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Maxicom²®

Version 3.0

INSTRUCTION GUIDE FOR NEW FEATURES

This instruction guide is designed to provide information on the use and operation of new features included in Maxicom² Version 3.0, only. It is not intended to be a User Manual for all features of the Maxicom² Irrigation Central Control System.

April 1, 2005

Sections:

1. New Feature Keycode Locks
2. Low Flow / Zero Flow Alarm Feature
3. Odd/Even/Odd31 with Exclusion Days Feature

1. New Feature Keycode Locks

Use of new features added to Maxicom² is prevented in Version 3.0 by a keycode lock. Use of the features requires you to enter a keycode in the System Properties. This keycode is tied to the "System Name" field on the Registration Tab. You must call Rain Bird Global Services at 1-866-477-9778 in order to receive your unique keycode.

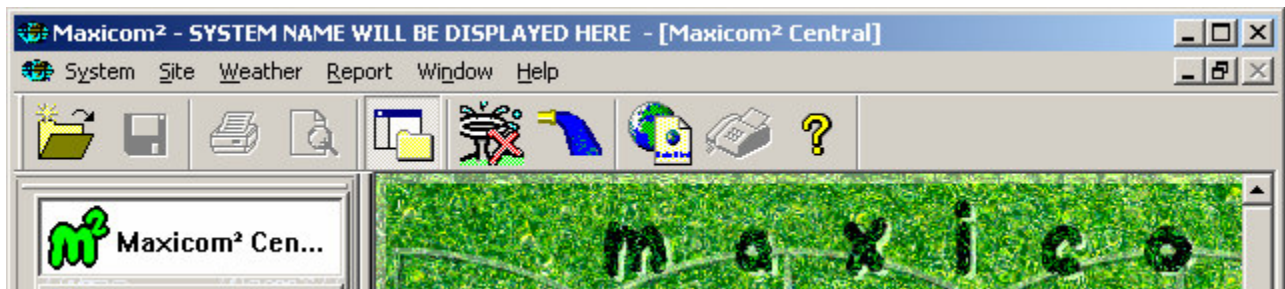
Proceed to System > Properties > Registration Tab

On the Registration Tab, you will find a new field for "System Name". Please enter the name for your system in this field. The name may be the system's (e.g. Anywhere School District) or the name of the Water Manager (e.g. John Doe). Keycodes will not be issued for generic names (e.g. Keycodes Trial).

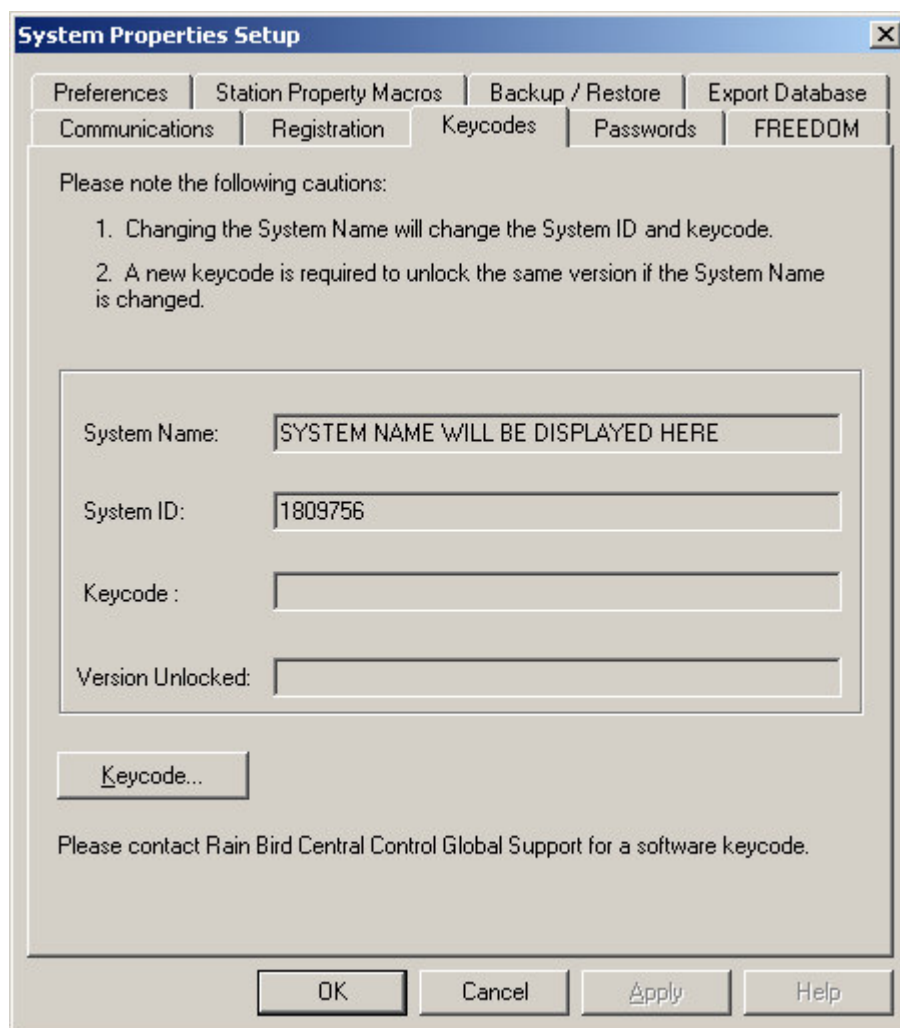
The screenshot shows the "System Properties Setup" dialog box with the "Registration" tab selected. A red warning message at the top states: "WARNING: Changing the System Name will lock some features of Maxicom² until a new Keycode is obtained from Rain Bird GSP." Below the warning, there are several text input fields. The "System Name:" field is highlighted and contains the text "SYSTEM NAME WILL BE DISPLAYED HERE". Other fields include "Name:", "Title:", "Company:", "Address Line 1:", "Address Line 2:", "City:", "State/Province:", "ZIP/Postal Code:", "Country:", "Telephone:", "Fax:", and "E-mail Address:". At the bottom of the dialog are buttons for "OK", "Cancel", "Apply", and "Help".

