 30min each.
This should be provided as part of the system design and is usually the baseline consideration for scheduling.

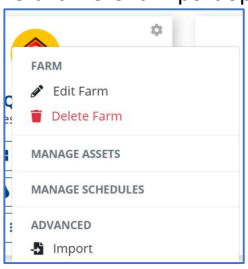
Other Requirements

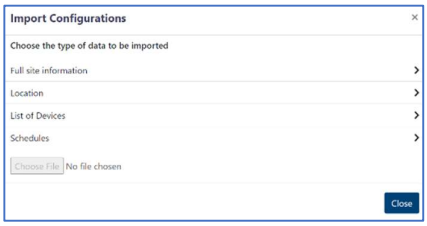
Any other management requirements such as wetter areas that require less irrigation, restricting irrigation in specified areas to certain times of the day or changing irrigation timing over a two day cycle in order to minimise wind effects.

Site Creation, Expansion and Editing

To add IPCs to a farm in IMS and get them ready for operation, follow the appropriate sections. If you are adding a new farm to your account follow the **Creating a Farm in IMS** section of this guide.

There are several different import options in IMS which are accessed from **Farm Settings** >**Advanced**>**Import**

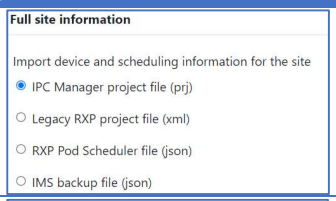
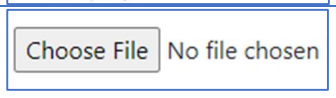




Existing Site Migration to IMS

If you have developed an IPC configuration file and schedules using Water-Insight 's IPC Manager software or the RX Plastics Pod Scheduler software then you can use the project files created by these applications as a starting point to migrate your site into IMS.
The sprinkler names, corresponding IPC serial numbers and scheduling information from these files will be imported into IMS.

Importing Full Site Information (Project File)

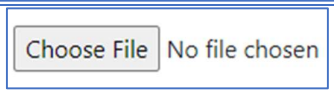
Step	Process	Note
1.	From the IMS **Import** menu - Select **Full Site Information** - Choose the type of file to import ***The RXP Pod Scheduler (json) option is intended for two way compatibility with the RXP Pod Scheduler software***	
2.	- Select **Choose File** - Navigate to your file - Select **Open** to start the import process	

Step	Process	Note
3.	The import should take less than a minute to complete and the number of successfully imported IPCs, Schedule sets and Groups will be indicated	

Importing Locations

It is useful to display sprinkler locations in the map IMS provides for the site. Locations can be imported from GPS coordinates defined in a kml/kmz (Google Earth) file.

The naming in your kml/kmz file must match the naming of any existing sprinklers in IMS.

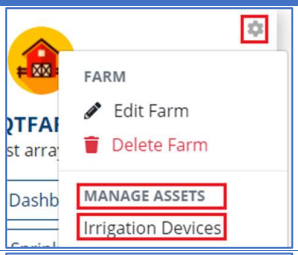
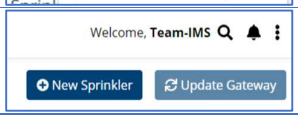
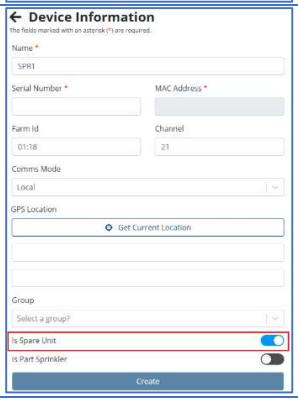
Step	Process	Note
1.	From the IMS Import menu - Select Location	
2.	- Select **Choose File** - Navigate to your kml/kmz file - Select **Open** to start the import process	
3.	The import will take less than a minute to complete and will indicate the number of successfully imported IPC Locations	
	If you decide what has been imported is not correct the previous state can be restored using the **Backup & Restore** feature	Refer to **Backup & Restore** section

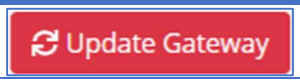
Adding IPCs to a Farm

Whether you are expanding an existing site or setting up a new site (for which there is no existing project file from one of the scheduling applications) there are options for adding new IPCs to IMS individually, or a bulk IPC list import is possible using a spreadsheet (e.g. Microsoft Excel).
A good approach (described below) is to add new IPCs as Spares, which can then be assigned to sprinkler locations as required.

New IPCs can also be added as sprinklers (leave **Is spare** slider off) with locations defined individually or imported (rather than POI). Care would then be needed to ensure the correct IPC was installed at the assigned sprinkler.

Adding IPCs Individually

Step	Process	Note
1.	- Login to your IMS account - Open the **Farm Settings menu** ⚙ - Select **Manage Assets** > **Irrigation Devices**	
2.	- Select the **Add New Sprinkler** button	
3.	- Give the IPC a **Name** like SP01 (must be 5 characters or less) - Enter the **serial number** of the IPC - The **Farm ID** and **Channel** will already be populated with your site configuration - Turn on the slider control **Is a Spare unit** - Select **Create** to add the device to IMS Repeat from step 2 if there are more IPCs to add as spares	

Step	Process	Note
4.	When all spares have been added - Select **Update Gateway**	

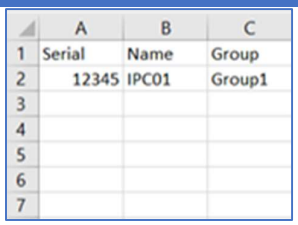
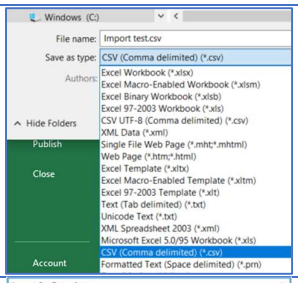
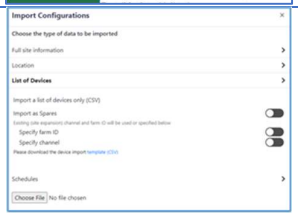
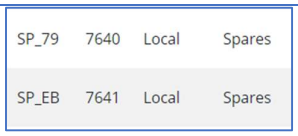
Create a Spares Group and add IPCs to the Group

Only required if the bulk IPC list import option has not been used

Using a group is very useful for easily managing your Spares. If one does not already exist, create a Spares group and add your new IPCs to it.

Importing a List of IPCs

The Device Import template can be found here https://www.waterinsight.co.nz/importing-and-exporting-using-ims/, or you can create your own.

