

# Remote Builder SmartGrid 3.0 Help (12/21/24)

## Table of Contents

Table of Contents .....	2
Introduction .....	3
Create a New SmartGrid .....	5
How Updates Work? .....	6
Polling.....	7
About Device State .....	8
Customizing a SmartGrid .....	9
General.....	10
Adding a Title .....	11
Headers & Columns .....	12
Rows.....	12
Info Columns .....	13
Data Sources .....	13
Publishing.....	16
Event Timeout.....	16
Using SmartGrid .....	17
Feature Overview.....	17
Multi-Select.....	17
Dynamic Icons .....	17
Device List .....	18
State .....	18
Control Group 1 .....	18
Control Group 2 .....	18
Info Columns .....	18
Questions and Answers .....	19
It's a Wrap.....	20

## Introduction

SmartGrid combines the tabular format of Tile Builder with the ability to control a variety of Hubitat devices via a dense but intuitive interface that can be accessed with a modern browser via phone, tablet or desktop from anywhere in the world. SmartGrid is part of the Remote Builder collection of applets so if you have not already installed the Remote Builder parent and SmartGrid child app please do so now. Installation instructions for the Remote Builder Parent App can be found [here](#).

### Typical SmartGrid Appearance

The screenshot displays the SmartGrid interface with a table of devices and various control elements. Annotations point to specific features:

- Device Select:** Select All/None/ Multiple
- Status Icon:** Click to sort
- Device List:** Click to sort
- Refresh Icon:** Force refresh
- Device State:** On/Off Click to sort
- Level/Kelvin/Speed/Position:** Device control A/B Click to toggle controls
- Color Temp:** Click to toggle
- Info Columns:** Option info columns for the devices. Click to sort
- Switch Toggle:** On / Off, Lock / Unlock, Open / Close
- Blind Control:** Vertical position, 0% - Fully Closed, 100% - Fully Open
- Fan Control:** On / Off, Speeds Low, Medium & High
- Dimmer Control:** 0% - Fully Off, 100% - Fully On
- Color Control:** OS dependant Color Picker

Device Select	Icon	Lights	State	Level/*K	Color	Last On	Room
<input type="checkbox"/>		Basement Bulb 1		89%		5:32 PM	Basement
<input type="checkbox"/>		Basement Bulb 2		89%		5:32 PM	Basement
<input type="checkbox"/>		Basement Lights				8:03 AM	Basement
<input type="checkbox"/>		Bedroom Fan Lights		94%		3:58 PM	Bedroom
<input type="checkbox"/>		Bedroom Lamp		100%		5:50 PM	Bedroom
<input type="checkbox"/>		Bedside Lamp				5:48 PM	Bedroom
<input type="checkbox"/>		Decorative Lamp				7:38 PM	Living
<input type="checkbox"/>		Garage Left		100%		4:33 PM	Outside
<input type="checkbox"/>		Garage Right		100%			
<input type="checkbox"/>		Kitchen Cabinet		78%			
<input type="checkbox"/>		Office Left		100%			
<input type="checkbox"/>		Office Right		100%		6:57 PM	Office
<input type="checkbox"/>		Patio Left		19%		4:33 PM	Outside
<input type="checkbox"/>		Patio Right		100%		4:33 PM	Outside
<input type="checkbox"/>		Porch Light		100%		4:33 PM	Outside
<input type="checkbox"/>		Rock Salt Lamp				4:33 PM	Living
<input type="checkbox"/>		Sunroom Fan		L M H		7:38 PM	Sunroom
<input type="checkbox"/>		Tiffany Lamp				4:33 PM	Living
<input type="checkbox"/>		Virtual Blind		100%		6:04 PM	Virtual

Originally designed for use with bulbs it has since been expanded to handle Valves, Locks, Fans, Garage Doors and Blinds (vertical). The ability to multi-select devices and change them all simultaneously is a convenient way to work with groups of devices but especially lights as they are both common and complex.



## Create a New SmartGrid

After you have installed the SmartGrid child module you can select to “Add SmartGrid” from the parent.

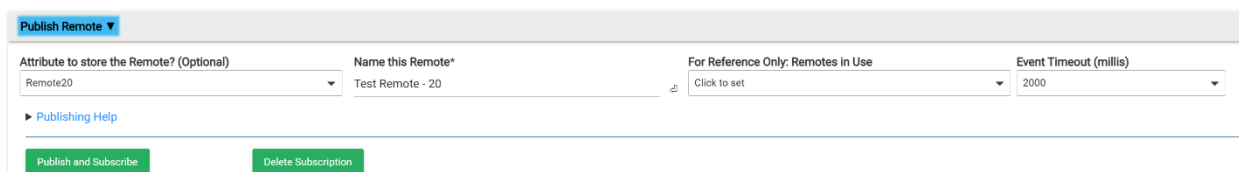
First you must select the devices you wish to work with in your grid. If you wish you can select from a filtered list by selecting a required capability like “Color Devices” or “Dimmer”, or you can leave it at the default and all supported device types will be available. Once you have selected devices the SmartGrid will be displayed and show all the current values. It will look something like this:



<input type="checkbox"/>	Icon	Name	State	Level/°K	Color
<input type="checkbox"/>		Basement Bulb 1		89%	
<input type="checkbox"/>		Basement Bulb 2		89%	
<input type="checkbox"/>		Basement Light Strip 1			
<input type="checkbox"/>		Basement Light Strip 2			
<input type="checkbox"/>		Basement Lights			
<input type="checkbox"/>		Sunroom Fan	L M H		
<input type="checkbox"/>		Virtual Blind		100%	

The first 4 columns will always be populated however the content of the two control columns will only be populated as needed. In the above example the **Basement Light Strip 1** is a simple switch so the first control column **Level/°K** is not relevant and is therefore empty, as is the color column. In the case of the **Sunroom Fan** the first control column is filled with a fan speed control and so forth. **Note:** Clicking on the header of a control column will switch between available controls such as Level (dimmer) and Color Temperature.

**Before your SmartGrid will work correctly you must perform a Publish and Subscribe.** Go to the Publish Remote section and give it a name, then select the Attribute to publish to and click on **Publish and Subscribe**. We will come back to the Event Timeout later, but it functions the same way as it does in Tile Builder.



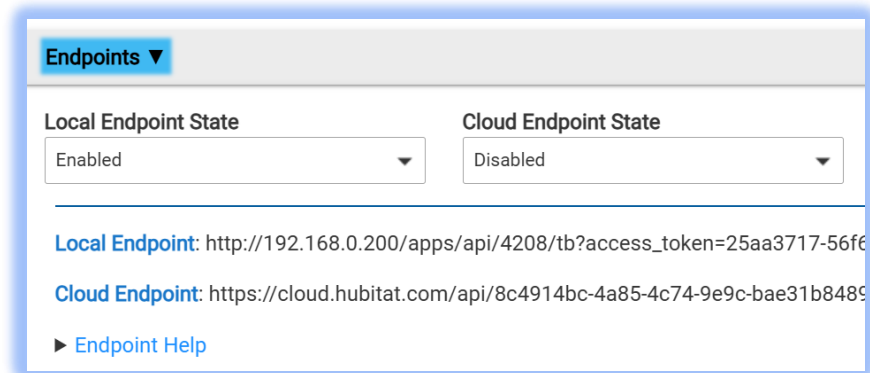
**Publish Remote**

Attribute to store the Remote? (Optional)  Name this Remote\*  For Reference Only: Remotes in Use  Event Timeout (mills)

[Publishing Help](#)

That is all that you need to do to get your SmartGrid up and running. You can now use the applet to control your devices, and the on-screen version will update automatically when changes are detected.

To access your SmartGrid from any device you simply need access to the Endpoint links which can be found in the Endpoint section as shown below.



**Endpoints ▼**

Local Endpoint State	Cloud Endpoint State
Enabled ▼	Disabled ▼

---

**Local Endpoint:** [http://192.168.0.200/apps/api/4208/tb?access\\_token=25aa3717-56f6](http://192.168.0.200/apps/api/4208/tb?access_token=25aa3717-56f6)

**Cloud Endpoint:** <https://cloud.hubitat.com/api/8c4914bc-4a85-4c74-9e9c-bae31b8489>

► [Endpoint Help](#)

By default, only the Local Endpoint is enabled. You can click on the **Local Endpoint** label or simply copy the link and share it or store it as you see fit.

## How Updates Work?

SmartGrid gets its updates in one of three possible ways.

- 1) You can perform a manual refresh of the device states at any time by clicking on the Refresh icon in the far right of the Device Name column.
- 2) If you choose to embed a SmartGrid into a Hubitat dashboard then the SmartGrid will be refreshed every time that the underlying data changes. This is controlled by the Event Timeout control in the Publishing section mentioned earlier.
- 3) SmartGrid can poll the Hub and ask “Got any changes” to which the Hub will respond “No.” or “Yes and here they are.” Polling can be Enabled\Disabled and the polling frequency can be changed within the polling section of the app.

While there are three methods only methods 2 and 3 are completely automatic so we will focus on those. The rule of thumb is if you are using the SmartGrid within a Hubitat dashboard then you would disable Polling and configure a small Event Timeout period. If you plan to launch the SmartGrid mostly from a browser on a phone, tablet or desktop then you would enable polling, configure an appropriate polling period and then set the Event Timeout to “**Never**”

Of course, if you plan to use SmartGrid simultaneously in both scenarios then you would leave both methods enabled. The Event Timeout method is the same one used in Tile Builder so I will skip over that and talk about polling because that is new.