WARNING - Once the keycodes are entered, as per the following steps, changing the System Name will lock the features until a new keycode is obtained.

Once the System Name is entered, you should now see it displayed in the Maxicom² header bar.



There is a new tab in the System Properties Setup titled "Keycodes". Once you have entered your System Name, proceed to this tab.



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System Name & System ID will be displayed, but they cannot be edited in this tab. If you want to change the System Name, you can only do so through the Registration Tab.

There will be a button named “Keycode”. Clicking it will pop-up a small dialog, which will prompt you to enter the keycode corresponding to your System name.



At this point, call Rain Bird Global Services, Central Control Support, at 1-866-477-9778 to obtain the unique keycode corresponding to your system name.

Enter the keycode provided to you by Rain Bird Global services and then click “OK”.

When you click on the OK button, it will let you know whether the keycode was valid or not, & what version was unlocked by the keycode, if it was valid.

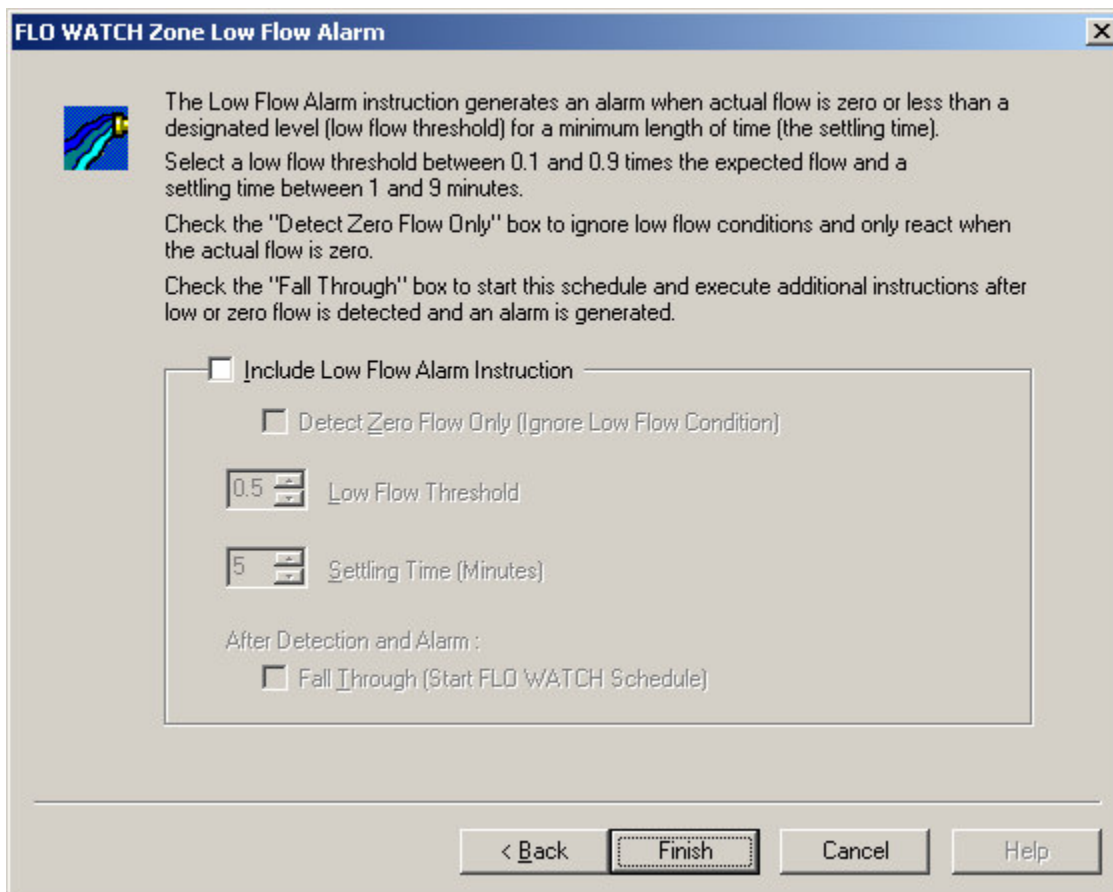
If the keycode registers as invalid, it is potentially due to a misspelling or capitalization error. Rain Bird Global Services will work with you to ensure a valid keycode is entered.