Step	Process	Note
1.	Using a spreadsheet, enter the IPC details - **Serial** (required) Serial number of IPC - **Name** (optional) e.g. SP01 (5 character limit). If left blank, names are assigned automatically - **Groups** (optional) Group name the IPC belongs to. Group is created if not already existing. - Enter the list of **IPC Serial numbers** to be imported - Enter **Names** if desired	
2.	**Save as CSV** file type in a convenient location - **File** > **Save As** > choose location > choose file type **CSV (Comma delimited) (*.csv)** from drop down menu	
3.	- Open the **Farm Settings menu** - Select **Advanced** > **Import** - Choose **List of Devices** - Turn **ON** the **Import as Spares** slider **Channel and FarmID** - For a site with existing devices the existing farm ID and channel are assigned to the imported devices. - For new sites channel and farm ID can be specified by using the sliders in the import dialogue - select **Choose File** > navigate to your import file > select **Open**	
4.	- A success message will be displayed. If any serial numbers in the import list were already existing in IMS, they are skipped. - Select **Update Gateway** to update the IMS gateway with the changes, then **Close**.	
5.	The imported IPCs are defined as **Spare Units** and are allocated to a group named **Spares.** - This group is created if it does not already exist. - The IPCs are automatically given names with **SP_** prefixes	
	If you decide what has been imported is not correct the previous state can be restored using the **Backup & Restore** feature	Refer to **Backup & Restore** section

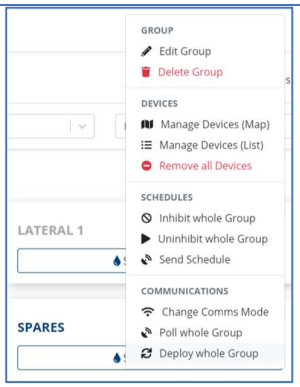
Deploying New IPCs for a Site

The Deploy feature will attempt to configure your IPCs with the correct channel and farm ID for use on your site, using the IMS gateway. IPCs can be deployed as a group or selected individually.

Before running the deployment process for IPCs

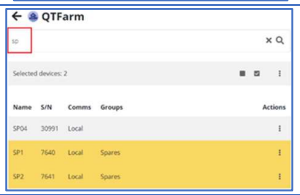
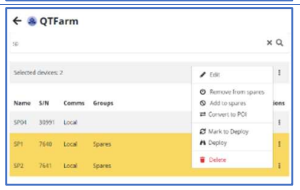
- Place them in the sun, near to the IMS gateway
- Remove the storage magnets

Deploy a Whole Group

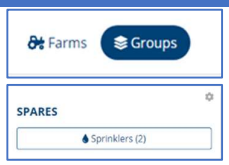
Step	Process	Note
1.	- Select **Groups** from the top of the IMS home screen	
2.	- Open the **Group Settings** menu for the **Spares** group - Select **Deploy whole Group** The INC will scan each selected IPC and attempt to reconfigure it to the desired channel and farm ID. This process can take up to a minute per IPC, so depending on how many IPCs have been added may take quite a while. Allow 1min per IPC being added before moving to the next step.	 ***Note: If the site is in the middle of a poll cycle it might take some time for this command to be processed***

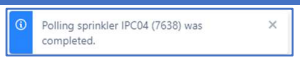
Deploy individually

If you do not need to configure the whole Spares group, IPCs can be selected individually for deployment.

Step	Process	Note
1.	Ensure the IPCs have had their magnets removed, are in the sun and are close to the IMS gateway. - Open the **Farm Settings menu** - Select **Manage Assets** > **Irrigation Devices**	
2.	- **Scroll** or use the **filter** option to display newly added IPCs and **select** each of them (e.g. filter on SP, then select SP1 & SP2)	
3.	- Select the **more menu** - Select **Deploy** The INC will scan each selected IPC and attempt to reconfigure it to the desired channel and Farm ID. This process can take up to a minute per IPC, so depending on how many IPCs have been added may take quite a while. Allow 1min per IPC being added before moving to the next step.	 ***Note: If the site is in the middle of a poll cycle it might take some time for this command to be processed***

Confirm IPCs are Ready to be Installed

Step	Process	Note
1.	- Select **Groups** from the top of the IMS home screen - Open the **Group Settings menu** (cog) for the **Spares** group - Select **Poll Whole Group**	 ***Note: If the site is in the middle of a poll cycle it might take some time for this command to be processed.***

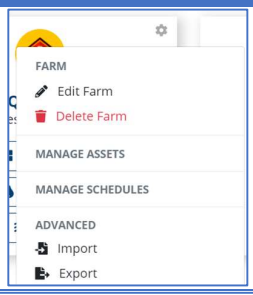
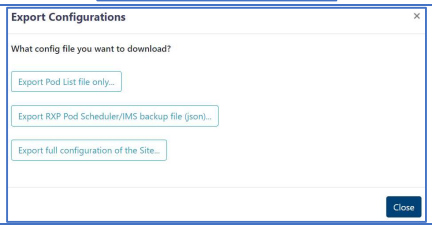
Step	Process	Note
2.	- Wait for the polling completed message (approx. 2min) - Repeat step 1 - Again, wait for the polling completed message.	 ***It may take longer than 2min to communicate with all IPCs being polled***
3.	- Go back to the **Farms** view and select **Sprinklers** on the **farm card**. - Select the **list icon** to view the list of IPCs.	
4.	Scroll or filter the list as needed and check the newly added IPCs. Icons beside the serial number indicate the status of the IPC. - **Green tick** – **Ready** to be installed - **Red cross** – **Not ready** – has not communicated or battery charge is below 70% The indication will update as communication is achieved with the IPCs (you may need to refresh the page).	 For any IPCs that do not move to a green tick, follow the **Deployment Troubleshooting Guide** (appendix) or contact Water-Insight or your irrigation provider.

Configuring IPCs with EP3

If the IMS gateway is not installed on site yet, the site configuration can be exported from IMS for use in an EP3 for configuring the channel, farm ID and scheduling of IPCs.

Exporting Full Site Configuration - Creating a SD Card for an EP3

Access to a computer with a SD card reader (or using an USB card reader adapter) is required to generate and load the required files to an SD card.

Step	Process	Note
1.	From the **Farm Settings** menu - select **Advanced** > **Export**	
2.	- Choose **Export Full Configuration of the Site** A compressed (zip) file (Site.zip) will be downloaded to your default downloads folder - Save this file to a new location if desired	
3.	This file must be unzipped for use on the EP3 - Right click on the file and choose **extract all**	Two folders will be created called pods and schedules
4.	Insert your SD card into the computer (or adapter) Open the drive folder using file explorer Copy the pods and schedules folders onto the card Safely remove (eject) the card for use in your EP3	Ensure they are copied to the root folder on the card and not to any sub folders. Right click on the drive name in file explorer and select eject

Defining Locations

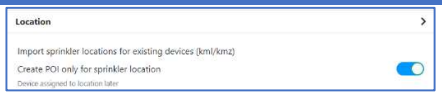
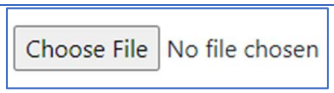
Locations can be assigned based on choosing a location on a map, entering known GPS coordinates (WGS:84 format) or importing a Google earth kml/kmz file.

A kml/kmz file can be generated in a number of ways, an option for plotting locations using a smart phone application (Map Marker) is described in the **appendix**.

