



HCA Tech Note 125

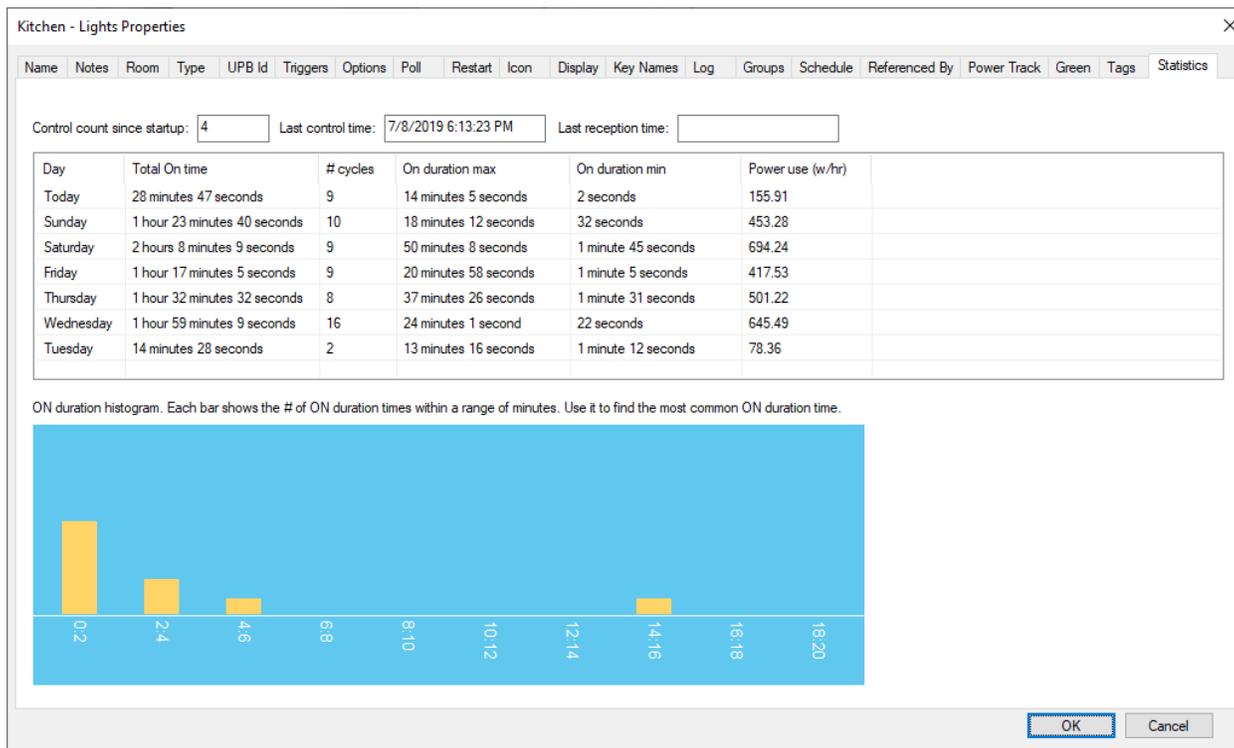
Device Statistics

One of the problems of using the device auto-off feature is knowing what value to set as the auto off time. Clearly you could guess based upon what you think is the correct time, but HCA has data that can make the process a bit more scientific.

The power track information already has the time that a device goes on and the time it goes off. That “on duration” is exactly what would be useful if you can see a distribution of those times over a week or so. Is the device typically on for 2 minutes or 10 minutes? What is the maximum time and the minimum duration? And if the “dim before off” option is enabled, how often does that happen?

The good news is that most modern devices report their status to HCA when controlled locally – at the switch – by a message. Both Insteon and UPB can do this. And the even better news is that all the data needed for this is probably already on your system if you have enabled “power track” for devices.

A new tab is now available for devices with power track enabled when its properties are viewed. This is also available for programs that operate as devices.