2. Low Flow / Zero Flow Alarm Feature

The Low Flow Alarm feature is designed to notify users, by means of alarms in the Maxicom² Event Log, when the flow in a designated FLO WATCH Zone falls below a pre-determined threshold level, or when there is no flow (Zero Flow) when flow is expected.

To make use of this feature you will have to set up a schedule instruction, which is newly added to Maxicom², called LOW FLOW. This instruction has to be added to a FLO WATCH schedule, which may also have other FLO WATCH instructions like FLO WATCH Zone Log and SEEF.

To set up the LOW FLOW instruction you can use the “Add FLO WATCH Instructions” wizard accessed through the “FLO WATCH Zones” icon on the Schedule Editor page. There is a new page at the end of the wizard titled “FLO WATCH Zone Low Flow Alarm” which looks like the following diagram.



FLO WATCH Zone Low Flow Alarm

The Low Flow Alarm instruction generates an alarm when actual flow is zero or less than a designated level (low flow threshold) for a minimum length of time (the settling time).
Select a low flow threshold between 0.1 and 0.9 times the expected flow and a settling time between 1 and 9 minutes.
Check the "Detect Zero Flow Only" box to ignore low flow conditions and only react when the actual flow is zero.
Check the "Fall Through" box to start this schedule and execute additional instructions after low or zero flow is detected and an alarm is generated.

☐ Include Low Flow Alarm Instruction

☐ Detect Zero Flow Only (Ignore Low Flow Condition)

0.5 Low Flow Threshold

5 Settling Time (Minutes)

After Detection and Alarm :

☐ Fall Through (Start FLO WATCH Schedule)

< Back Finish Cancel Help

This dialog is designed to be intuitive and there is help provided in the form of tool tips for most of the controls.

To set up the LOW FLOW instruction, you need to:

Check the option box “Include Low Flow Alarm Instruction”, which will enable the rest of the controls on the dialog.

Select whether you want an alarm only when the flow is absolutely ZERO or whether to set a threshold level that tells the system to alarm if the flow falls below this threshold. If you *do not* check the select box option “Detect Zero Flow Only”, you will receive alarms for both flow below the low flow threshold and a zero flow (no flow) condition.

If “Detect Zero Flow Only” is not selected, set a **threshold** for Low Flow. The range for this value is from 0.1 to 0.9. (e.g. a value of 0.5 will cause alarms when the flow is less than 50% of the expected flow level at that time).

