

# NC Systems, Inc.

## Release Notes

### Extension Driver – NC Systems – Oscillator – Logic – Cloud

version 1.2001.01

## Extension Driver

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This release note is for the NC Systems, Inc. Multiple Oscillators w/Delay Logic Extension Driver.

The Multiple Oscillators w/Delay Logic driver is one of a series of drivers that perform logic functions that are utilized on the Actions & Events page of the Crestron Home Setup App. Logic module inputs are provided by Extension Driver Programmable Operations and module outputs are provided by Programmable Events. This driver does not communicate directly with any external devices.

When a sensor detects an alert condition, the system should either perform some action or provide repeated notifications until the alert condition is resolved. If the alert condition returns to normal in a reasonable amount of time, no actions or notifications should be performed. The Multiple Oscillators w/Delay Logic driver supports this by providing a cancellable delay timer prior to the start of oscillator driven actions and/or notifications.

The Multiple Oscillators w/Delay Logic driver accepts start and stop commands and generates high and low oscillator events. Delay time, high time, and low time values are entered via the user interface. The user interface also shows oscillator status and provides start and stop command buttons.

An example is the status of a wine cooler door. If the door is left open for too long, some sort of notification should be repeatedly performed until the door is closed. The Multiple Oscillators w/Delay driver supports this by starting a delay timer when the door contact sensor goes open. If the door contact sensor closes before the delay timer expires, the timer is canceled and the driver will take no further action. If the delay timer expires, an oscillator is started. It will continuously oscillate between a high time and a low time until it is stopped. Events are triggered at the beginning of each high time and low time. The high time event can be programmed to trigger a notification such as turning on a light, sounding an alarm, sending a notification, etc. The low time event can be triggered to turn off a light, stop sounding an alarm, etc.

This driver operates in a demonstration mode for up to one hour without entering a license key. Reloading the driver from the About tab of the Settings page of the Setup App restarts the one-hour demo mode. A full license can be purchased at <https://NCSystemsInc.com>.

In this document the following shorthand references are used: The Multiple Oscillators w/Delay Extension Driver will be referred to as “the driver”, the Crestron Home Setup application will be referred to as “the Setup App”, and the Crestron Home End-User application will be referred to as “the End-User App”.

## Notes and Recommendations

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The driver supports up to eight oscillators. There is no fixed limit to the number of instances of the driver that can be installed on a Crestron Home processor.

## System Requirements and Dependencies

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The following are required to run the driver:

- Crestron Home v3.017.0100 or later
- CP4-R, MC4-R, DIN-AP4-R, or PC4-R Crestron Home processors

## Installation/Upgrade Instructions

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Installation of the Multiple Oscillators w/Delay driver involves the following steps:

- Using the Setup App, add the Multiple Oscillators w/Delay driver (Drivers->Logic->NC Systems, Inc. ->Multiple Oscillators w/Delay) to a selected room
- Fill in the Installation Settings information
- Using the End-User App, complete the setup of each oscillator used and enter times for the initial delay, oscillator high, and oscillator low
- Using the Actions & Events page of the Setup App, connect sensor outputs to the start and stop commands of the oscillator. Then connect oscillator high and low output signals to action/notification functions

### Multiple Oscillators w/Delay Driver Installation

In the Crestron Home Setup App, select Pair Devices, select a Room, and under Device Types, select Drivers. When Updating Drivers completes and a list of driver types is presented, scroll down to Logic and select it. When a list of Logic manufacturers is shown select NC Systems, Inc. The Multiple Oscillators w/Delay driver will be displayed. Click on the plus sign and the driver will be loaded from the Crestron Drivers Portal to the selected Room.

The first page that appears after a Multiple Oscillator w/Delay driver has been loaded and paired to a Room, requires the entry of a descriptive name for the driver. When the OK button is clicked, the Installer Settings page will be shown.