## Polling

The polling configuration interface looks like this:

**Polling**

Endpoint Polling  
Enabled

**Important: When to Enable Polling**  
A) You want a more graceful refresh operation on a Hubitat Dashboard. Enable Polling and set the Event Timeout (Publishing Section) to **Never**. Doing so results in the SmartGrid updating vs doing a complete refresh.  
B) You want an automatic refresh operation for a SmartGrid that is being displayed directly on a device without using a Hubitat Dashboard. In this case you should also enable Polling and set the Event Timeout to **Never**. This allows you to have a SmartGrid run directly on your phone, tablet or computer and it will automatically update whenever changes are detected.

Poll Interval (seconds): 3  
Update Color Success (#00ff00)  
Update Color Fail (#ff0000)  
Update Width: 5  
Update Duration: 2  
Refresh Bar Height: 2  
Refresh Bar Color (#99ccff)  
Command Timeout (seconds): 10  
[Polling Help](#)

You will find each of these properties explained in the inline Polling Help which is repeated here:

You can configure the SmartGrid to poll the endpoint and apply any changes that are found. If there are no changes the SmartGrid goes back to sleep until the next poll interval.

**Poll Interval:** The frequency at which the Hub will be contacted to ask if there are any updates available.

**Poll Update Success Color:** When updates are applied the Grid will be outlined in the selected color.

**Poll Update Failure Color:** When updates are requested but no changes are received within the command timeout period the Grid will be outlined in the selected color.

**Poll Update Width:** The width of the outline in pixels when updates are applied.

**Poll Update Duration:** The duration in seconds that the Success\Failure outline is displayed.

**Refresh Bar:** The Refresh Bar is displayed beneath the SmartGrid and is a visual indicator of the polling process. When the bar hits either edge then a polling event will occur and any changes will be picked up.

**Refresh Bar Height:** The height of the bar beneath the SmartGrid that identifies the position in the polling cycle.

**Refresh Bar Color:** The color of the bar beneath the SmartGrid that identifies the position in the polling cycle.

**Command Timeout:** The amount of time allowed to pass without a response from the Hub before a command request is deemed to have failed.

You should now be able to create a SmartGrid and configure access according to your own needs.

































## About Device State

The control in the device state column represents an On/Off switch which is common among devices like bulbs and power switches. But what about devices like Locks (Locked\Unlocked), Valves, Blinds and Garage Door Controllers (Open\Closed)?

In Remote Builder all binary controls are mapped to Active or Inactive states in accordance with this table:

Device Type	Active (On)	Inactive (Off)
Switch	On	Off
Bulb	On	Off
Lock	Locked	Unlocked
Valve	Open	Closed
Blind	Open	Closed
Garage Door	Open	Closed
Fans	Low, Medium, High	Off

If in doubt you can always refer to the Icon column which depicts the state of the various components as shown below.

Icon	Name	State	Icon	Name	State
	Christmas Tree			Christmas Tree	
	Front Door			Front Door	
	Garage Door			Garage Door	
	L.R. Bar Feed			L.R. Bar Feed	
	L.R. Blind - West 1			L.R. Blind - West 1	
	L.R. Bulb 1			L.R. Bulb 1	
	L.R. Cabinet Dimmer			L.R. Cabinet Dimmer	
	L.R. Ceiling Fan			L.R. Ceiling Fan	

**Note:** Blinds\Shades have an additional state of 'partially open' and is depicted as a flashing arrow indicating the direction of travel. Garage Doors have two additional states of 'opening' and 'closing' which are also depicted as a flashing arrow in the direction of travel.



## Customizing a SmartGrid

Immediately under the Design SmartGrid heading these options are available.

A horizontal row of configuration controls. From left to right: a dropdown menu labeled 'Endpoint to Display' with 'Local' selected; a dropdown menu labeled 'Max Width (x200px)' with '3' selected; a dropdown menu labeled 'Preview Height (x190px)' with '2' selected; a color picker labeled 'Preview Background Color (#8FC126)' showing a green color; and a green button labeled 'Publish and Subscribe'.

**Endpoint to Display:** You can toggle between the local and cloud Endpoints to preview which each of the looks like. Quite often you may choose to only have an Endpoint active when connected to the local network and may leave the Cloud Endpoint disabled.

**Max Width:** This places an upper limit on the size of the SmartGrid for devices with larger display capabilities. It is not attractive to have the SmartGrid take up the entire width of the browser window on the large screen of a desktop. This setting does not apply to devices with display  $\leq 768$ px where the SmartGrid will automatically scale to the full width of the browser window.

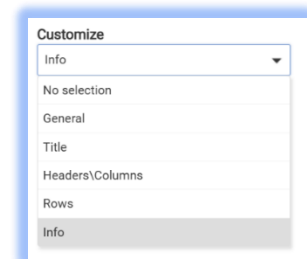
**Preview Height:** This only affects the size of the preview window so that you can keep the SmartGrid designer controls available without having to scroll. This has no effect on the height of the final SmartGrid on a desktop or mobile device where it will always scale so the entire grid is available to scroll.