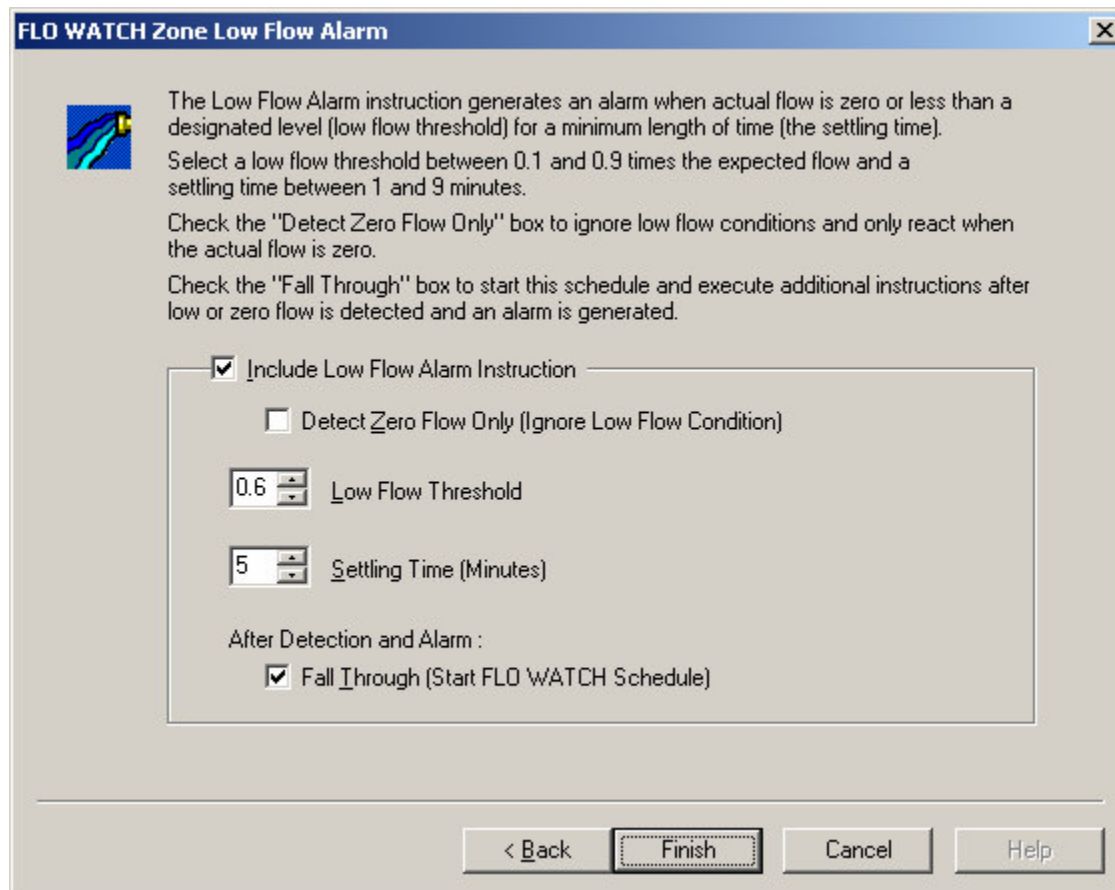
Set a **settling time**, a time duration for which the flow has to stay below the set threshold (also used in zero flow) to trigger the alarms. This helps to avoid false alarms due to transient conditions in the system and is best determined by the flow dynamics particular to a system. The range for this value is 1 minute to 9 minutes. The default (and recommended value) is 5 minutes.

You can check the last option “Fall Through” if you want the CCU to execute any additional instructions. This allows you to include instructions in the FLOW WATCH schedule to be carried out when the specified low flow condition is met. These may be shutdown instructions or may LINK START or LINK CANCEL other schedules. Note: If you desire a specific action to be taken in the event of Zero Flow only (shutdown of system, etc), you will need to create a “Detect Zero Flow Only” schedule that includes a Fall Through clause followed by instructions you want executed after detection.

NOTE: If you have a “Low Flow” schedule and a “Detect Zero Flow Only” schedule (for the purpose described above), then you will receive **two** ZERO FLOW alarms in the event log.

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The following example is a screen image with the instruction parameters set to some values:



The screenshot shows a window titled "FLO WATCH Zone Low Flow Alarm". It contains a small icon of a water drop and a yellow alarm bell. The text inside the window explains the function of the Low Flow Alarm instruction and provides instructions for configuration. The configuration options are as follows:

- ☒ Include Low Flow Alarm Instruction
 - ☐ Detect Zero Flow Only (Ignore Low Flow Condition)
 - Low Flow Threshold: 0.6
 - Settling Time (Minutes): 5
 - After Detection and Alarm :
 - ☒ Fall Through (Start FLO WATCH Schedule)

At the bottom of the window are four buttons: "< Back", "Finish", "Cancel", and "Help". The "Finish" button is highlighted with a dashed border.