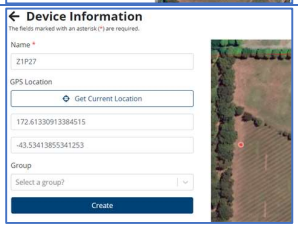
- **This can be done as a preparation task prior to visiting site.**
- **There is an opportunity to update the location when installing the IPC using IMS on your phone.**

Sprinkler locations can be defined as Points of Interest (POI). Then IPCs can be assigned to each location as they are installed. Alternatively, the sprinkler location can be defined at the time of installation.
A partially complete site (or site expansion) will show the new sprinkler locations (POI) as brown dots and the active sprinklers in green (if they are operating normally).

Import Locations as Points of Interest

Step	Process	Note
1.	From the IMS Import menu - Select Location - Turn **Create POI** slider **ON**	
2.	- Select **Choose File** - Navigate to your kml/kmz file - Select **Open** to start the import process	
3.	The import will take less than a minute to complete and will indicate the number of successfully imported IPC Locations	

Manually Create Locations as Points of Interest

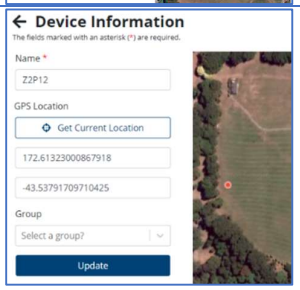
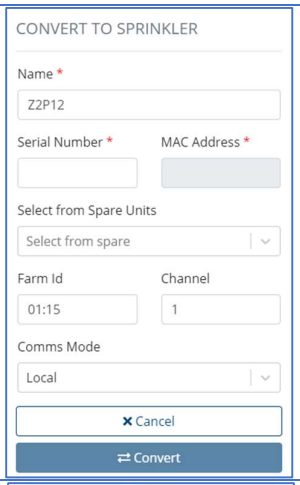
Step	Process	Note
1.	- Open the **Farm Settings menu** - Select **Manage Assets > Points of Interest (POI)** - Select **Add New POI**	
2.	- Enter a **Name** - Click on the map to assign the **location** - Select **Create** Repeat for as many POI as desired.	 ***Note: The location can be updated when the IPC is physically installed.***

Converting POI to Sprinklers

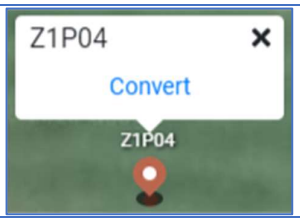
Now that the IPCs are ready for installation and there are sprinkler locations assigned in IMS, it is time to allocate specific IPCs to each location.

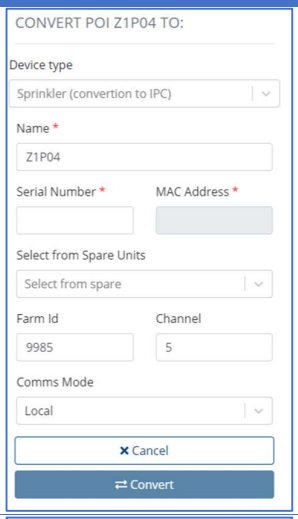
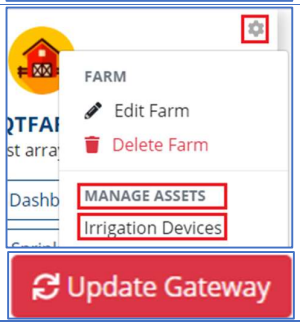
If there **is cellular network coverage** on the site, each IPC can be allocated and tested as it is installed.
If there is **no cellular network coverage** on site, IPCs can be allocated before installing (where you have internet access available), then (once installed) tested with an EP3 if desired.

Option 1 – From the POI list

Step	Process	Note
1.	- Open the **Farm Settings menu** - Select **Manage Assets > Points of Interest (POI)**	
2.	***(Optional)*** If your POI positions have been estimated only, now is a good time if you want to **update the location** using the GPS on your phone. - Scroll or use the filter option to **display the desired POI** - Select **Edit POI**  - **S**elect **Get Current Location** - **Update**	
3.	- Scroll or use the filter option to **display the desired POI** - Select **Convert to Sprinkler**  - **Select the desired IPC** from the drop-down list - Change **Comms Mode** if desired - Select **Convert** ***Use local comms mode if the unit is within clear radio range of the IMS gateway and mesh otherwise. If you are unsure choose mesh.***	
4.	Select **Update Gateway** - The IPC will take the name of the POI - The IPC will no longer be assigned as a spare - The IPC will be removed from the Spares group	

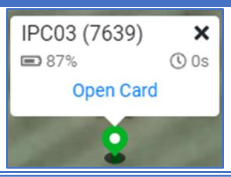
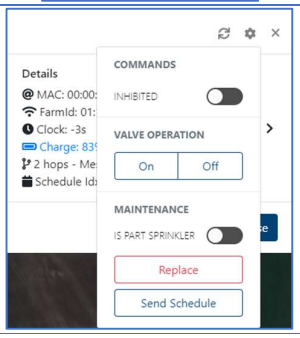
Option 2 – From the Sprinkler Map

Step	Process	Note
1.	- Select the **Sprinklers** view from the Farm Card	
2.	- Navigate to the POI that you wish to convert to a sprinkler - Select the POI dot and select **Convert**	

Step	Process	Note
3.	Enter / confirm the details - **Device type** – Sprinkler (conversion to IPC) - **Name** – The name can be changed at this point if desired - **Select from Spare Units** – Select the desired IPC from the list of Spares - **Comms mode** – Change if desired - Select **Convert** Repeat for as many POIs you want to convert to sprinklers	
4.	When you have finished converting all desired POIs to sprinklers - Open the **Farm Settings menu** - Select **Manage Assets** > **Irrigation Devices** - Select **Update Gateway**	

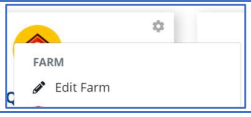
Setting the Sprinkler to Work

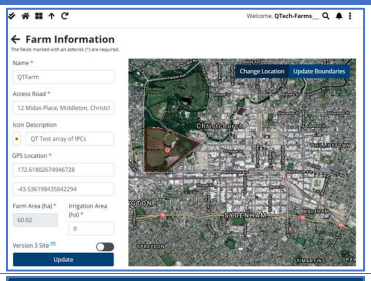
These steps should be performed from **IMS** when possible**.** An **EP3** can be used if there is no cell coverage on site.