**Note about License Keys:** Since this driver is intended to be utilized in conjunction with the NC Systems, Inc. Sensors driver, a License Key for the Sensor driver will satisfy the license key requirement for this driver. If this driver is used on a system that does not use the NC Systems, Inc. Sensor driver, a Multiple Oscillators w/Delay driver license key must be purchased.

## Oscillator Group Settings

About

Installer  
Settings

Advanced

	<b>License Key</b> Please go to <a href="https://NCSystemsInc.com">https://NCSystemsInc.com</a> to obtain the necessary license key. The driver will operate without a license key for 1 hour.	8FA4678F-0B95-833E-8A5A-F0401EA53E
	<b>Oscillator Control Title</b> Enter the title of the Oscillator Control page	Oscillator Group
	<b>Number of Oscillators</b> Enter the number of Oscillators used (1-8)	8
	<b>Visible in Home Page</b> Show a Tile in the Home Page	<input checked="" type="checkbox"/>
	<b>Visible in Home Page</b> Show a Tile in the Home Page	<input checked="" type="checkbox"/>
	<b>Visible in Room Page</b> Show a Tile in the Room Page	<input checked="" type="checkbox"/>
	<b>Settings Visible</b> Show Settings Pages	<input checked="" type="checkbox"/>

**License Key** – A paid license key is required to activate this extension driver. The key can be obtained at <https://NCSystemsInc.com>. This driver will function for one hour in Demo Mode without a license key.

**Oscillator Control Title** – A descriptive title that appears at the top of page containing the oscillator controls.

**Number of Oscillators** – Enter the number of oscillators that will be used for this instance of the driver. The maximum is 8.

**Visible in Home Page** – Check to cause a tile to be shown on the Home Page.

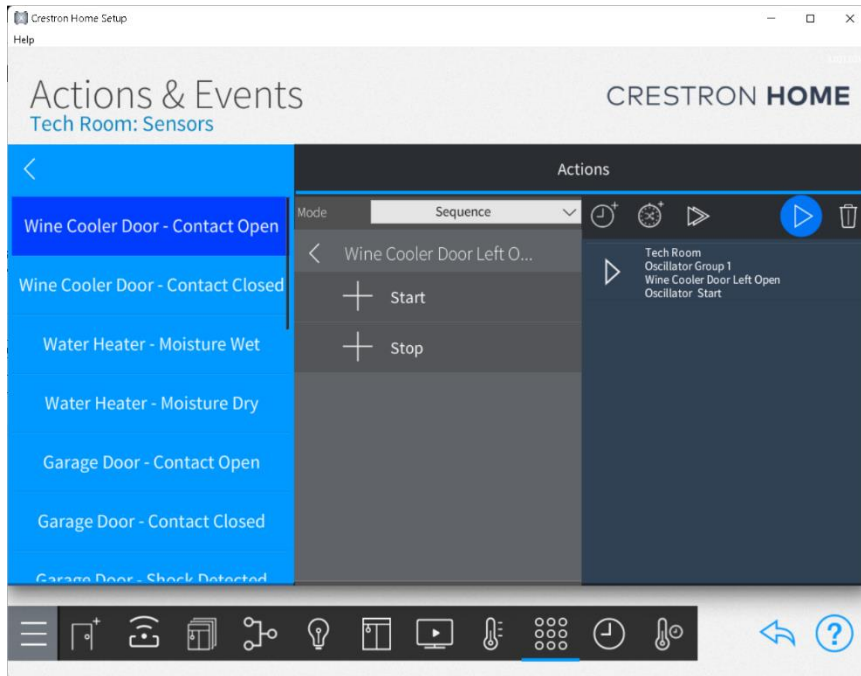
**Visible in Room Page** – Check to cause a tile to be shown on the Room Page.

**Settings Visible** – Check to show Settings pages. Uncheck to hide Settings pages.

Selecting the OK button will complete the installation of the driver and make it available for use.

