

# **Indigo Master Irrigation plugin**

## **Installation and reference guide**

This reference is for the Master Irrigation Indigo plugin version 1.0.0

### **Requirements:**

- One or more INSTEON or X10 sprinkler controllers like the EZRain and EZFlora.
- Indigo 5.0 or later

### **Limitations:**

- Only one schedule per zone is supported. (V2 will expand this to 3 schedules)
- Only one zone can be active at a time.
- Control of adjunct devices, like pumps, must be configured on the physical controller devices.

### **Overview:**

The Master Irrigation plugin allows you to create virtual Indigo devices that correspond to real irrigation zones connected to an INSTEON or X10 sprinkler controller. The advantages of the plugin are that the multiple controllers can be collectively managed to allow an unlimited number of zones. Also, each zone can be scheduled independently of all other zones allowing you more precise control over your irrigation.

Each time the irrigation schedule is started, it first creates a schedule. The plugin checks each virtual Irrigation device to see if it is scheduled to run, and if so, its irrigation time (possibly adjusted by an Indigo multiplier variable) is added to the schedule. The plugin then starts the schedule running each zone in turn until all zones have run for their scheduled time. While you control the time the schedule starts, you cannot control the order in which the zones are watered or the time the schedule ends. That is all done automatically by the plugin.

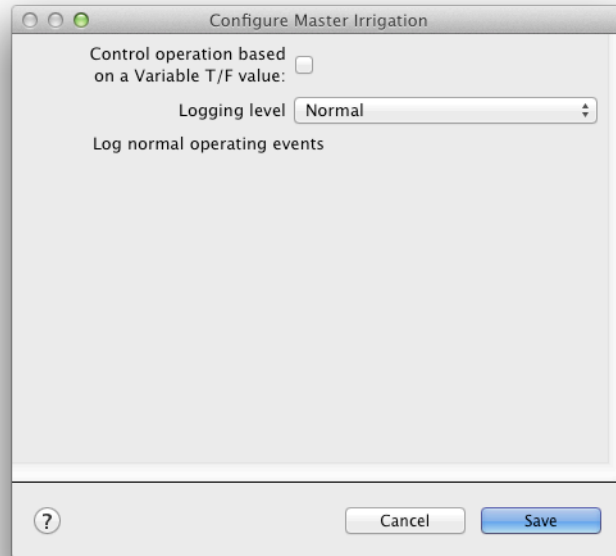
The plugin provides complete locking so that regardless of the number of actual controllers, no two zones can be active at one time.

Before installing the Master Irrigation plugin, you should have already installed your irrigation controller hardware and set up maximum zone durations, and optionally pump control. You may wish to name the zones, but that is not required and those names will not be used by the Master Irrigation plugin.

## Installation:

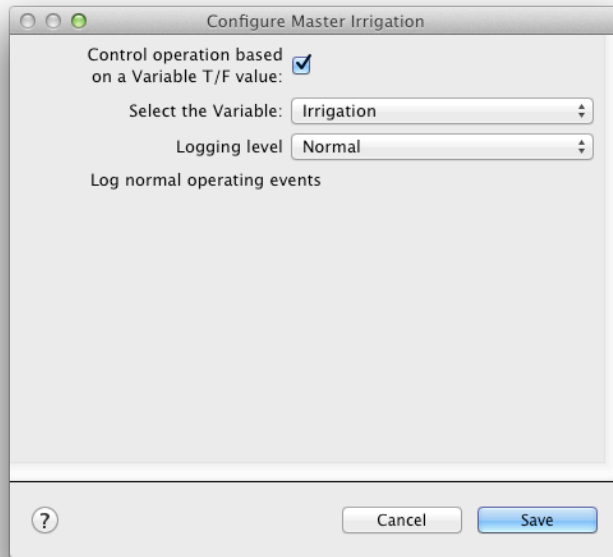
Unzip the plugin distribution and then double-click the MasterIrrigation.indigoPlugin. Indigo will present a dialog window, click *Install and Enable*.

You will automatically be presented with the Master Irrigation plugin configuration window.