Step	Process	Note
1.	- From the **farm card** select **Sprinklers** - Select the **IPC of interest** on the map - Select **Open Card**	
2.	- A **status request** can be sent by selecting the icon Any clock errors will be automatically corrected next time IMS synchronises the time on the site - Select the options menu - If a schedule is available in IMS for this IPC, it can be sent to the device using the **Send Schedule** option - To test the solenoid operation, select **On/Off (Valve Operation)**	

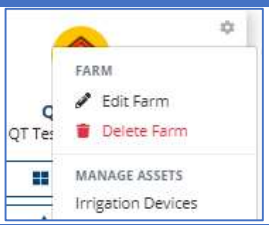
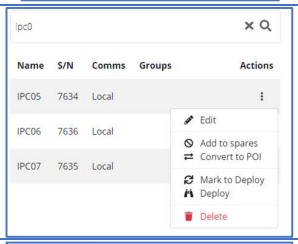
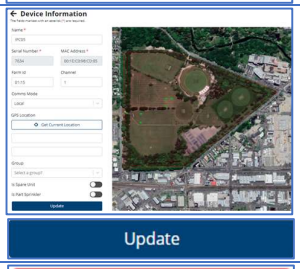
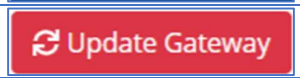
Editing an Existing IMS Site

Editing Farm Details

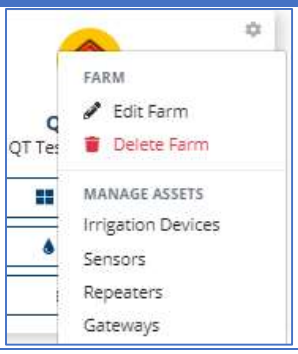
Step	Process	Note
1.	Access the Farm Information page - **Farm Settings** > **Edit Farm**	

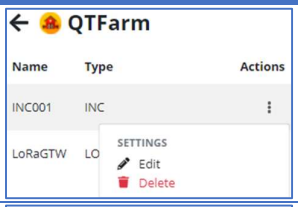
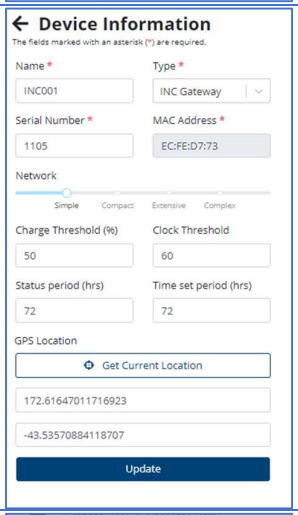
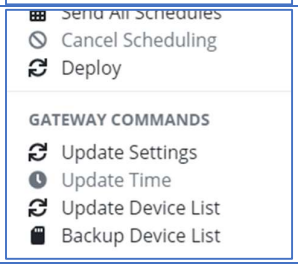
Step	Process	Note
2.	Edit farm details - **Name** - **Access road** - **Location** - **Farm Boundaries**	
3.	Select **Update**	

Editing Sprinkler Details

Step	Process	Note
1.	Access the Manage Irrigation Devices page - **Farm Settings** > **Manage Assets** > **Irrigation Devices**	
2.	- Scroll or use the filter option to display the desired sprinkler(s) - Open the **Device Settings** ⋮ menu > **Edit**	
3.	Edit desired details - **Name** – sprinkler name - **Comms Mode** – Local or Mesh - **Location** – choose location or Get Current Location if using mobile device - **Group(s)** – Group(s) sprinkler belongs to Then **Update**	
4.	**Update Gateway** if prompted	

Editing Gateway Details

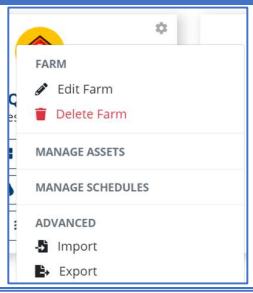
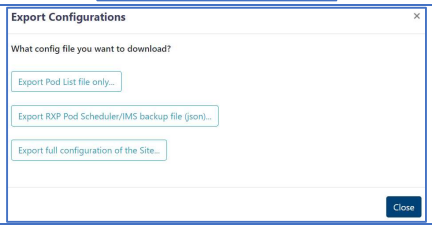
Step	Process	Note
1.	Access the manage gateways page - **Farm Settings** > **Manage Assets** > **Gateways**	

Step	Process	Note
2.	The INC type gateway communicates with all IPCs on site. - Open the **Gateway Settings** ⋮ menu > **Edit**	
3.	Edit desired settings - **Network** – determines communication parameters (# attempts, how long to wait for response) • *Consult Water-Insight before adjusting this setting* - **Charge Threshold (%)** – below this is considered low battery - **Clock Threshold (s)** – above this is considered a clock error - **Status period (h)** – how often to query status of site - **Time set period (h)** – how often to sync time on site Then **Update**	
4.	Update settings to Gateway Any changes now need to be sent to the IMS gateway hardware. - Open the **Gateway Settings** ⋮ menu > **Update Settings**	

RX Plastics Pod Scheduler Data Interchange

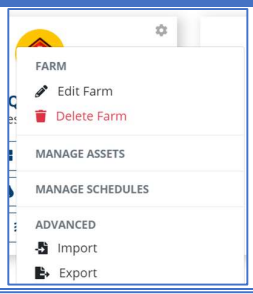
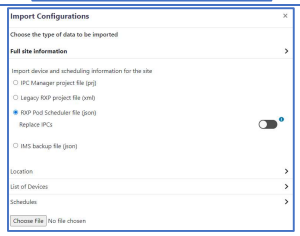
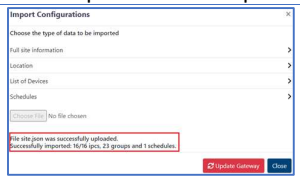
Two-way compatibility with the RX Plastics Pod Scheduler software is achieved by using the RXP Pod Scheduler (json) import/export option.
This allows sprinkler/IPC details, groups and schedules to be transferred between IMS and the RXP Pod Scheduler software.

Exporting for use in RXP Pod Scheduler

Step	Process	Note
1.	From the **Farm Settings** menu - select **Advanced** > **Export**	
2.	- Choose **Export RXP Pod Scheduler/IMS backup file (json)** The file will be downloaded to your default downloads folder - Save this file to a new location if desired	

Step	Process	Note
3.	This file is designed for importing into the RX Plastics Pod Scheduler. - Confirm with RX Plastics for version and availability	

Importing from RXP Pod Scheduler

Step	Process	Note
1.	To import a site configuration (json) file generated from RX Plastics Pod Scheduler - Open the **Farm Settings** menu - Select **Advanced** > **Import**	
2.	- Choose **Full site information** - Then select **RXP Pod Scheduler file (json)** **Replace IPCs** slider is turned on - All existing IPC details in IMS will be replaced by the imported data **Replace IPCs** slider left off - Any serial number changes for existing sprinkler names will be skipped	 IPC/Sprinkler details, locations, Schedules and Group details are imported
3.	- Select **Choose File** > navigate to the desired file > **Open** - A success message will be displayed including any serial numbers that were skipped. - Select **Update Gateway** to update the IMS gateway with the changes - Once successful, can then **Close**.	

Maintenance and Troubleshooting

Status indicators

Orange – Caution

Clock Errors

Indicate IPCs whose time clock have fallen outside the configured threshold compared to the gateway time (default 60s).

- This usually requires no action as the IMS gateway periodically synchronises the time on the site (timeset).
- A timeset can be manually triggered by selecting the Fix it option from the sprinkler card.
- Units that drift out of time frequently should be returned for service.

Low Battery

Indicates the number of IPCs that have fallen below the threshold for low battery capacity in your system (default 50%).