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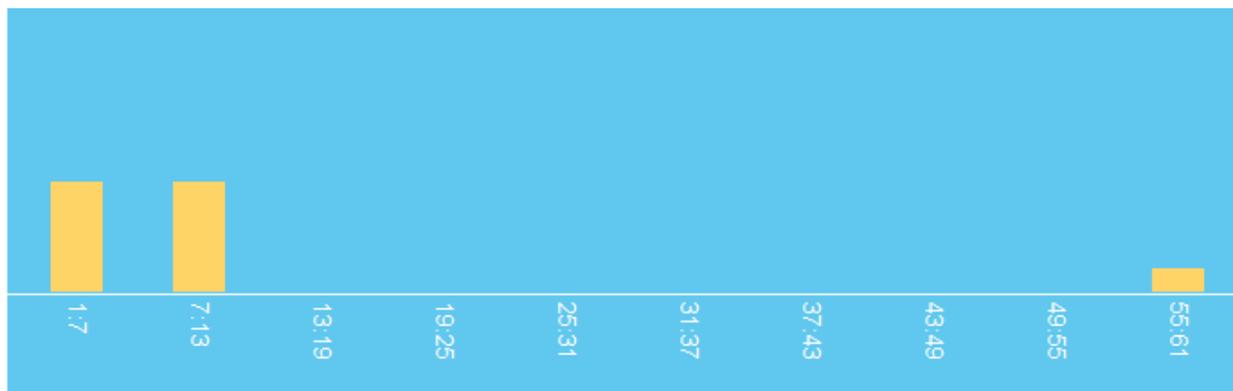
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The table in the top part of the tab shows the total ON time and the maximum and minimum ON duration for each day. If the device executed a warning before off – it was configured to dim to a configured percentage 1 minute before off – that count is shown. The power usage, control count, and last control / reception times are included as additional information.

In this example, data is available only for the current day, but when longer term data is available, then separate statistics are determined for each day.

The graph in the lower part of the tab is a graph showing the “On Durations” assigned to ranges of times. This kind of graph is called a histogram (Google it if you never heard of that). From the above example, you can see that the most common duration is from 0 to 2 minutes, but there is a second common duration between 14 and 16 minutes. Probably a poor choice for the auto off would be 2 minutes even though it is the most common. If 3 minutes was chosen, then anytime the light was in use during one of those longer durations – and there are quite a few – it would be subject to the auto off and that could be annoying.

However, always using the maximum duration is not always the best choice. Take the histogram below as a second example:



In this example the light is generally off within 13 minutes but there is the one maximum of about an hour. In this case, a good setting would be 13 minutes as that covers the most common cases and ignores the one outlying case.

The new statistics tab is a tool that can help you determine the best setting for auto-off - a very useful feature especially if you live in a home where family members forget to turn off lights!

The life of a device over a week

Here is a real-world example for a device that is not scheduled but only controlled by a switch.

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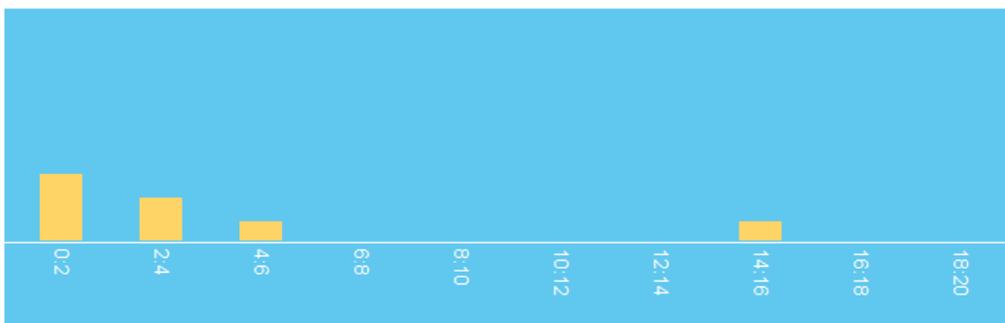
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Day	Total On time	# cycles	On duration max	On duration min	Power use (w/hr)
Today	28 minutes 47 seconds	9	14 minutes 5 seconds	2 seconds	155.91
Sunday	1 hour 23 minutes 40 seconds	10	18 minutes 12 seconds	32 seconds	453.28
Saturday	2 hours 8 minutes 9 seconds	9	50 minutes 8 seconds	1 minute 45 seconds	694.24
Friday	1 hour 17 minutes 5 seconds	9	20 minutes 58 seconds	1 minute 5 seconds	417.53
Thursday	1 hour 32 minutes 32 seconds	8	37 minutes 26 seconds	1 minute 31 seconds	501.22
Wednesday	1 hour 59 minutes 9 seconds	16	24 minutes 1 second	22 seconds	645.49
Tuesday	14 minutes 28 seconds	2	13 minutes 16 seconds	1 minute 12 seconds	78.36