You may enter the following parameters:

- Specify whether irrigation operation should be controlled based on the state of an Indigo variable
  - This feature allows you to use an Indigo variable to allow/disallow irrigation operation.
  - The most common application of this feature is to stop irrigation during rain.
    - The value of the variable must set to "true" for irrigation schedules to run.
    - The value of the variable must set to "false" for irrigation schedules to not run.
  - If you check the checkbox, a pull-down menu will appear



- Use the menu to select the Indigo variable that will be referenced.
- You may also select the logging level. The **Normal** level will work well for most users.
  - Other options include: **None**, **Verbose**, **Debug** and **Intense Debug**.
  - As you change the logging level, a short message will appear explaining that level.
- When you are finished changing the plugin preferences, click **Save**.

### Creating an Irrigation device in Indigo:

Each Irrigation device represents a single output on a physical sprinkler controller like the EZRain or EZFlora. You may create as many Irrigation devices as you wish. But, since all devices are run in one schedule, there is no benefit in creating more than one Irrigation device for each physical output in your system.

- Open the Indigo Home window (⌘7) and select the DEVICES section. You may wish to create a folder to contain your irrigation devices.
- Click New and a *Create New Device* window will appear:

Create New Device

Name:

Description:

Type:

Plugin:

Model:

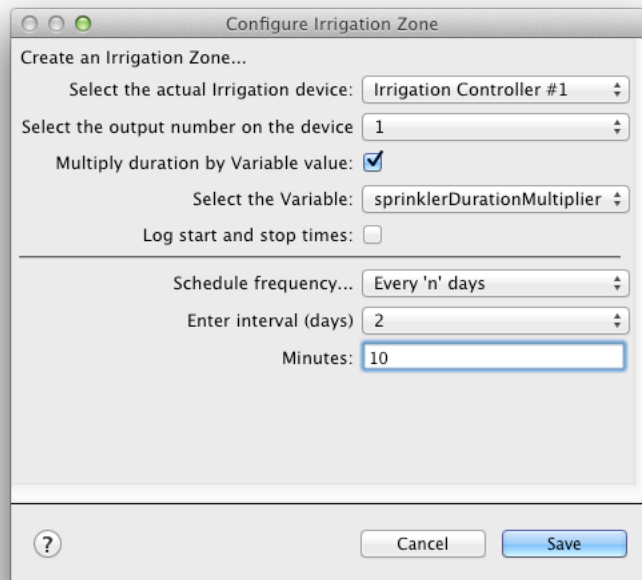
To fully configure this device, click the button above.

---

☐ Display in remote UI  
If enabled, this device and any options will be visible in remote interfaces such as Web control pages and Indigo Touch.

☒ Enable Indigo communication to and from this device

- Give your device a name, like "Front Lawn" and then click the *Type:* pulldown menu. There will be 3 options: INSTEON, X10 and Plugin. Select **Plugin**.
- Two new pulldown menus will appear. From the *Plugin:* menu select **Master Irrigation**. From the *Model:* menu, select **Irrigation Zone**. A *Configure Irrigation Zone* window will appear. This is where you will configure the virtual Irrigation device
- There are two sections to the *Configure Irrigation Zone* window. General options, and scheduling.



- First, in the general options, select the physical controller (EZRain, EZFlora, etc.) from the pulldown menu. The menu will contain a list of all the sprinkler controllers you have installed in Indigo.
- Next, select the output (1 to 8) that this zone is physically connected to.
- If you wish to use an Indigo variable to control the irrigation time, check the *Multiply duration by Variable value* checkbox.
  - For example, if the variable value is .75 and your preset watering time is 10 minutes, the plugin will multiply 10 minutes by 0.75, and will then water the zone for 7.5 minutes. A multiplier of 0 will disable watering.
  - A popup menu will appear. Select the name of the variable that will contain the multiplier value.
  - The value contained in the variable is not managed by the Master Irrigation plugin. You must enter that data manually, by running an appropriate script or program to populate the variable.
  - This value stored in this variable must contain only numbers and a decimal point.
- The last general option determines whether the plugin will log a message to the Indigo log each time the zone is watered.
  - Check the checkbox to enable this option.
  - If you check this option, messages will be logged regardless of the plugin preference log level setting.
- You are now ready to define the schedule for this zone.
- There are two scheduling options.
  - The default is **Every 'n' Days**. With this option the plugin will water the zone at an interval set you. Simply select the interval with the **Enter interval (days)** pull down menu.