Considerations for IPCs reporting Low Battery:

- The location of the IPC – in a valley or other shade and not be exposed to many daylight hours
- The weather or the time of year affecting the amount of solar energy the IPCs receives

- Excessive radio communications, the radio circuit is the heaviest user of power in the IPC and if the radio happens to be running a lot, for example the status polling rate is high, then this will drain the battery possibly more than it can be replenished by the solar panel.
- An electrical fault in the IPC, causing the battery to not charge properly, this ultimately drains the battery
- The battery is at the end of its life. Every battery eventually runs out of capacity but batteries can take different lengths of time before they reach this state. Battery life depends on battery chemistry, usage, temperature and manufacturing variances, to name a few reasons.

Just because the capacity drops it does not mean the battery must be replaced. The unit may well recover without any issues at all.

Battery voltages go up and down but voltages that are "tanking" may indicate the end of life of a battery if it has been in for a few years.

Schedule issues

Show the number of IPCs in the system that have a discrepancy between when IMS thinks that watering should be active and when the IPC is actually scheduled to water.

- This is fixed by sending a schedule from IMS

Red – Out of contact (offline)

No contact with the unit has been made for the last 30 days.

Possible reasons:

- The battery voltage has fallen below 20% and the IPC has entered hibernation (stops radio communication but will continue to operate the solenoid).
- Reduced radio signal – e.g. due to a tall crop, tree size/leaf growth
- Location of the device (perhaps in a deep gully or behind a hill)

Investigating Issues and Pre-season Checks

When there are IPCs reporting issues, such as out of contact or low battery, IMS can help with troubleshooting these. This is ideal for pre-season checks, but the method is equally valid at any time.
Important Consideration when looking at Battery or IPC Replacement
If an IPC has had limited sun exposure over winter, the battery charge % may be low. As we move into Summer, the battery may very well recharge as expected.
A guide to specific IPC troubleshooting involving the use of an EP3 can be found in the appendix.

Identification and Navigation

Sprinklers of interest are easily identified via the status indication colours.
If there is mobile coverage on site IMS can also help guide you to the sprinklers of interest from your smart phone.

Select the sprinkler view, then tap the  icon and a yellow figure will be displayed on the map indicating your current position.

Visual Inspection

Some basic checks can be undertaken to cover some common easily identified issues.
Physical condition

- Confirm solar panel is clean
- Solenoid wires are connected correctly
- Battery magnet is not installed (used for storage and transit)
- No physical damage to IPC

Serial Number

- Confirm the IPC serial number matches the configured location in IMS.

Hibernation
Check if IPC is in hibernation (more details found below)

- LED flashes briefly every 10s

Flat Battery
If you have a magnet available, place it briefly on the IPC **magnet** label

- Confirm LED starts flashing quickly (entered bootloader mode)

- If LED does not start flashing the battery may be completely flat
  For IPCs with field replaceable batteries refer to ***Replacing an IPC Battery***

For IPCs without field replaceable batteries, return to Water-Insight for service

Communication

Out of contact units where the last reported battery level was good and there are no other obvious reasons for non-communication.

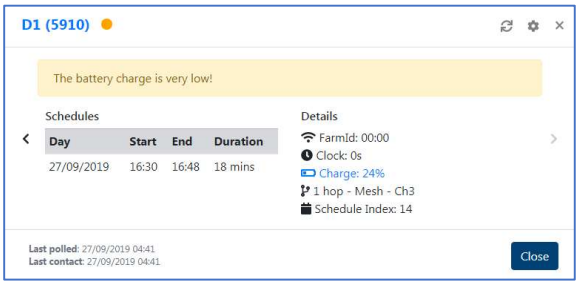
- A good first option is changing the configuration to use **Mesh** communication (if not already), then check if a status request is successful.
- Refer to **Editing an Existing IMS Site**

IPC Battery History

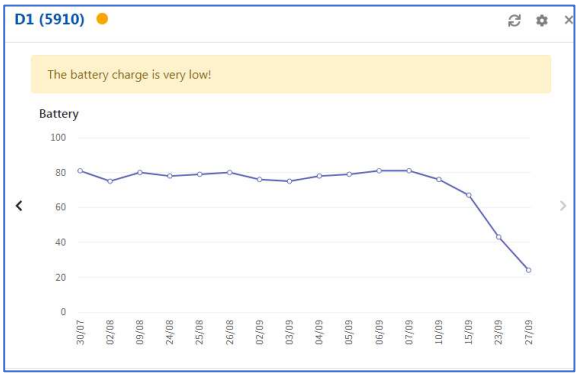
IMS logs the battery charge % of each IPC every time a status response is received. The resulting history can be displayed and analysed to detect the end of life of an exhausted battery or possibly to detect other failure modes such as a hardware fault in the unit.

To check on an IPC simply select it from the Sprinklers view or search for it by name or serial number using the search icon .

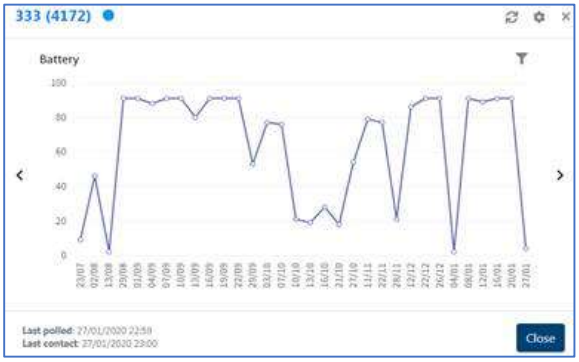
When you have selected the IPC its details "card" is shown. If the unit has a low battery the history graph is immediately displayed. Otherwise just click on the **charge** link highlighted in blue.



To get back to the details card when viewing the battery graph just click on the IPC name or serial number in blue in the top left corner.



Watch out for batteries that start to "tank" quickly, rapidly losing charge, they could be end of life but also it could be an indication they are not charging due to lack of sunlight, a broken solar panel or excessive bird fouling on the panel.



Battery voltages that oscillate wildly up and down, especially down at night and up during the day can indicate that the battery is not holding charge.

IPC Hibernation

There are two specific charge levels at which an IPCs communication behaviour changes.

1. **Battery Charge % falls below 20% (IPC enters hibernation)**
   - When an IPC enters hibernation, radio communication is halted to preserve battery for the primary function of solenoid/valve control.
   - An IPC in hibernation can be identified by the LED flashing briefly every 10 seconds.
     Older IPCs with red LEDs can be difficult to see, you may need to shield the IPC from the sun.
2. **Battery charge % increases to over 40% (IPC exits hibernation)**
   - IPC radio communication is resumed.

Solenoid/valve control continues as per the IPCs schedule until the battery is completely flat, regardless of radio communication.

Communicating with an IPC in Hibernation

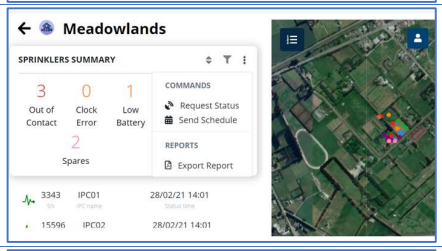
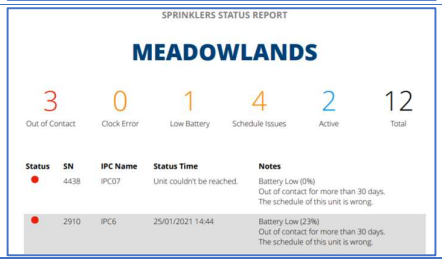
If an IPC is in hibernation, there is still a way to query its status using an EP3.