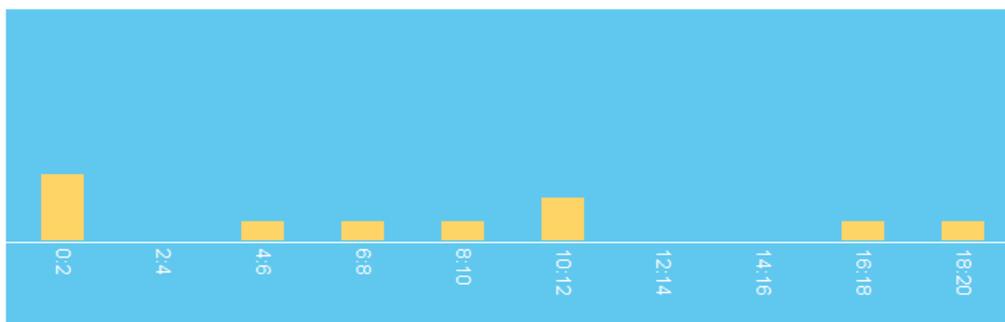
The max of any day is 50 minutes and from the histograms of the day that seems long but knowing the usage pattern in the home – it's the home of one of the developers – that looks ok. And, amazingly it doesn't look like the light was forgotten during any day. A good auto off time would be one hour to be generous but maybe 40 minutes would work.

Here are the individual weekdays.

Monday



Sunday



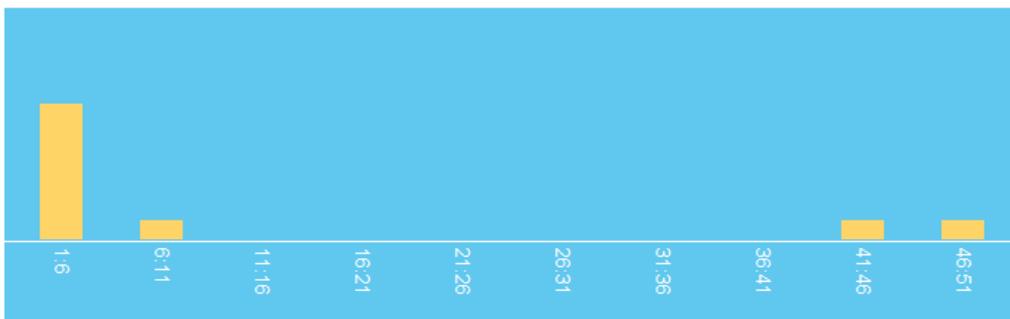
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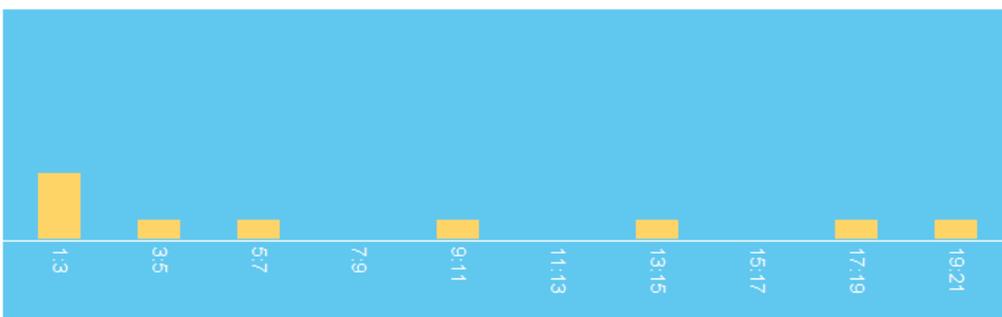