This will generate a LOW FLOW instruction as shown below:

```
001 FLO WATCH Zone Monitor 01 = Channel : 06
002     LOW FLOW = 0.6 times projected, Settle 5 minutes, Fall through
003 LINK CANCEL - Schedule(s): 001, 002
```

This instruction means that when the flow in the monitored FLO WATCH Zone is below 60% of the expected flow, and it remains that way for 5 minutes in a row, the CCU will trigger LOW FLOW alarms that will be eventually shown in the Maxicom² Event Log. After causing an alarm, the CCU will also execute the "LINK CANCEL" instruction in the schedule following the LOW FLOW instruction, which LINK cancels schedules 001 & 002.

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Users should recognize that the command for LOW FLOW is very similar to the command for SEEF in that they both have thresholds and settling times. For example, the following:

SEEF = 1.3 times projected, Settle 3 minutes, (0) Fall through
LOW FLOW = 0.6 times projected, Settle 5 minutes, Fall through

However, a Low Flow Alarm does not take actions to “seek” the problem. It instead allows fall-through actions such as canceling schedules, etc.

A “Detect Zero Flow Only” schedule would look like:

```
001 FLO WATCH Zone Monitor 01 = Channel: 20
002     LOW FLOW = Detect ZERO flow only, Settle 5 minutes, Fall through
003 LINK CANCEL - Schedule(s): 001, 002, 003, 004, 005
004 LINK CANCEL - Channel(s): 01-05
```

The image below shows an example of some low flow and zero flow alarms and events:

The screenshot displays the Rain Bird Maxicom software interface. At the top is a toolbar with icons for flags, pens, a speaker, a green square, and a document. Below the toolbar is a table with the following columns: Type, Date, Description, From, and Acknowledged.

Type	Date	Description	From	Acknowledged
Alarm	29.09.04 03:05:00	FLO WATCH Zone 01, Low flow detected, Active Stations: 01/01,01/07,01/13,03/01,05/11.	Abriendo	NO
Event	29.09.04 03:15:00	FLO WATCH Zone 01, Low flow cleared.	Abriendo	NO
Alarm	29.09.04 03:25:00	FLO WATCH Zone 20, ZERO FLOW DETECTED, Active Stations: 28/01,28/07,28/13,28/19.	Balboa	NO
Event	29.09.04 03:35:00	FLO WATCH Zone 20, ZERO FLOW CLEARED.	Balboa	NO
Alarm	29.09.04 03:45:00	FLO WATCH Zone 02, ZERO FLOW DETECTED, Active Stations: 02/01,02/07,02/13,02/19,0...	Abriendo	NO

An "Event Viewer" dialog box is open in the foreground. It has a title bar with "Event Viewer" and a close button. The dialog contains the following fields:

- From: Site (dropdown menu showing "Abriendo")
- Type: Alarm
- Message: FLO WATCH Zone 02, ZERO FLOW DETECTED, Active Stations: 02/01,02/07,02/13,02/19,03/01,03/07,03/13,03/19,04/01,04/07,04/13,04/19.
- A "Close" button at the bottom.

There will be an “Alarm” posting in the event log when the specified low flow condition or zero flow condition occurs and an “Event” posting when the condition clears (as displayed above).

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The Alarm in the Event Log will indicate the following parameters:

- Date/Time
- Site number
- FLO WATCH Zone
- Whether Low Flow (flow below the set threshold) or Zero Flow (no flow detected).
- The stations that were active at the time of the alarm.

NOTE: The “indication of active stations” is provided to allow field troubleshooting of where the problem may be. You can perform more “fact-finding” by knowing what stations were active when the alarm occurred and how long it was before the alarm cleared. This will give you an idea of how long the “faulty” station was running. Remember, though, a low flow condition may be a cumulative series of faults across a system rather than just a problem with one pipe or valve.