1. Briefly place a magnet on the IPC magnet label
   - LED will start flashing quickly (bootloader mode active)
2. Wait for the LED to stop flashing (approx. 60s)
3. Send a status request
   - You will have approx. 30s, after the LED has stopped flashing, in which a status response can be retrieved.

Reports

A PDF report can be generated of any filtered selection of sprinklers in IMS. As an example, this gives you an offline record to refer to if there is no mobile coverage on site.

Creating a report in IMS

Step	Process	Note
1.	From your IMS home screen - Select the **Sprinklers** view for the desired farm	
2.	- Display the sprinkler list - Filter the displayed selection as desired - Sort the list as desired - Open the More Options menu - Select **Export Report**	
3.	The PDF document can then be printed or saved for offline reference.	

Solenoid Operation

An IPC controls a valve by passing current through the solenoid in one direction to turn the valve ON and in the opposite direction to turn the valve OFF, so the correct connection of the solenoid wires to the IPC is **critical**.

- When an IPCs internal clock matches it's scheduled on/off time (or if a manual on/off command is issued) it will send a **pulse** to the solenoid in the appropriate direction for an open/close operation.
  - There is no feedback of whether the solenoid plunger has moved or any indication the valve has actually operated as intended.
- At midnight (IPC time) all schedules are recalculated and solenoids are attempted to be switched to match intended scheduling
- After a timeset (e.g. global timeset to site) IPCs recalculate their schedule and solenoids are attempted to be switched to match intended scheduling (v5 firmware and above only)
- Valve ON (open) – solenoid plunger is pulled in; bonnet drain orifice is open
- Valve OFF (closed) – solenoid plunger is pushed out; bonnet drain orifice is closed

Quick Solenoid Check

To determine the correct solenoid wiring perform the following test:

1. De-Power the IPC by installing the power ON/OFF Magnet in the shipping position (i.e. **not** the end marked with the label "magnet" this end is for putting the unit into a special programming mode)
2. Connect the IPC to the solenoid in use.
3. Apply water at operating pressure to the solenoid valve.
4. Remove the ON/OFF magnet from the IPC.
5. The IPC will power up, then after 10 seconds the IPC will turn the solenoid valve OFF.
6. If the solenoid turns ON then the solenoid connecting wires to the IPC need to be reversed.

Unexpected Valve Behaviour

- Query the IPC for its Status

If the valve state reports as **OFF** (but valve is still **ON**) then the IPC **has tried** to turn the valve off

- At the time of the off signal (pulse), for some reason the solenoid could not move the solenoid plunger
- Solenoid is wired incorrectly
- Some other physical reason for valve not turning off

If the valve state reports as **ON**, but is scheduled to be **OFF**

- The IPC has **not tried** to turn the valve off

This could be because

- The IPC internal time is not as expected (confirmed in the status reply), so has not reached the scheduled off time
- IPC schedule is not as expected – reports as wrong in the status reply
  - The comparison is against the schedule the has been loaded in the EP3
- A **manual ON** command has been issued

Replacing an IPC battery

Installing an IPC Battery

Step	Process	Note
1.	- A syringe of Silicon water proofing grease is provided with a replacement battery package. - Inject a small amount of silicon grease into the battery cable connector housing.	

Step	Process	Note
2.	- Hold the battery socket and plug connectors by the wires and align the polarizing ridge on the plug with slot in the connector. - Push the plug into the socket by the wires. Note: Do not push the connectors together by the connector housing as this can push out the connector pins.	

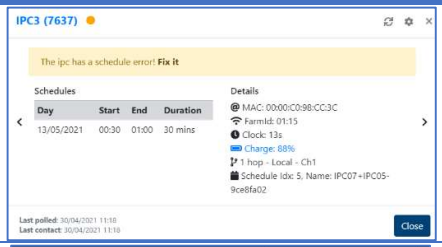
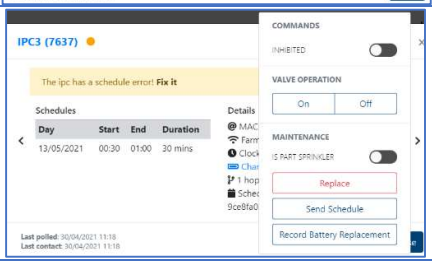
Removing an IPC Battery

Step	Process	Note
1.	- To remove the battery, grasp the battery connector plug and socket and pull out the battery plug. Note: Do not pull the battery connector socket and plug apart by the wires as this will tear the wires out of the connectors.	

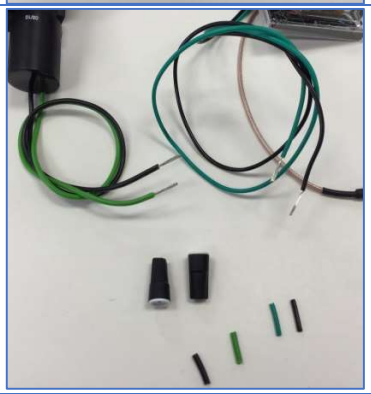
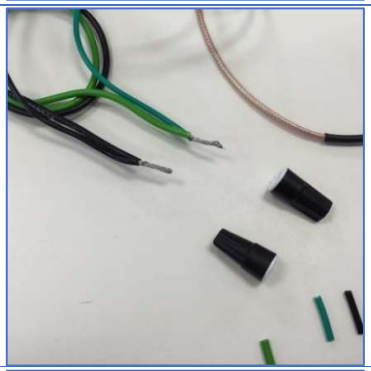
Confirm IPC Operation

- Status response received in IMS
- Confirm/set IPC clock(time)
- Confirm/send schedule
- Confirm solenoid operation with manual ON/OFF commands

Record Battery Replacement in IMS

Step	Process	Note
1.	- Select the sprinkler of interest from the Sprinklers view or search for it by name or serial number using the search icon 🔍 . - Select **open card** (sprinklers view) or the search result to display the sprinkler card.	
2.	- Open the options menu ⚙ - Select **Record Battery Replacement**	

IPC to Baccara Solenoid Valve Jointing

Step	Process	Note
	A typical IPC and a typical solenoid valve	
1.	Remove any existing insulation and straighten the wires If necessary strip back the wire insulation by 15mm with a wire stripper	
2.	Carefully twist the 2 black wires tightly together. Then repeat for the 2 green wires	
3.	Screw the silicon filled wire joiners onto each of the green and black wire joints (the wire joiners screw onto the wired in joint in a clockwise direction). Silicon grease will extrude from the joiners as shown	

IPC Battery Magnet

An IPC is supplied with an external magnet installed that turns the IPC Power Supply OFF to preserve the battery during storage and transit.

When removing the IPC from operation for storage or for transit, the Battery Magnet should be re-installed to conserve the power supply battery.

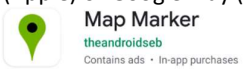
Appendix

Mapping Sprinkler Locations for use in IMS

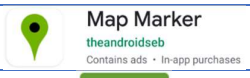
This section provides a method for mapping sprinkler locations using a smart phone which can then be imported into IMS. This is especially useful when installing a new site, extending an existing site or migrating an existing site to IMS.