- Note: The interval is really the number of times the schedule is run, and assumes that it is run once a day. If you decide to run the schedule twice a day (see **Scheduling** below) the daily interval will actually be 1/2 the number of days you selected. Note, if a zone is skipped because of a duration multiplier value of 0, or because the optional control variable was set to False, the interval counter will still be incremented.
  - Next, set the time, in minutes, that this zone should normally be watered. Decimal numbers are allowed. So, 1 1/2 minutes would be entered as 1.5.
- The second option is **Custom**. With this option you select the specific days of the week on which the zone should be watered, and a duration for each day.
  - If you select **Custom**, a list of the days of the week, will appear.

Configure Irrigation Zone

Create an Irrigation Zone...

Select the actual Irrigation device: Irrigation Controller #1

Select the output number on the device: 1

Multiply duration by Variable value: ☒

Select the Variable: sprinklerDurationMultiplier

Log start and stop times: ☐

---

Schedule frequency... Custom

Sunday ☒ Minutes: 10

Monday ☐

Tuesday ☒ Minutes: 15

Wednesday ☐

Thursday ☒ Minutes: 10

Friday ☐

Saturday ☐

? Cancel Save

- If you check a day, a text box menu will appear to allow you to enter the watering duration for that day.
  - Set time, in minutes, that this zone should normally be watered. Decimal numbers are allowed. So, 1 1/2 minutes would be entered as 1.5.
  - The zone will only be watered on the days selected, unless otherwise controlled by the multiplier or control variable options.
- Click **Ok**.
- Make sure Enable communication to and from this device is checked.
- Click **Save**.

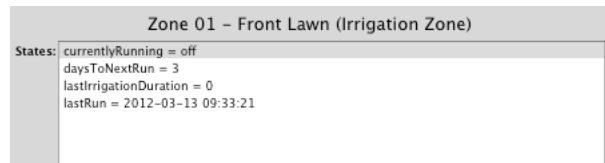
## Irrigation Device States:

Each Irrigation device maintains four states (like internal variables in the device).

- The state are:

<i>currentlyRunning</i>	<b>on</b> if the zone is currently watering, otherwise, <b>off</b> This state is also displayed in the State column in the DEVICES window.
<i>daysToNextRun</i>	The number of days remaining until this zone is watered again (always 0 for custom schedules).
<i>lastIrrigationDuration</i>	The actual duration (pre-set time x multiplier) of the last watering.
<i>lastRun</i>	The date and time this zone was last watered.

- These states can be viewed in the DEVICES window when the device is selected

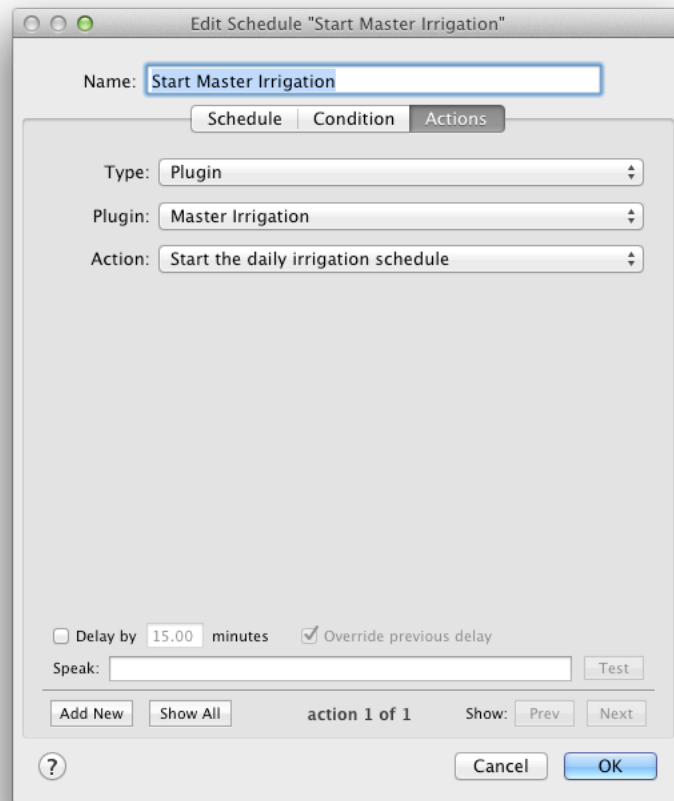


## Starting the schedule:

The Master Irrigation schedule is started with an Indigo **SCHEDULE**.

