



Application Notes

Rev 03

AN40 – Swapping IPCs in the field using IMS

Introduction

IMS is a cloud-based management system for irrigation control and sensor telemetry. It is used to manage and orchestrate watering of solid set systems that use the Water-Insight Irrigation Point Controller (IPC). IPCs are identified by a serial number on a label inside the device. They also have a “radio” MAC address to enable communication with IMS or other devices such as a handheld configuration tool (EP3).

In this application note we will show you how to swap out an IPC for another using your phone to make the changes. To do this your system must include an Irrigation Network Controller (INC) and you must have cellphone coverage to your smartphone to access the internet. If you have neither then please follow the process described in application note AN21 - Replacing an IPC in the field.

Some familiarity with using IMS, an EP3, FarmID and radio channels is needed in order to follow the processes described herein.

IPC Replacement procedure

It is best practice to replace non-functioning units with pre-configured **Spares** which are ready for deployment (refer to AN47 – Managing Spares in IMS).

There are just a few steps to follow:

1. Sign in to IMS from your phone, tablet or PC. The PC is best if you need to use the SD Memory card interface.
2. Select the IPC that you want to replace.
3. Follow the replacement process below to swap the old IPC with one of your spares or enter the new serial number
4. Generate a card for you EP3 if the replacement IPC is not on channel or has not had the FarmID programmed
5. Verify your replacement IPC is set up on the correct radio channel and with the correct FarmID
6. Set the unit to work

Step 1: Sign in to IMS

Open the browser on your phone and go to ims.gtech.co.nz then enter your sign in email and password. If you have bookmarked the site already on your home screen, then tap the app icon on your phone to go to IMS (see also application note AN38 on how to add IMS to your home screen).

Step 2: select the IPC to be replaced

Click the sprinklers button on your farm then scroll to select the IPC you want to replace from the list or simply click the search icon  (figure 1) at the top of the screen and enter the serial number of the unit you want to replace, then click the result, to bring up the details of the unit (figure 2).



Figure 1

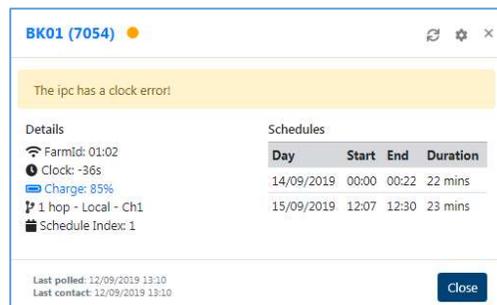


Figure 2

Step 3: follow the replacement procedure

Click the cog icon in the top right corner of the IPC details card. Then under the maintenance heading click the button marked **replace**. This will bring up the IPC replacement form (figure 3)

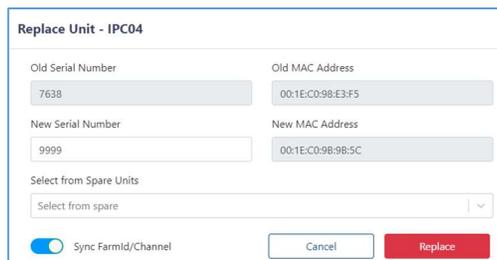


Figure 3

If you have created spare units for you farm you can select from the list of **Spare Units** to swap the old unit for the spare. Note the old unit being replaced will become the spare and the spare unit will be the unit that goes on the post. See Application note (AN47 – Creating spare units in IMS) for more information on creating spares.

Alternatively, enter the serial number of the replacement unit (per the label visible inside the unit). IMS will look up the radio address for the device and enter it. If it is an invalid serial number the new MAC address will not be populated. Check that you have entered the serial number correctly and contact Water-Insight for further assistance if you can't obtain the radio address

Click the replace button to complete the process. Leaving the Sync FarmID/Channel slider control on means IMS will attempt to automatically configure the new IPCs Channel and Farm ID (requires INC firmware v5.06 or above and IPC to be in "local" comms range). IMS will contact the INC on the site and make the necessary changes, then request the status of the new replacement unit. You will see the led on the unit flash as the INC attempts to make contact.

After about two minutes the app will notify you if it has successfully polled the new device. You will see the new device status in sprinkler list if you refresh the screen using the refresh icon .

You can then use IMS to update the schedule to the device (settings cog > send schedule, figure 4).

If your INC is configured correctly it will update the time on the device on its next periodic time synchronisation date.

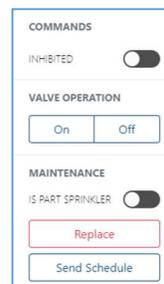


Figure 4

Step 4: Generate EP3 Card

You must do this step if your replacement IPC is not already configured to be on the correct radio channel or does not have the correct FarmID. Otherwise you can skip this step.

Unfortunately, smartphones can't talk directly to an IPC because they use a different radio to the 900 MHz radio on an IPC. This means that you must use an EP3 handheld controller to set the radio channel and FarmID on a device, if it is in an unconfigured state. The EP3 uses an SD memory Card to hold the IPC configuration file (pod-config.ini).

Do not use the SD card in your INC for this step. Use another SD card that you leave in your EP3.

"AN42 - Importing and Exporting using IMS" describes the process for creating a card but it is summarised here. In this case we won't put the schedules on the card because we will use IMS to schedule the device.

1. Insert the SD card into the PC/laptop
2. Click the **farm settings** cog for the farm to bring up the menu, click **export**
3. Click the "export podlist only" button. This will place a copy of it in your downloads folder
4. Make a folder called pods on the SD card
5. Put the downloaded file (pod-config.ini) into the pods folder
6. Eject the card and put it in the EP3
7. Tap "IPC files" on the EP3 screen and load the pod-config file.

Step 5: Verify the replacement IPC configuration

You must do this step if your replacement IPC is not already configured to be on the correct radio channel or does not have the correct FarmID. Otherwise you can skip this step.

You must ensure the IPC is set to the correct radio channel. To start with you should know what channel the device is currently on. If the device is new from the factory it will be on radio channel #3 and it will not have a valid FarmID. If you don't know the radio channel, we have other application notes for discovering the radio channel and changing the radio channel and FarmID. The process is summarised here, given that you know the channel.

1. On the EP3 tap settings > comms
2. Set the programming channel to the channel that the unit is known to be on (default is 3). This allows you to communicate to the IPC to change the channel

3. Select (tick) Use broadcast header. This allows you to talk to units that do not have a valid FarmID
4. From the main menu tap IPC list and jump to the serial number of the IPC or scroll down the list to select it
5. Tap view > comms to get ready to send a message to the device
6. Select (tick) channel then tap send to programme the channel. It should respond with "sent after 1 attempt" or a similar confirmation. This puts the device on the right channel
7. Select (tick) FarmID then send. This sets the FarmID
8. Select (tick) status then send. This will revert with the unit's status.

If this proceeds as normal the device is ready for use in the field.

Tip. You can do this when you create spare units so that you don't have to do it later. In this manner you only need to use your phone in the field to do a replacement.

Step 6: Set the unit to work.

Once the new device has been configured (can talk to an EP3 or communicates via IMS) then it is ready to replace the unit in the field.

Poll the unit using IMS and send its schedule as described above. Make sure that the new unit is not set as "spare" (figure 4) otherwise it will appear as a pink dot and the status information will not be correctly displayed.

For more information email support@waterinsight.co.nz