Install Map Marker App

The app described here is Map Maker. This is a free app available for Android and Apple devices and has been identified as an easy to use option.

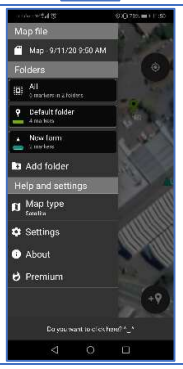
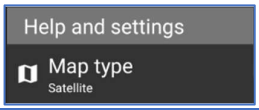
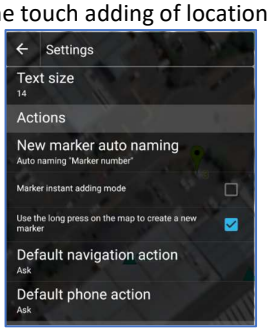
1. Go to the App Store (Apple) or Google Play (Android)
2. Search Map Marker 

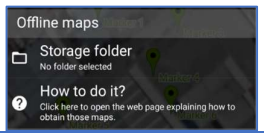
3. Install the app

Step	Process	Note
1.	- Go to the App Store (Apple) or Google Play (Android)	
2.	- Search Map Marker	
3.	- Install the app	

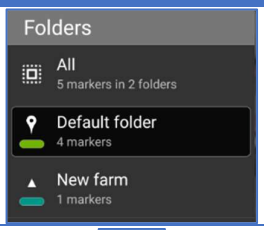
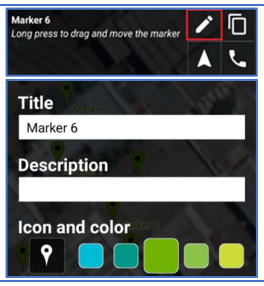
Initial Configuration

There are some configuration options which may help with your mapping task.

Step	Process	Note
1.	- Open the app	Allow the access permissions
2.	- Open the Options menu	
3.	**Folders** - New folders can be added to store location data in using **Add folder**	
4.	**Map type** - Select the type of map to be displayed	Satellite can be useful to confirm your locations 
5.	**Settings** - Marker instant adding mode	Allows one touch adding of location markers 

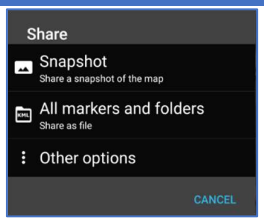
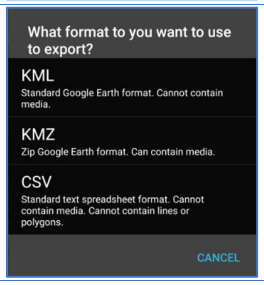
Step	Process	Note
	- Offline maps	Follow the tutorial to add offline maps, which are useful if you won't have mobile coverage on site 

Mapping Sprinkler Locations

Step	Process	Note
1.	**Folder/Site selection** Choose which folder/site you want to record locations in - **Options menu** > highlight only the folder you want to work in	
2.	**Centre on your location** - Enable the centre on location option - Highlights blue when active	
3.	**Add Marker** At the first sprinkler location - Select **Add Marker**	 If **marker instant adding** is enabled a marker will be placed immediately If **maker instant adding** is not enabled - choose position > OK
4.	Select **Edit** and name the sprinkler location as desired	
5.	Move to next sprinkler location and add the next marker	

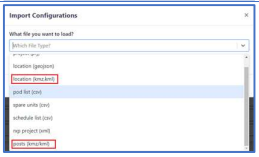
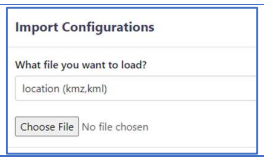
Exporting Locations for use in IMS

Once you have finished mapping the sprinkler locations, they can be exported (KML) for use in IMS.

Step	Process	Note
1.	Select the **Share**  option All markers and folders can be exported Or Choose **Other Options** > select an individual folder to export	
2.	**File export type** - Select **KML** as file export type	
3.	**How to share** - Choose how you want to share the KML file, e.g. via Gmail	
4.	**Send to desired recipient**	

Importing location data into IMS

When importing location data for sprinklers into IMS it is required that the naming of the locations matches the naming of the IPC import list.
If available IPC information (project file, podlist) should be imported to the IMS site first, then the location data (KML) imported second.

Step	Process	Note
1.	Select the Import option for the required site - Open the **Farm Settings** menu > **Advanced** > **Import**	
2.	**Choose the import type** - If there has already been IPC data imported (project file or podlist) choose **location** Or - **Posts** will import the location data as **Points Of Interest** these can then be converted to sprinklers later	
3.	**Choose file to import** - Select **Choose File** - Navigate to and select desired file - Select Open	
4.	The site will be populated with the location data from your KML file	

Investigation Using an EP3

Familiarity with the use of an EP3 is assumed, please refer to the EP3 User Guide.

Prepare EP3

- Check that batteries are not nearing flat and ensure you have spare batteries
- Latest EP3 firmware is installed (v5.x or later)
- Set the EP3 time to match the site time
- *Sites with INC – use same time as INC*
- *Sites without INC – request status from several IPCs to gauge current site time*
- Export podlist and schedules from IMS (full site info)
- Load podlist and schedules from SD card

Investigate each IPC in Turn

1. **Visual checks**
   - Confirm solar panel is clean
   - Solenoid wires are connected correctly
   - Storage magnet is not installed
   - No physical damage to IPC
2. **Check serial number of IPC matches that in podlist(EP3)**
   - If not refer to ***Replacing an IPC in IMS***
3. **Check if IPC is in hibernation – LED flashes briefly every 10s**
   - Refer to ***IPC Hibernation***
4. **Briefly place a magnet on the IPC magnet label**
   - Confirm LED starts flashing quickly (entered bootloader mode)
   - If LED does not start flashing the battery may be completely flat
     For IPCs with field replaceable batteries refer to ***Replacing an IPC Battery***

     For IPCs without field replaceable batteries, return to Water-Insight for service

   If you have a spare IPC available refer to ***Replacing an IPC in IMS***
5. **Send a Status request – wait for the LED to stop flashing first**
   - Confirm the IPC responds, check the **battery charge %**, **schedule matches** and **time is correct**
   - **If IPC was in hibernation**, you will have ~30s after the LED stops flashing to get a status response
     If the charge % is unexpectedly low, you may wish to replace the battery or replace/service the IPC
6. **If IPC does not respond to a status request, but did respond to magnet (fast flashing LED)**
   - First check the firmware version is as required for your site
   - Upgrade firmware if required
7. **Confirm channel and/or FarmID (V5) are set correctly**
   - This is only likely to occur if the IPC has been replaced at some stage and has not communicated since
   - Configure using IMS Deploy feature or with EP3 if required
8. **Check Solenoid Operation**
   - Perform manual ON and OFF commands and confirm sprinkler starts/stops (if water available) or solenoid clicks (no water available)
   - Refer to **Solenoid Operation** for more detailed description of behaviour