Follow these steps to run the Master Irrigation schedule:

- Open the Indigo Home window (⌘7) and select the *SCHEDULES*
- Click *New* and a *Create New Schedule* window will appear:
- Give your schedule a name, like "Daily Irrigation" and set the time the scheduled should be started.
- Now set the Date. In most cases you will want to select Every 1 days.
- Click the *Actions* tab
  - The window will change to show the Action setting options.



- For the *Type*: select **Plugin**
- For the *Plugin*: select **Master Irrigation**
- For the *Action*: select Start the daily irrigation schedule.
- Click OK.
- Your irrigation schedule will now be run at the frequency you have defined in the schedule.

Note: *Future versions of this plugin will contain an independent scheduling mechanism.*

### Using the Master Irrigation plugin in Indigo Actions:

In addition to starting an Irrigation schedule, you can perform several other Actions using the Master Irrigation plugin.

- **Test the daily Irrigation schedule.**
  - This action has no options and will start a simulated schedule run and print the schedule to the Indigo log. Using the test function will not increment interval based schedules.
  - This is an example of the output from the test action:



[illegible]

```
Starting schedule creation
No lock found. Set irrLock True
Operating in test mode
Schedule create, reading device: Zone 01 - Front Lawn
Interval scheduling: 3 days to go
Schedule create, reading device: Zone 02 - Front Patio
Interval scheduling: 0 days to go
Schedule create, reading device: Zone 03 - Front Hill, Lower
Interval scheduling: 4 days to go
Schedule create, reading device: Zone 04 - Front Hill, Upper
Interval scheduling: 4 days to go
Schedule create, reading device: Zone 05 - Driveway/Kitchen
Custom scheduling: not scheduled for today
Schedule create, reading device: Zone 06 - Back Patio
Custom scheduling: not scheduled for today
Schedule create, reading device: Zone 07 - Outer Back Yard
Interval scheduling: 1 days to go
Schedule create, reading device: Zone 08 - Inner Back Yard/Porch
Interval scheduling: 3 days to go
Schedule create, reading device: Zone 09 - Back Lawn, East
Interval scheduling: 3 days to go
Schedule create, reading device: Zone 10 - Back Lawn, West
Interval scheduling: 3 days to go
Finished schedule creation: Nothing scheduled.
Set irrLock False
Ending test mode
```

- Disable
- Reload
- Configure...
- About Master Irrigation v1.0.0...
- Device Summary
- Show the Next Run
- Stop the Currently Running Schedule

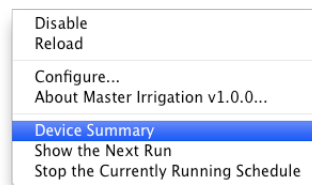
- Disable Reload
- Configure... About Master Irrigation v1.0.0...
- Device Summary
- Show the Next Run
- Stop the Currently Running Schedule

- **Reset all interval schedules to 0 (water on next run).**
  - This action has no options and will reset the remaining days on all "Every 'n' Days" scheduled zones.

## Additional options on the Plugin menu:

In addition to the two Action shortcuts noted above, one additional command is available on the Plugin menu.

- **Device Summary.**



- This command prints a short summary of all defined Irrigation devices to the Indigo log.
- This is an example of the output from the Device Summary command:

Mar 13, 2012 14:48:25

Master Irrigation

Device Settings Summary

Zone 01 - Front Lawn	Interval = 3 days, Time = 8 minutes, Use Multiplier = True
Zone 02 - Front Patio	Interval = 2 days, Time = 4 minutes, Use Multiplier = True
Zone 03 - Front Hill, Lower	Interval = 4 days, Time = 12 minutes, Use Multiplier = True
Zone 04 - Front Hill, Upper	Interval = 4 days, Time = 12 minutes, Use Multiplier = True
Zone 05 - Driveway/Kitchen	Monday, 10 min; Wednesday, 10 min; Saturday, 10 min; , Use Multiplier = True
Zone 06 - Back Patio	Monday, 15 min; Wednesday, 15 min; Friday, 15 min; , Use Multiplier = True
Zone 07 - Outer Back Yard	Interval = 3 days, Time = 10 minutes, Use Multiplier = True
Zone 08 - Inner Back Yard/Porch	Interval = 3 days, Time = 1.5 minutes, Use Multiplier = False
Zone 09 - Back Lawn, East	Interval = 3 days, Time = 11 minutes, Use Multiplier = True
Zone 10 - Back Lawn, West	Interval = 3 days, Time = 11 minutes, Use Multiplier = True