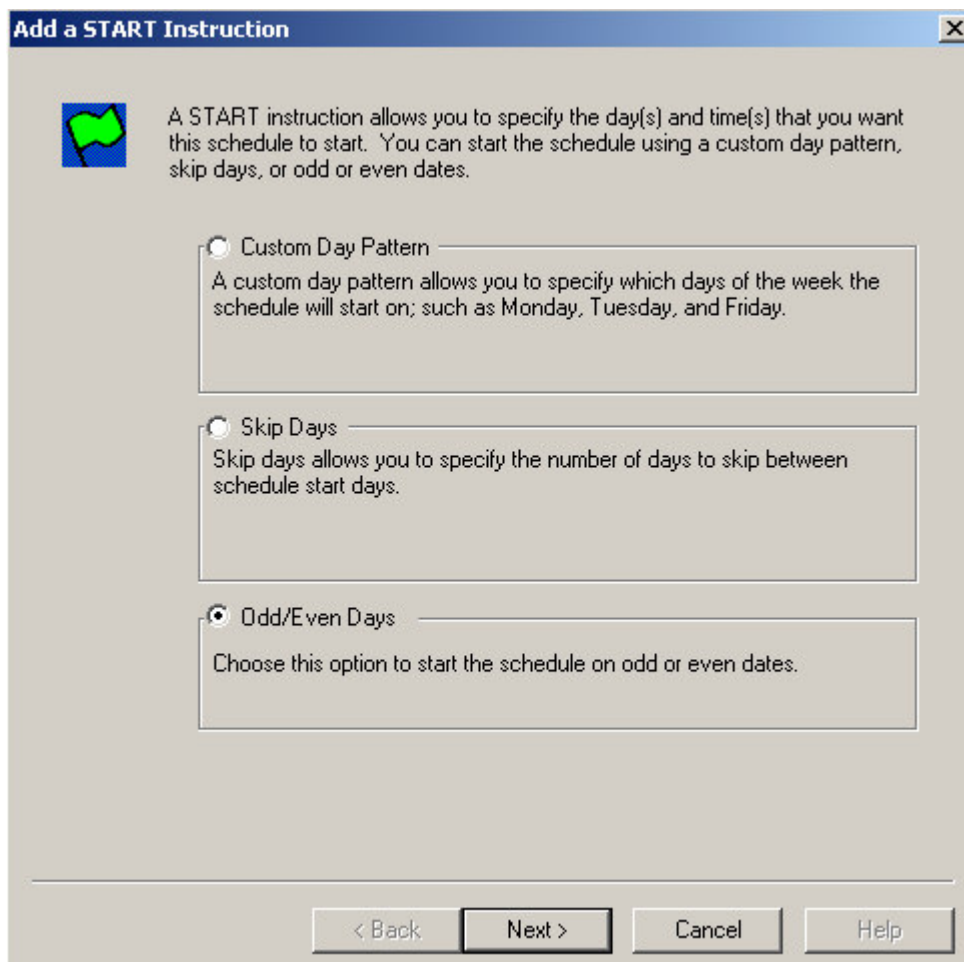
3. *Odd/Even/Odd31 with Exclusion Days*

This feature of Maxicom² is designed to provide you with a way to schedule irrigation so it runs on odd days of the month (1st, 3rd, 5th...), even days of the month (2nd, 4th, 6th...), or odd days with the exception of the 31st day in 31-day months.

An additional feature has also been provided that allows you to set up excluded days based on the days of the week. For example, a schedule could be written to irrigate on Odd days of the month with the exception of Sundays.

To set up ODD/EVEN/ODD31 Start Days, use the “Add a Start Instruction” wizard accessed through the “Start Day and Time” icon (green flag) on the Schedule Editor page.

The first screen “Add a START Instruction” now allows you to set an Odd/Even Days start pattern in addition to the Custom and Skip Days patterns, already available.



Add a START Instruction

A START instruction allows you to specify the day(s) and time(s) that you want this schedule to start. You can start the schedule using a custom day pattern, skip days, or odd or even dates.

☐ Custom Day Pattern
A custom day pattern allows you to specify which days of the week the schedule will start on; such as Monday, Tuesday, and Friday.