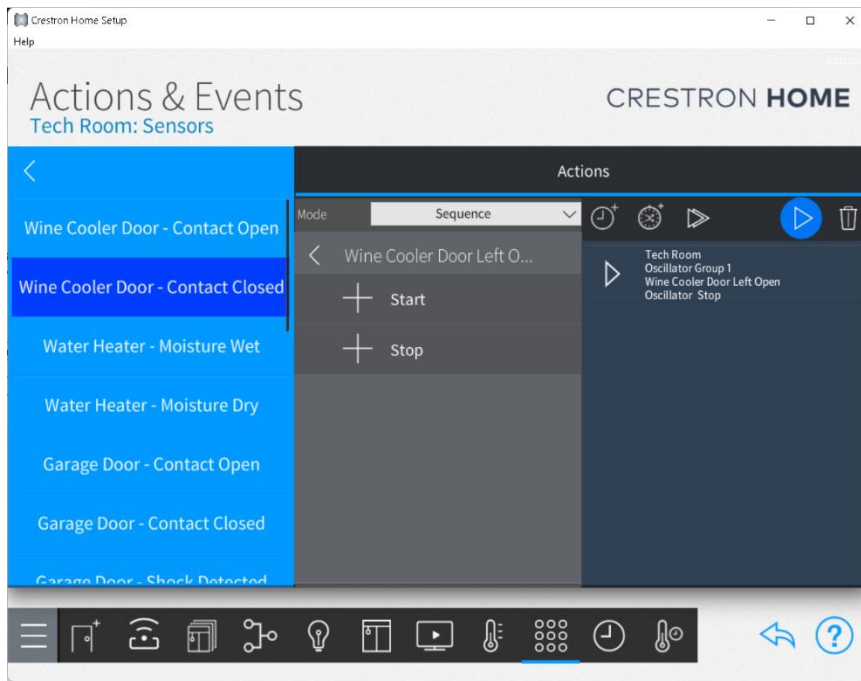
## Multiple Oscillators Actions

The Multiple Oscillators driver makes oscillator Start and Stop Programmable Operations available on the Setup App Actions & Events page.



### Oscillator Start Action

Oscillators are started by a sensor alert event. In this case the oscillator delay timer is started by a contact sensor going open.

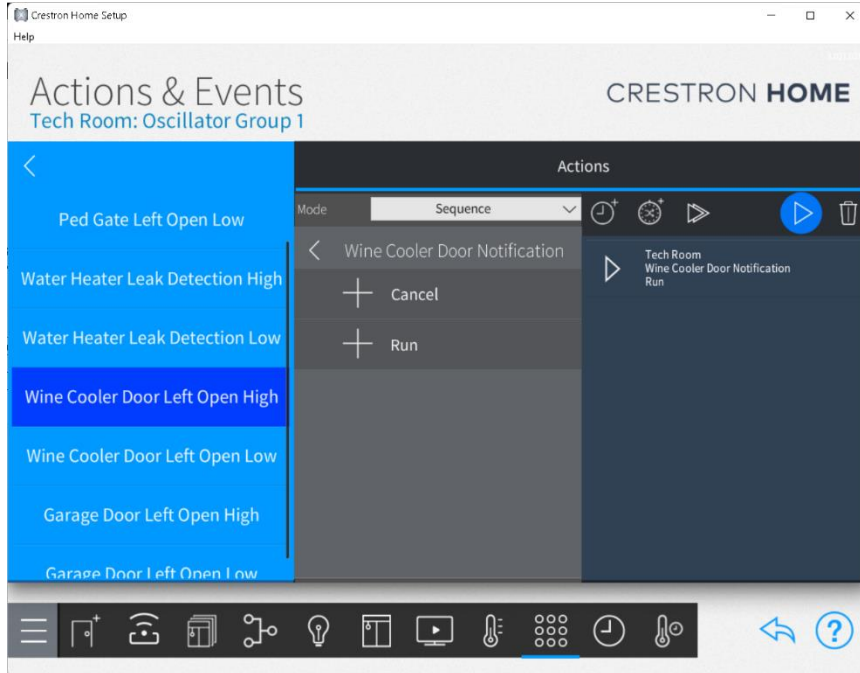


### Oscillator Stop Action

The oscillator is stopped by a sensor normal event. In this case the oscillator is stopped by a contact sensor going closed. If the stop event happens before the initial delay timer expires, the oscillator is stopped before the high/low oscillations start.

