

Chapter 8

Schedules and Schedule Entries

Now that you've created some devices, you might want to set up a schedule or two for the control of them.

Controlling devices in your home at various times throughout the day is one of the central uses for the Home Control Assistant. With HCA you can create multiple schedules, each one fitting a different aspect of your home life. For example, you may want a schedule that turns lights on and off in your home while you are away, to provide the house a lived-in look. But having that schedule current while you are home could be annoying. Regardless of whether you are home or not, you might like to have your outside lights and a few interior ones come on at dusk. You may also want a schedule that you use when you entertain, so lights stay on a bit longer than normal at night.

This chapter discusses schedules and schedule entries, how to use the Visual Scheduler and a Wizard to automatically create schedules with entries that make your home look lived in. Sections in this chapter include:

- About schedules and schedule entries
- Considering your schedules and entries
- Creating a new schedule
- Creating a new schedule entry
- Modifying a schedule or entry
 - Deleting a schedule or schedule entry
- Monitoring your schedules with HCA
 - Suspending and resuming schedules
- The Occupancy Wizard

About schedules and schedule entries

Creating schedules and schedule entries is a very powerful aspect of HCA. In order for you to take full advantage of the possibilities, you should be familiar with a few important terms.

Term	Definition
Schedule	A schedule tells when things will happen: when devices will turn on and off, when programs will start, and run, what the “plan” for HCA is. A schedule is composed of a list of schedule entries. HCA can contain more than one schedule.
Schedule Entry	Each schedule entry contains the date and time that one device or group is turned on or off. A schedule entry can also be used to start a program.
Current Schedule	The current schedule is the one schedule in your design that HCA uses to control devices at the times specified by its entries. Only one schedule can be current at any time, but you can change which schedule is current.

Out of all the schedules present in your design, you can mark **one** of them as the schedule HCA makes current when your design is loaded. Of course, your design can be loaded, or HCA started on your computer, in one of two situations: either normally (you started HCA or loaded a design), or restarted after a power failure (when HCA automatically restarts as you have set it to). You can also choose to have a schedule marked to become the current schedule when HCA restarts after a power failure. Normally when HCA starts the last schedule that was current when HCA shutdown is made the current schedule, but there are options to modify this.

Hint: The name of the current schedule is always shown in the ribbon in the *Control* category.

When you begin creating schedule entries, you will see that there are seven kinds:

- Entries that send an **On** command at a certain time to a specific device or group
- Entries that send an **Off** command at a certain time to a specific device or group
- Entries that send an **On** command at a certain time, and later send an **Off** command to the same device or group
- Entries that start a program with an **On** or **Off** command at a certain time
- Entries that initiate a scene stored in a device
- Entries that change the setpoint and other properties of a thermostat
- Entries that send sequences of IR commands

In addition to these seven kinds, if the schedule entry sends an On command and the device supports dimming, then you can also specify the illumination level of the device. If the device supports stored scenes, you can specify the scene name.

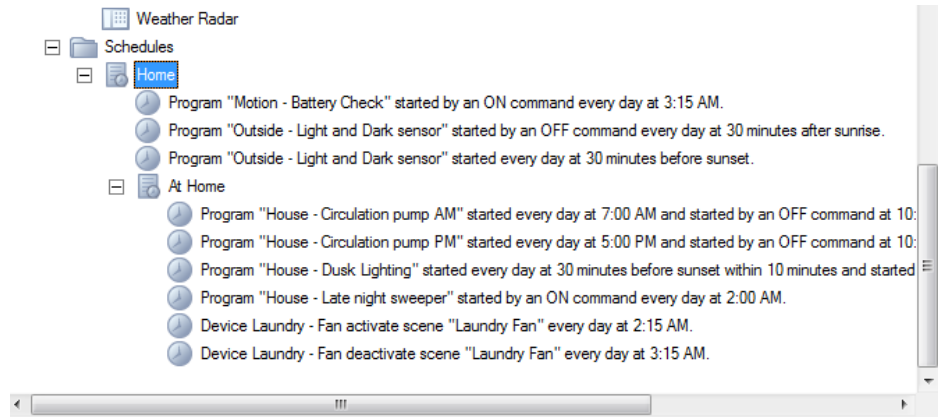
You can see that in HCA you can not only schedule devices but also groups and programs. If a group is scheduled to go on (or off) at a given time, each of its members goes on (or off) at that time. Before you start creating schedules and entries, it is important to think about what actions you want to happen in your home and when they should happen.