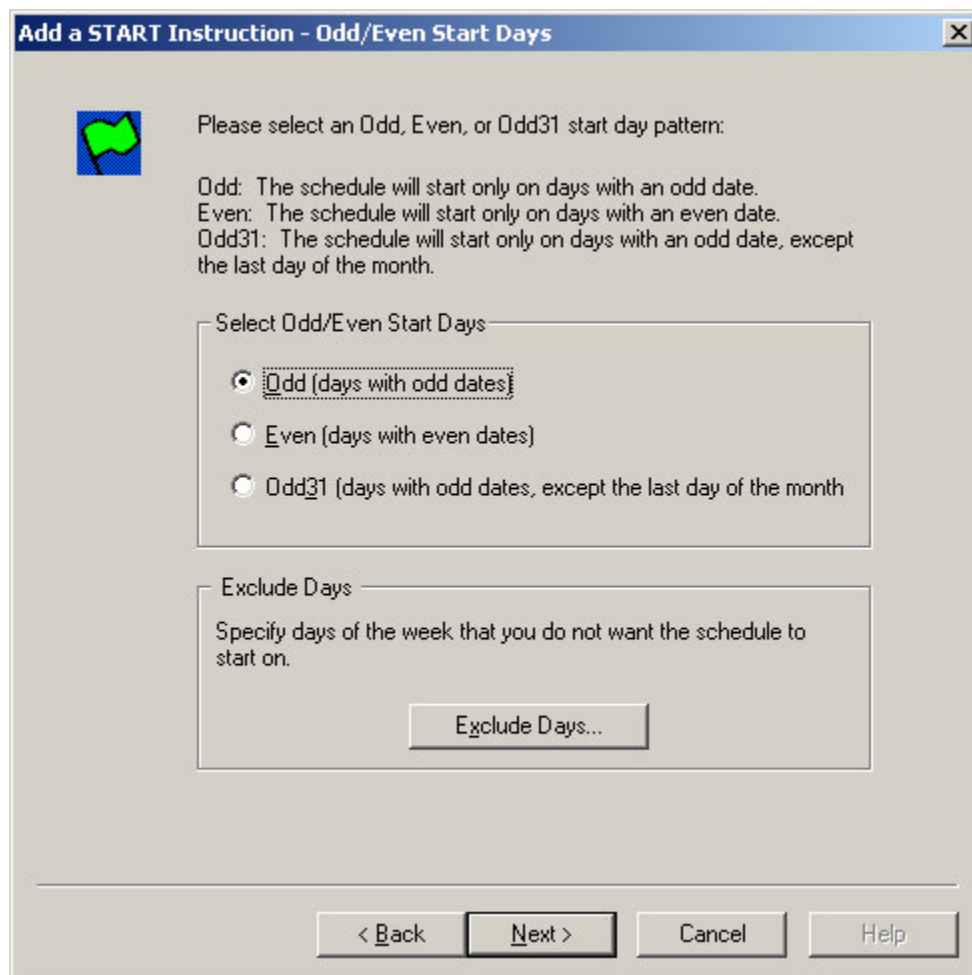
☐ Skip Days
Skip days allows you to specify the number of days to skip between schedule start days.

☒ Odd/Even Days
Choose this option to start the schedule on odd or even dates.

< Back Next > Cancel Help

Select the Odd / Even Days radio button and click “Next”.

You will now have the option to select which start pattern you desire... Odd, Even, or Odd31.



The dialog box is titled "Add a START Instruction - Odd/Even Start Days" and features a green flag icon. It contains the following text and controls:

Please select an Odd, Even, or Odd31 start day pattern:

Odd: The schedule will start only on days with an odd date.
Even: The schedule will start only on days with an even date.
Odd31: The schedule will start only on days with an odd date, except the last day of the month.

Select Odd/Even Start Days

☒ Odd (days with odd dates)
☐ Even (days with even dates)
☐ Odd31 (days with odd dates, except the last day of the month)

Exclude Days

Specify days of the week that you do not want the schedule to start on.