**Preview Background Color:** If you plan to place a SmartGrid within a Hubitat dashboard you can use this control to set the background color to match your existing dashboard to help as a visual aid.

**Publish and Subscribe:** This button is the same as the button in the publishing section and is placed here for convenience. When changes are made to your SmartGrid it is recompiled automatically. The only time you should need to use this button is if you change the list of devices that are selected.

The default settings provide an attractive interface, but you can change many of these settings if you choose. Customizations are performed through the “**Customize**” section as shown below.

We will review each of these sections and discuss the options available in the following sections.



## General

The first row of options pertains to how the data will be displayed.

Invalid Attribute String N/A	Date Time Format To: h:mm a	Duration Format To: Elapsed Time (dd):hh:mm:ss	Control Size 15
Horizontal Alignment Stretch	Vertical Alignment Center	Horizontal Padding 5	Vertical Padding 3

**Invalid Attribute String:** This value will be used when the underlying data either does not exist or is of the wrong datatype.

**Date Time Format:** Any date\time information present in the Info columns will be formatted according to this selection. There are 17 format options available.

**Duration Format:** Any duration information in the Info columns will be formatted according to this selection. There are two options, either include or exclude seconds.

**Control Size:** You can adjust the size of the controls on screen from 15px to 30px in height. This can make the interface easier to use on mobile devices.

The second row of options controls some general look and feel of the table.

**Horizontal Alignment:** This controls the horizontal position of the table on screen for larger format devices (>768 bytes). For smaller format devices such as phones and tablets the default will always be **Stretch** which causes the table to occupy the full width for easiest use.

**Vertical Alignment:** This controls the vertical position of the table on screen for larger format devices (>768 bytes). For smaller format devices such as phones and tablets the default will always be **Stretch** which causes the table to occupy the full width for easiest use.

**Horizontal Padding:** Controls the minimum space between elements within the table on the horizontal axis. Smaller numbers create a more compact table. Large numbers create a roomier table where possible.

**Vertical Padding:** Controls the minimum space between elements within the table on the vertical axis. Smaller numbers create a more compact vertical table. Large numbers create a taller table.

## Adding a Title

Title Text (? to disable) ?	Text Size % 125	Text Padding 5	Text Alignment Center
Text Color (#000000)	Background Color (#8fc126)	Background Opacity 1	

You can add an optional Title to the table by entering some text in the Title field. Most of the settings are self-explanatory. By changing my settings to these values:

Title Text (? to disable) Home	Text Size % 150	Text Padding 5	Text Alignment Center
Text Color (#8fc126)	Background Color (#8fc126)	Background Opacity 0	

The top of my SmartGrid now looks like this:

Home					
<input type="checkbox"/>	Icon	Lights	State	Level/°K	Color
<input type="checkbox"/>		Basement Bulb 1	<input type="checkbox"/>	89%	
<input type="checkbox"/>		Basement Bulb 2	<input type="checkbox"/>	89%	
<input type="checkbox"/>		Basement Lights	<input type="checkbox"/>		
<input type="checkbox"/>		Basement Strip 1	<input type="checkbox"/>		
<input type="checkbox"/>		Basement Strip 2	<input type="checkbox"/>		

To remove a Title field just delete the text from the **Title Text** field.

## Headers & Columns

Here you can control the appearance of the column headers in terms of size, color, background and opacity. These don't need any explanation.

Text Size %  
100

Text Color (#000000)

Background Color (#8fc126)

Bg Opacity  
1

Hide Selection Boxes?

Hide Icons?

Hide State?

Column 5 Header  
Level/\*K

Column 6 Header  
Color

Column 3 Header  
Name

Hide Column 5 - Control 1 - Level/\*K?

Hide Column 6 - Control 2 - Color?

Hide Column 7 - Info 1

Hide Column 8 - Info 2

Hide Column 9 - Info 3

In addition, this section also allows you to hide columns that you don't want. Take for example a group of sprinklers. I don't need multi-select as only one zone should run at a time. Nor do I need the other two control columns because a zone is simply an on and off switch, nothing else.

Sprinkler Zones		
Name		State
Z1 - Front Lawn North		<input type="checkbox"/>
Z2 - Front Lawn South		<input type="checkbox"/>
Z3 - Back Lawn		<input type="checkbox"/>
Z4 - Flower Beds		<input type="checkbox"/>
Z5 - Patio West		<input type="checkbox"/>
Z6 - Patio East		<input type="checkbox"/>

Simple and functional but we will improve it later when we look at the upcoming Info Columns section.