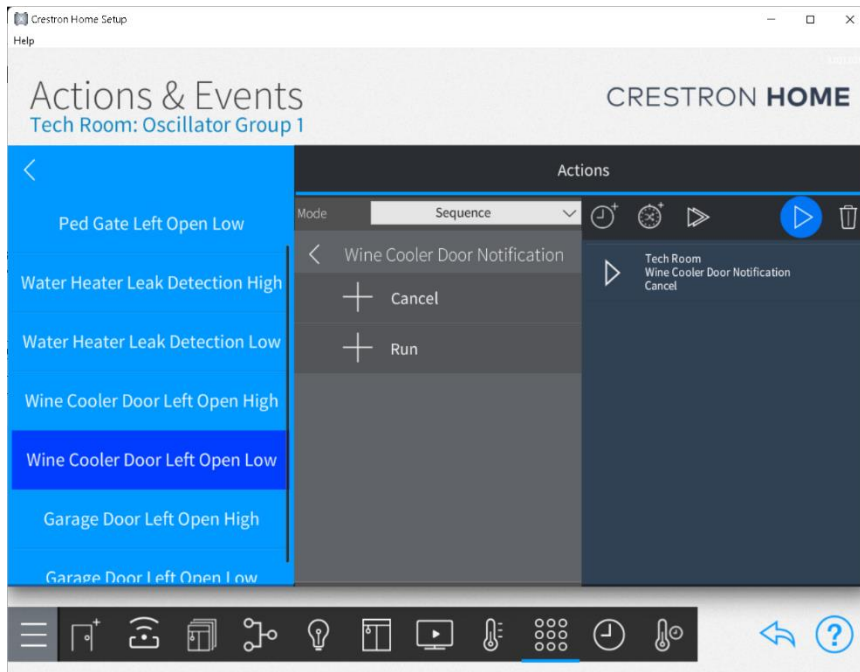
## Multiple Oscillators Events

The Multiple Oscillators driver makes oscillator High and Low Programmable Events available on the Action & Events page of the Setup App.



### Oscillator High Event

Once oscillations have been started, the oscillator driver will trigger a High event when the initial delay timer expires and each time the low timer expires. After low timer expiration, the high timer is immediately started.



### Oscillator Low Event

The oscillator driver will trigger a Low event each time the high timer expires. After high timer expiration, the low timer is immediately started.

## End-User Experience

The Room Tile for this driver reflects either normal operation of a licensed driver or demo mode status.



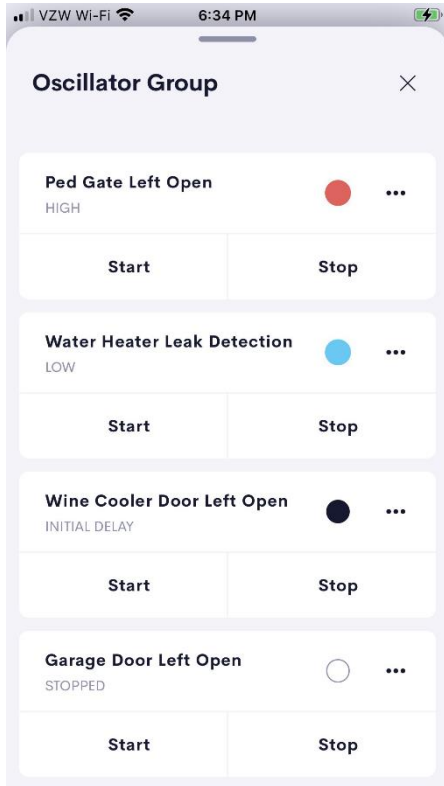
**Left:** Normal Operation – Valid license key has been entered.