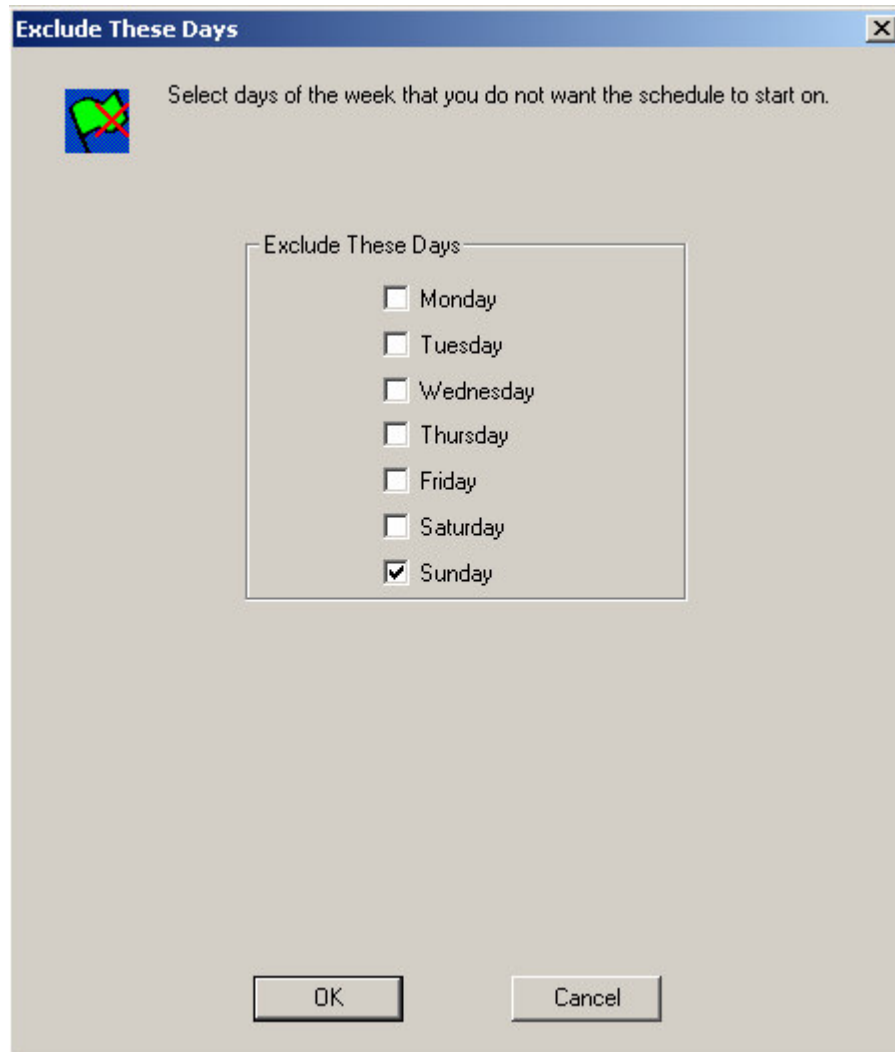
Exclude Days...

< Back Next > Cancel Help

Once you have chosen the start day pattern, you can also choose to exclude certain days of the week from this pattern. By clicking on the "Exclude Days" button, you are provided another dialog allowing you to select which days of the week to exclude (not start on).

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This feature allows the user to set up a schedule to irrigate on Odd days with the exception of Sundays, for example.



Once you select which days to exclude, click "OK."

You will be returned to the wizard to Finish the Start day and Time commands. Once the wizard is completed, you will be returned to the schedule editor. You should proceed with normal actions to complete the Channels, Stations, etc to run in this schedule.

Once the schedule is written, it would look like the following:

```
001  START ON - ODD31 Days
002  START AT - 12:00AM
003  Ms4 Satellite CHANNEL - 01
004      Station 01, 005 minutes
005      Station 05, 005 minutes
```

NOTE: The Excluded Days are not displayed in the schedule as a line item command.

The reason the excluded days do not show as a command is because the Maxicom2 Software is making the determination of the “start days” for the next 7 days and sending them to the CCU. The CCU does not understand the command “odd” or “except Monday” The exclusion days are not displayed in the Schedule itself, but they are in the schedule properties.

If you click on the “Properties” Tab in the schedule editor, you will see a new section at the bottom listing “Excluded Days”.

Site: Odd Even Starts Schedule No. 002: Even Test

Edit Schedule Properties

Site: Odd Even Starts
 Schedule Name: Even Days
 Schedule Number: 2
 Start Days: EVEN DAYS
 Start Times: 05:45PM
 Execution Window: No Time Window
 Programmed Repeats: 0 ☐ Continuous

Nominal ET
 Nominal ET is the base ET value from which ET adjustments are made to the schedule.
 0.10 inches per day (in/d)

Flow-Cost Analysis
 Using this utility, you can calculate the approximate cost to run this schedule one time based upon a theoretical ET value. Select an ET and watch the values at the bottom of the box to see how they are affected.

ET: 0.10 Min Max
 inches per day (in/d)

RunTime: 4 minutes
Water Used: 0.0 Gallons
Water Cost: 0.00

Schedule Attributes
☐ FLO-MANAGER ☒ Auto-Send ☐ Protected

Schedule Runtime Adjustment
☒ ET Sensitized
☐ Water Budget
 ☐ Site Water Budget
 ☐ Schedule-Specific Water Budget 100 %
 ☐ Water Budget Macro:
☐ No Adjustment

Excluded Days
 Excluded Days: MONDAY, THURSDAY
 Change...

This concludes the description of the new features included in Maxicom² Version 3.0. If you have any questions regarding the operation, programming, or use, please contact your Rain Bird Central Control Distributor or Rain Bird Global Services.