**Note:** The controls to show\hide the Info columns as well as provide the headers are also repeated in the Info section of customizations. Providing these in two places is just for convenience.

## Rows

The available options under rows are shown below and are mostly self-explanatory.

Text Size %  
90

Text Color (#000000)

Background Color (#D9ECB1)

Background Opacity  
1

Background Color - Selected Row (FFFFC2)

The one item not in Tile Builder is the **Selected Row**. If you have a pointing device like a mouse or a stylus hovering over a row will cause the row background color to change to this color. This helps confirm the focus of any actions. In addition, any rows which have the checkbox checked will display in this color to indicate the device is currently selected.

## Info Columns

Info columns let you add up to two extra columns to a table that shows additional information about the device in that row. The options under Info Columns are as follows:

<input type="checkbox"/> Hide Info Column 1	Info 1 Header Text Last Active	Size % 80	Alignment Center	Data Source lastActive
<input type="checkbox"/> Hide Info Column 2	Info 2 Header Text Duration	Size % 80	Alignment Center	Data Source lastActiveDuration
<input type="checkbox"/> Hide Info Column 3	Info 3 Header Text Room	Size % 80	Alignment Center	Data Source power

When these are turned off the respective info column will be hidden. Things like the Title, Size and Alignment are self-explanatory and need no discussion. What is interesting though is the **Data Source**.

## Data Sources

Available info column content are as follows:

Name	Description	Reqd Capability : Attribute
lastActive	The time at which the device was last in an <b>Active</b> state.	Switch, Lock, Valve, WindowShade GarageDoorControl : door
lastInactive	The time at which the device was last in an <b>Inactive</b> state.	Switch, Lock, Valve, WindowShade GarageDoorControl : door
lastActiveDuration	The amount of time in dd:hh:mm(:ss) that the device was last in an <b>Active</b> state. If the device is currently <b>Active</b> this text will be green and the <b>lastActiveDuration</b> is still incrementing. If it is off the text will be in black and the <b>lastActiveDuration</b> is fixed.	Switch, Lock, Valve, WindowShade GarageDoorControl : door
lastInactiveDuration	The amount of time in dd:hh:mm(:ss) that the device was last in an <b>Inactive</b> state. If the device is currently <b>Inactive</b> this text will be red and the <b>lastInactiveDuration</b> is still incrementing. If it is <b>Active</b> the text will be in black and the <b>lastInactiveDuration</b> is fixed.	Switch, Lock, Valve, WindowShade GarageDoorControl : door
roomName	This is the name of the room that the device is assigned to.	None
colorName	This is the colorName that is equivalent to the current color of the bulb if the device supports this function.	ColorControl : colorName
colorMode	This indicates the color mode for any color bulb. These are typically RGB or CT but may be EFFECTS.	ColorMode : colorMode
power	This indicates the amount of power the attached device is using if the device supports the power attribute.	PowerMeter : power

deviceID	This is the 4-digit ID that Hubitat assigns to each device.	None
Network	Display the type of network the device is attached to. Possible values are Zigbee, Z-Wave, LAN, Virtual and Other.	None
Energy	This is the cumulative energy, typically measured in kWh that a powering monitoring has consumed since the last time the value was reset. The device must support the	EnergyMeter : energy

Going back to our Sprinkler table we can make it more useful by adding **lastActive** and **lastActiveDuration** columns to the table so that I can check in on my scheduled watering. The table on the right show a change to the time format to also display the day of week..





Sprinkler Zones				
Name	🔄	State	Last On	Duration
Z1 - Front Lawn North	<input checked="" type="checkbox"/>	On	8:29 AM	1h 47m 7s
Z2 - Front Lawn South	<input type="checkbox"/>	Off	5:00 AM	40m 0s
Z3 - Back Lawn	<input type="checkbox"/>	Off	6:00 AM	9m 59s
Z4 - Flower Beds	<input type="checkbox"/>	Off	7:00 AM	29m 59s
Z5 - Patio West	<input type="checkbox"/>	Off	8:00 AM	20m 0s
Z6 - Patio East	<input type="checkbox"/>	Off	8:30 AM	19m 59s

Sprinkler Zones				
Name	🔄	State	Last On	Duration
Z1 - Front Lawn North	<input checked="" type="checkbox"/>	On	Wed @ 8:29 AM	2h 10m 48s
Z2 - Front Lawn South	<input type="checkbox"/>	Off	Wed @ 5:00 AM	40m 0s
Z3 - Back Lawn	<input type="checkbox"/>	Off	Wed @ 6:00 AM	9m 59s
Z4 - Flower Beds	<input type="checkbox"/>	Off	Wed @ 7:00 AM	29m 59s
Z5 - Patio West	<input type="checkbox"/>	Off	Wed @ 8:00 AM	20m 0s
Z6 - Patio East	<input type="checkbox"/>	Off	Wed @ 8:30 AM	19m 59s

Here is an example for my automated lights at home so I can they are going off and on at expected times. I have had some issues with automated lights I recently resolved but this was very helpful during that time.