**Center:** Demo Mode – Whenever the driver is added to the system without entering a license key, the driver will be started in Demo Mode. The Home Page and Room Tiles show a status of Demo Mode and time remaining in the Demo. A license key can be applied at any time during Demo Mode. Configuration information entered during the Demo Mode period(s) will remain after a valid license key is provided.

**Right:** Demo Mode Expired – When the Demo Mode expires, the Room Tile will show a red dot and a Demo Expired status. The driver will be disabled. When the Demo Mode expires or if an invalid license key is entered, reloading the driver by selecting the Check for Driver Update button on the About page of the Setup App will restart the 60-minute Demo Mode period.

## The End-User Interface

Pressing the Home Page or Room tile will cause the driver to navigate to the Oscillator Controls page where controls and status of each oscillator are shown.

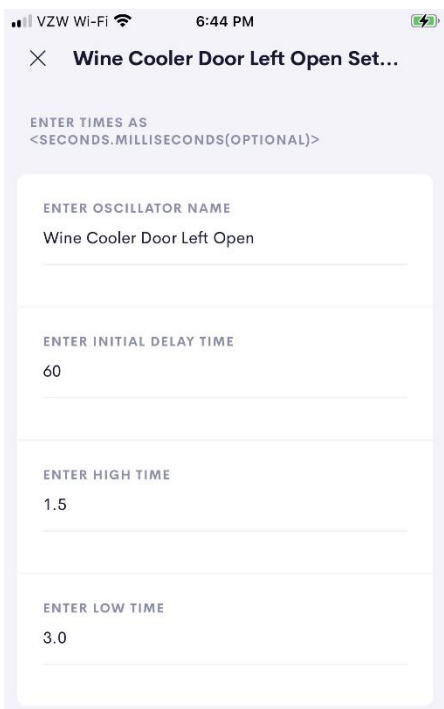


### Oscillator Controls

The Oscillator Controls page contains one control for each oscillator. The number of oscillator controls shown on this page is variable and depends on the number of oscillators entered in the Installer Settings page of the Setup App.

Each control shows the oscillator name, a text status, an icon status indication, Start and Stop command buttons, and an ellipsis to navigate to a Settings page.

The status icons show black for the initial delay time, red for high event active, blue for low event active, and an empty circle for a stopped oscillator.



### Oscillator Settings

The Oscillator Settings page is provided for each oscillator used in a system. It allows the installer to name each oscillator and define the initial delay, high and low times for the oscillator. All times are entered in the format of a seconds value followed by an optional decimal point and up to three digits after the decimal point. Times may be specified down to the millisecond.

An initial delay time of 0 will cause an immediate trigger of the high event when the oscillator is started.

## Limitations/Known Issues

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There are no limitations or known issues.

## Supported Features

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The Multiple Oscillators w/Delay driver supports the following user features:

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- Ability to define up to 8 independent oscillators
- Ability to define a cancel the oscillator during the initial delay period
- Ability to define the length of oscillator high and low times
- Ability to start and stop oscillators from the user interface
- Availability of Start and Stop commands in the Actions portion of the Actions & Events page of the Setup App
- Availability of High and Low events in the Events portions of the Actions & Events page of the Setup App

## Test Environment

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The Multiple Oscillators w/Delay driver has been tested with the following:

- Crestron Home v3.021.0214
- Crestron Home App for IOS v3.2108

## Supported Models

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- Crestron CP4-R
- Crestron MC4-R
- Crestron DIN-AP4-R
- Crestron PC4-R

## Contact Information

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License: <https://ncsystemsinc.com/products/oscillator>



## Version History

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1.2001.01

9/20/2023

Changes since Last Version

New Features

- Initial release

## Licensing and Copyright Information

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Certain Crestron products contain open-source software. For specific information, please visit

[www.crestron.com/opensource](http://www.crestron.com/opensource)

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