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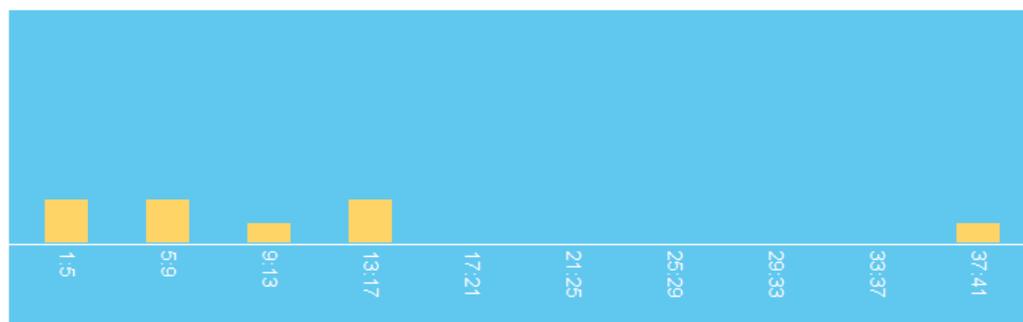
Saturday



Friday



Thursday



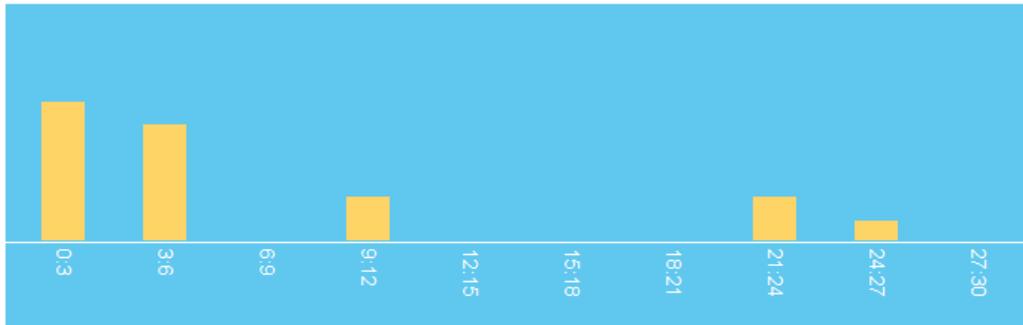
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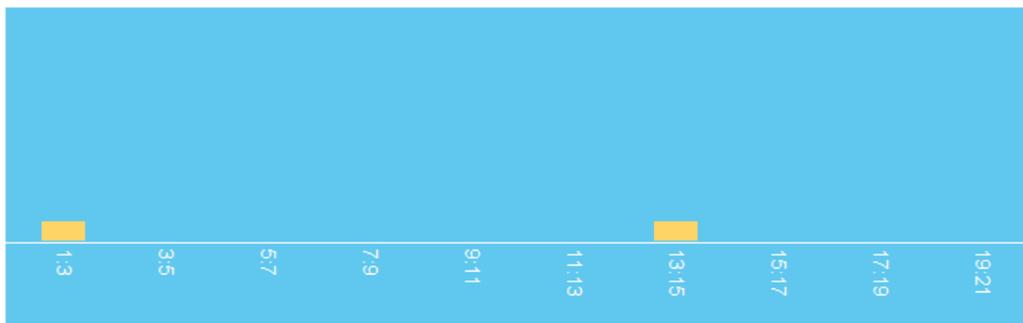


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Wednesday



Tuesday



*It is a capital mistake to theorize before one has data.
Sherlock Holmes, A Study in Scarlett*

##end##