<input type="checkbox"/>	Icon	Automated Lights	🔄	State	Level/°K	Color	Last On	Last Off
<input type="checkbox"/>	🔌	Porch Light	<input type="checkbox"/>	Off	25%	🟩	4:28 PM	7:50 AM
<input type="checkbox"/>	🔌	Garage Right	<input type="checkbox"/>	Off	25%	🟩	4:28 PM	7:42 AM
<input type="checkbox"/>	🔌	Garage Left	<input type="checkbox"/>	Off	25%	🟩	4:28 PM	7:42 AM
<input type="checkbox"/>	💡	Bedside Lamp	<input type="checkbox"/>	Off			7:30 AM	7:35 AM
<input type="checkbox"/>	💡	Kitchen Cabinet	<input checked="" type="checkbox"/>	On	78%		6:50 AM	10:02 PM
<input type="checkbox"/>	💡	Tiffany Lamp	<input type="checkbox"/>	Off			4:28 PM	10:00 PM
<input type="checkbox"/>	💡	Rock Salt Lamp	<input type="checkbox"/>	Off			4:28 PM	10:00 PM
<input type="checkbox"/>	🔌	Patio Right	<input type="checkbox"/>	Off	100%		4:23 PM	10:00 PM
<input type="checkbox"/>	🔌	Patio Left	<input type="checkbox"/>	Off	100%		4:23 PM	10:00 PM
<input type="checkbox"/>	💡	Decorative Lamp	<input checked="" type="checkbox"/>	On			7:00 AM	10:00 PM
<input type="checkbox"/>	🔌	Bedroom Lamp	<input type="checkbox"/>	Off	100%		4:28 PM	10:00 PM

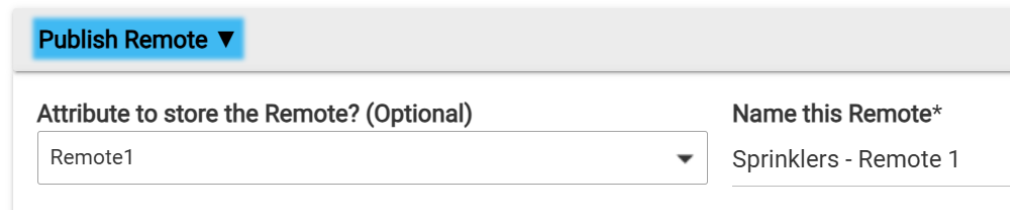
Below is a small table for door locks. In this case we are using **lastActive** (locked), **lastInactive** (unlocked) and **lastInactiveDuration** (unlocked duration) as our Info Columns and re-titling them as **Last Locked**, **Last Unlocked** and **Unlocked Duration**. In this case we can see the status of the door lock, when it was last locked, when it was last unlocked and how long and how long it has been locked. Because the back door lock is unlocked (the Inactive state) then the duration shows in red, otherwise they would show in black. These values will update whenever the table is updated either through normal device activity or by clicking the Refresh button.

<input type="checkbox"/>	Icon	Name	State	Last Locked	Last Unlocked	Unlocked Duration
<input type="checkbox"/>		Back Door		4:15 PM	4:15 PM	1h 58m 50s
<input type="checkbox"/>		Front Door		11:58 AM	11:58 AM	0m 17s

When a selected info attribute does not apply to a given device the field will display the **invalidAttribute** property. The default value is **N/A** but this can be changed in the **Customize\General** section to something more to your liking.

## Publishing

To publish a dashboard simply select an attribute to store the link and give the remote a name as shown below and click on the **Publish and Subscribe** button.



**Publish Remote ▼**

<b>Attribute to store the Remote? (Optional)</b>	<b>Name this Remote*</b>
Remote1 ▼	Sprinklers - Remote 1

When a remote is published onto the dashboard it will automatically refresh when any of the values on the table change. Even if you don't plan on using your SmartGrid on a dashboard but will instead use the Endpoints you must still perform the Publish and Subscribe step as this is what creates the event subscriptions and causes the table to be updated.

### Event Timeout

You can adjust the refresh frequency by changing the **Event Timeout** period to something that matches your personal preferences. The default value is 2 seconds which means that after 2 seconds without any changes the table on the dashboard will refresh automatically. If you wish you can set this value to never and use the refresh icon update the table.

If you only plan on using the Endpoints you should set the Event Timeout value to **Never** as this reduces the amount of work that the Hub must perform.



## Using SmartGrid

So far, we have mostly covered the Remote Builder – SmartGrid creation interface and configuration options. In this section we will review the features inherent in the SmartGrid app. This is a repeat of the graphic from the beginning of the document.