Actions

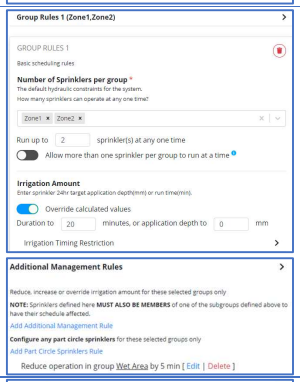
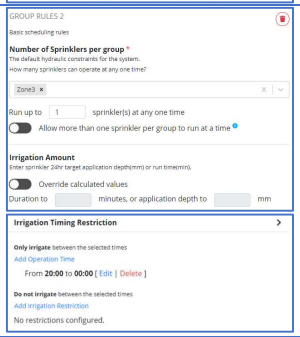
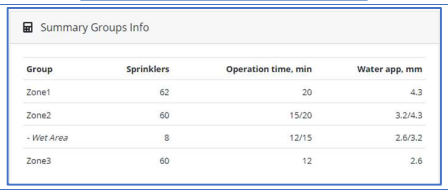
If an IPC needs replacing, has a flat battery or if the charge % is unexpectedly low

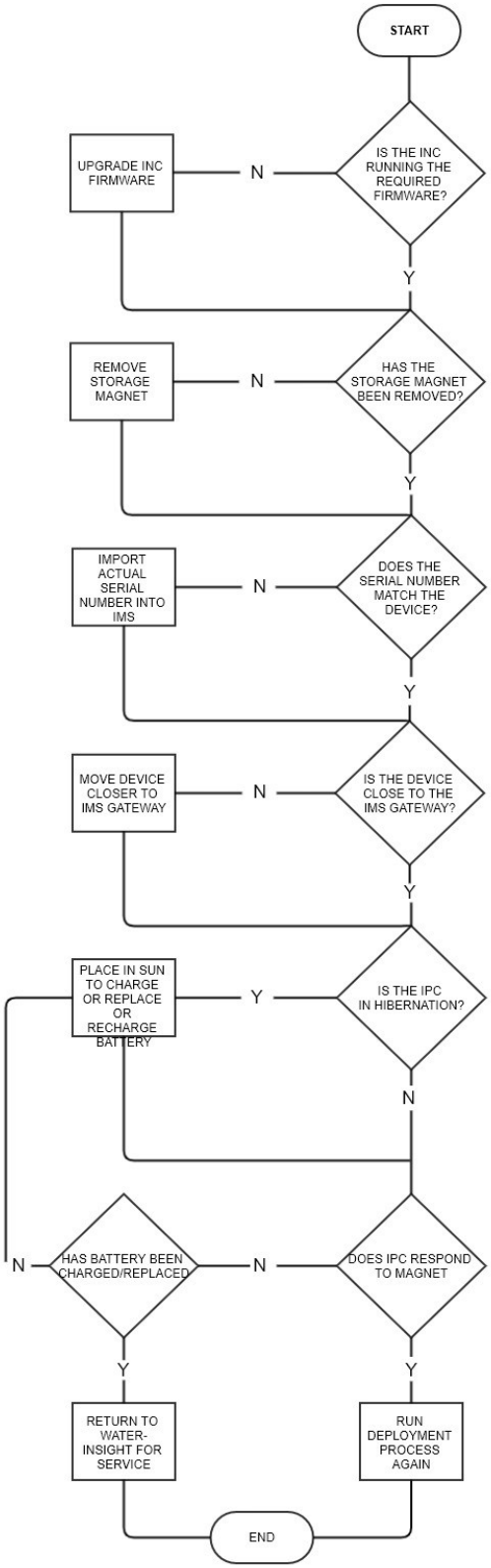
- If you have a spare IPC available refer to ***Replacing an IPC in IMS***
- For IPCs with field replaceable batteries see ***IPC Battery Replacement***
- For IPCs without field replaceable batteries, **return to Water-Insight for service**

Scheduling Example

Requirements

- Site has sprinklers split into 3 zones/laterals (Zone1, Zone2 & Zone3)
- One sprinkler in each zone can run at any one time
- The nominal run time desired is 20min
- Zone3 is only allowed to run from 8am to 8pm
- There is an area in Zone2 which gets overly wet

Step	Process	Note
1.	**Create Groups & Assign Sprinklers** - Zone1, Zone2 & Zone3 - Wet Area	If not already existing, you will need to create the groups and assign the relevant sprinklers
2.	**Basic Info** - Give the schedule an appropriate name - Leave all slider controls off	
3.	**Group Scheduling** **Group Rules 1** **Groups** – Zone1 & Zone2 **Number of Sprinklers** – 2, slider control off **Irrigation Amount** – override duration to 20min **Irrigation Timing Restrictions** – none **Additional Management Rules** – group Wet Area set to reduce operation by 5min	
4.	**Group Scheduling** **Group Rules 2** **Groups** – Zone3 **Number of Sprinklers** – 1, slider control off **Irrigation Timing Restrictions** – Limit watering period between **08:00 – 20:00** **Additional Management Rules** - none	
5.	**Summary** - Zone1 sprinklers run for 20min - Zone2 sprinklers nominally run for 20min - Those in Wet Area run for 15min - Zone 3 sprinklers run for 12min between 8am and 8pm	



Step	Process
1.	INC firmware v5.06 or greater required - **Settings** > **Version** to check Contact Water-Insight if firmware upgrade is required
2.	- The storage magnet disconnects the battery, this must be removed to power the IPC. - The magnet is located on the end of the IPC with the silver cylinder which has the serial number
3.	- Confirm the serial number of the IPC matches that which is configured in IMS - Edit the serial number in IMS if required **Farm Settings** > **Manage Assets** > **Irrigation Devices** > scroll to desired device > **more menu** > **Edit** > edit serial number > **Update**
4.	- The IPC should be within a few meters of the IMS gateway to ensure good communication & ease of troubleshooting - The deployment feature does not operate over mesh communication
5.	- When in hibernation the LED on the IPC briefly flashes once every 10s - The IPC enters hibernation and stops radio communication when the battery drops below 20% charge. - Once battery charge is above 40% radio communication will resume.
6.	- Briefly place a magnet on the IPC "magnet" label - If the LED does not start flashing the battery may be flat - Replace or charge battery and retest - If there is no response and the battery is known to be charged, return the unit to Water-Insight for service
7.	- Once all of these steps have been confirmed/completed re-run the deployment process for this IPC

Warranty

Water-Insight is a brand of QTech Data System Limited.

The hardware and software for this product is covered by the QTech Limited Warranty Agreement and software End User License Agreement, respectively.

Please refer to the QTech Limited Product Warranty Agreement, which may be downloaded from the QTech website: www.qtech.co.nz

QTech Data Systems Limited does not warrant the suitability of this product for any particular application as the conditions in which it is used are beyond our control. This is not withstanding warranty of merchantability.

Additional Information and Support

If you have problems try the following:

- Visit the Water-Insight web site for application notes and guides
- Refer to the troubleshooting section if one is present in this document
- Contact the support desk at support@qtech.co.nz
- Phone the support desk, contact details at beginning of this document