**Device Select**  
Select All\None\ Multiple

**Status Icon**  
Click to sort

**Device List**  
Click to sort

**Refresh Icon**  
Force refresh

**Device State**  
On\Off  
Click to sort

**Level\Kelvin\Speed\ Position**  
Device control A\B  
Click to toggle controls

**Color Temp**  
Click to toggle

	Icon	Lights	State	Level/%K	Color	Last On	Room
<input type="checkbox"/>		Basement Bulb 1		89%		5:32 PM	Basement
<input type="checkbox"/>		Basement Bulb 2		89%		5:32 PM	Basement
<input type="checkbox"/>		Basement Lights				8:03 AM	Basement
<input type="checkbox"/>		Bedroom Fan Lights		94%		3:58 PM	Bedroom
<input type="checkbox"/>		Bedroom Lamp		100%		5:50 PM	Bedroom
<input type="checkbox"/>		Bedside Lamp				5:48 PM	Bedroom
<input type="checkbox"/>		Decorative Lamp				7:38 PM	Living
<input type="checkbox"/>		Garage Left		100%		4:33 PM	Outside
<input type="checkbox"/>		Garage Right		100%			
<input type="checkbox"/>		Kitchen Cabinet		78%			
<input type="checkbox"/>		Office Left		100%		6:57 PM	Office
<input type="checkbox"/>		Office Right		100%			
<input type="checkbox"/>		Patio Left		19%		4:33 PM	Outside
<input type="checkbox"/>		Patio Right		100%		4:33 PM	Outside
<input type="checkbox"/>		Porch Light		100%		4:33 PM	Outside
<input type="checkbox"/>		Rock Salt Lamp				4:33 PM	Living
<input type="checkbox"/>		Sunroom Fan		L M H		7:38 PM	Sunroom
<input type="checkbox"/>		Tiffany Lamp				4:33 PM	Living
<input type="checkbox"/>		Virtual Blind		100%		6:04 PM	Virtual

**Info Columns**  
Option info columns for the devices.  
Click to sort

**Switch Toggle**  
On / Off  
Lock / Unlock  
Open / Close

**Blind Control**  
Vertical position  
0% - Fully Closed  
100% - Fully Open

**Fan Control**  
On / Off  
Speeds Low, Medium & High

**Dimmer Control**  
0% - Fully Off  
100% - Fully On

**Color Control**  
OS dependant  
Color Picker

## Feature Overview

**Multi-Select** - Column 1: You can select multiple devices at once and send the same commands to each one. If you have a group of 4 lights and you want to change them all to a certain color, you will check the boxes in the first column for each of the devices and then adjust the color on any one of the four selected devices. Clicking the header of this column will toggle between all the checkboxes being selected or deselected.

**Dynamic Icons** – Column 2: The icons change as the device changes between Active and Inactive state. Additionally, icons will show up greyed out and dim when a device is inactive. When active it will appear with normal intensity and be highlighted in yellow. Blinds/shades and garage doors have intermediate states so when they are moving up or down they will have a flashing arrow to indicate the direction until fully open or closed. You can also click on the header to sort by Icon but remember that if you change the state of a device the table will sort differently because the icon will change.

**Device List** – Column 3: This is the list of devices that you selected with the device label showing. This column is also sortable A-Z and Z-A. Because the device label does not change this is a consistent sort order regardless of any device properties. At the far right of the column 3 header is a refresh button which causes the whole table to reload.

**State** – Column 4: This is a simple switch that toggles a device between Active and Inactive mode. For example, On\Off, Locked\Unlocked, Open\Close etc. Clicking on the switch will immediately request a change in state from the Hub. Notice that the Icon does not change UNTIL confirmation of the change has been received. If the request times out the switch will go back to its prior position. Clicking on the header will cause the table to be sorted by State.

**Control Group 1** – Column 5: This is a dynamic cell that populates with controls specific to the device type. In the case of lights, you can toggle this field between level (dimmer) and color temperature by clicking on the header. If the field is blank for a given device, it means that device does not have that capability. For example, a bulb might be dimmable and have color change capabilities but not support color temperature. Other controls that may appear here are Up\Down for Blinds and a button group for selecting the speed of a fan.

**Control Group 2** – Column 6: This is also a dynamic cell that populates with controls specific to the device type but so far it is only populated by the color selector for bulbs.

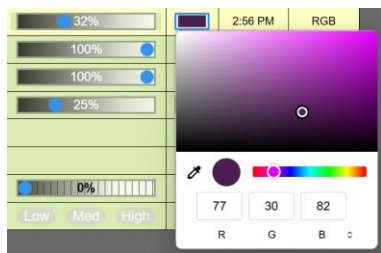
Notice in the following graphic that for the bulb Office Left the color temperature is outlined in blue while office right is outlined in gray, but the color picker is outlined in blue. This indicates that Office Left is in CT mode while Office Right is in RGB mode.

<input type="checkbox"/>		Office Left	<input checked="" type="checkbox"/>	<div><div></div>4132°K</div>	<div><div></div></div>	2:56 PM	1:45 PM
<input type="checkbox"/>		Office Right	<input checked="" type="checkbox"/>	<div><div></div>4132°K</div>	<div><div></div></div>	2:56 PM	1:45 PM

You could also turn on the colorMode info column as shown below if you prefer.

<input type="checkbox"/>		Office Left	<input checked="" type="checkbox"/>	<div><div></div>100%</div>	<div><div></div></div>	2:56 PM	CT
<input type="checkbox"/>		Office Right	<input checked="" type="checkbox"/>	<div><div></div>95%</div>	<div><div></div></div>	2:56 PM	RGB

**Important:** There is a correlation between the color displayed and the level of the dimmer. In the graphic below the Y axis represents the level (dimmer) while the X axis represents the Hue. Changing the dimmer will change the effective color and changing the color may affect the dimmer.



**Info Columns** – Column 7, 8 & 9: These are text values and can be sorted alphanumerically by clicking on the header. Times and numbers will not sort the way you might expect them to.

## Questions and Answers

**Question 1:** I'm sending commands and they are working O.K., but then I get the red border around the SmartGrid indicating that something isn't right.

Answer: I do this all the time. Either A) You forgot to do a **Publish and Subscribe** when setting up a new SmartGrid, B) You added some new devices to your SmartGrid and forgot to update the subscriptions with a **Publish and Subscribe**.

**Question 2:** The commands send right away and work, but it takes a while before I get the green border confirmation.

Answer: Commands are sent immediately but changes that occur on the Hub only get picked up at the polling interval. The polling query occurs whenever the polling shuttle hits either end. There are three possibly improvements: A) Your polling interval is too high for your response preference. B) If you want faster response you can place the SmartGrid into a Hubitat dashboard. C) Have a look at the device and see if it has any options that influence the response time. For example, Sengled has **Transition Time** and **Attribute Reporting Interval** that delay the completion of events.

**Question 3:** What happens if two people access the same SmartGrid at the same time.

Answer: Changes made to one SmartGrid will be picked up at the other at the next polling interval and update automatically. If two people try to send commands to a device at the same time the last writer will win.

**Question 4:** One of my Info columns shows the last time something was active (date time). But when I click on the header it does not sort properly.

Answer: The sort order is based on alphanumeric sort order because the various info columns may contain text, numbers, date time or elapsed time. Numeric data will sort in the order 0, 1, 10, 11, 12, 2, 3 etc. Using a 24-hour time format will correct this for absolute time but durations will still sort incorrectly.

**Question 5:** When I change the state of a device the order jumps around and is confusing.

Answer: You are using the **State** column, or an Info column as your sort order. Click on the device column header to change it back. Changing the sort order is useful for reviewing things but not the best as a persistent setting.

**Question 6:** Why can't I put device XYZ onto the SmartGrid?

Answer: In version 3.0.X of SmartGrid only the following devices are supported. Switches, valves, bulbs (all kinds), fans, shades (no tilt) and garage door controller. Others may be added in the future.

**Question 7:** Why is there a delay before the Icon updates after I make changes.

Answer: When you change a device the request is sent immediately to the Hub but the Icon is not updated until the change is confirmed by the Hub, which won't happen until the next polling interval.

**Question 8:** Sometimes when I drag a slider from one value to another it will jump to other values before finally settling on the correct number.

Answer: This has to do with the type of device. A good example is a blind\shade. If you drag a shade from 0% to 100% it will report back at different points along the way and those numbers are considered device changes that are reported back to SmartGrid and this effect will be noticeable because of the long transition time. Bulbs that are configured with a long transition time will respond the same way during dimming or CT changes, but they may be modified via the device driver to improve this.

**Question 9:** Isn't it dangerous to be able to control devices via these Endpoints.

Answer: You have full control over which Endpoints are active, which devices are in the SmartGrid and to whom you share these Endpoints. Using Local Endpoints gives you a little extra security in that the device running SmartGrid must already be authenticated to your WiFi. If you are putting locks or garage doors on a Cloud Endpoint you must be very intentional about who you give that to. SmartGrid uses the same Endpoint security mechanism as the MakerAPI, it's just more convenient.

**Question 10:** I don't know what question 10 will be but I'll answer it when I do.

## It's a Wrap

Well, if you made it this far you are ready to build your own SmartGrids and get the most out of them. I look forward to seeing some of the designs that people come up with and share on the community forums.

"Love is patient, love is kind. It does not envy, it does not boast, it is not proud. It does not dishonor others, it is not self-seeking, it is not easily angered, it keeps no record of wrongs. Love does not delight in evil but rejoices with the truth. It always protects, always trusts, always hopes, always perseveres."

**1 Corinthians 13:4-8**