Considering schedules and entries

Before creating schedules, it's best to think a bit about how to organize them. In HCA schedules can be organized in what is called a *parent* and *child* relationship. What this is all about is best shown by an example. Suppose in your home you have both outside and inside lights that you want to control. Every day you would like to have the outside lights come on at dusk. Also, when you are away from home you would like the inside lights to turn on and off to make the house looked lived in.

You could create two schedules: one for when you are home that controls only the outside lights, and another for when you are not at home and controls outside and inside lights.

If you do this the schedule entries for the outside lights need to be added to both the *at home* and *away* schedules. Rather than duplicate your work, HCA can organize your schedules like this:



Using the terminology introduced above, *Home* is the parent and *Away* and *At Home* are children. In HCA it is possible to have children of children and as many parent schedules as needed. But be careful as it is very easy to get confused!

Organized this way, there are three schedules. *Home*, which contains the controls for those things that you want done regardless if you are home or not. *At Home* contains those things to be done when you are home (just the one entry in this case), and *Away* for when you are not at home and making the home looked lived in.

As described above, the *current schedule* can be any one of these three schedules. When a child schedule is the current schedule, all the entries in it **and in any of its parents** are used by HCA to control your home. In the above example, if *At Home* is the current schedule, both the schedule entries for the fish tank and the outside lights happen. If *Away* is the current schedule, all the schedule entries for the inside lights and outside lights happen.

It's also important to consider what type of schedule entries you might need before you start creating them. You will want different types of entries for different purposes. Here are some examples:

1. You like to wake up in the morning to music, so you want the radio to come on at your wake up time. Just before you leave home in the morning for work (varies somewhat each day) you'll turn it off manually.
2. You often forget to turn lights off when you leave home in the morning or when you go to bed at night.
3. You want to turn your outside lights on at dusk and off at 11:30 p.m.

These three examples illustrate the needs for each type of schedule entry: example 1 is a good use for an On entry; for example 2 you would need an Off entry; and for example 3 an On-Off entry would be appropriate.

Selecting days

When creating a schedule entry, you may be asked to select the day, date, or type of days that you want this schedule entry to apply to. There are several options. This schedule entry can apply:

- Every day
- Only on Monday, Tuesday, Wednesday, Thursday, and Friday
- Only on Saturday and Sunday
- Only on the days you select
If you choose the *These days* option, you must select at least one day.
- Only on a particular date each month
This option creates a schedule entry that applies only once each month, on the same date.
The choices for this option are 1 to 31. If you choose a day that the current month does not contain (like choosing 31 and the current month is November) this schedule entry won't happen this month.
- Only on the date you select
This option creates a schedule entry that happens only once. Once the date you select is in the past, this schedule entry will not be used again until next year.

Each date type has its use. *Every day* entries are useful for things like turning outside lights on at dusk. *Monday - Friday* entries are good for controlling your house on days that you are off to work or school. *Saturday and Sunday* entries are for those days when you are home. *These days* entries may be useful for things like automatic watering systems that you want to run only a few selected days a week. The last two entry types are used for special purposes that you may have.

Selecting times

You may also be asked to enter the time you want the on (or off) command to be sent. This step provides many different options for specifying the time. You can create an entry that happens:

- At a specific time (like 6 p.m., 4 a.m., 12:32 p.m., etc.)
- At Sunrise
- At Sunset
- Before sunrise by so many minutes
- After sunrise by so many minutes
- Before sunset by so many minutes
- After sunset by so many minutes

If you choose one of the options based upon sunrise or sunset, the time at which this schedule entry happens changes each day as the times for sunrise and sunset change. These times are calculated based on the location properties – latitude and longitude - that you set when you created your home file.

Using Vary

If you choose a specific time (say 6 p.m.), then the command is sent at that time each day. If you are creating schedule entries in order to make your house appear lived in (perhaps for security reasons), you may not want that time to appear so exact. The last options in this step are for that purpose.

- If, for example, you have chosen 6 p.m. as the time, and you select *Exactly*, then this entry happens at 6 p.m.

- If you choose *Vary within 10 minutes*, then this entry can happen anywhere between 5:50 p.m. and 6:10 p.m.

You can make the time vary by any amount from one to fifty nine minutes. The *Vary within* amount HCA uses for one day will never be the same as the amount chosen for the previous or next day.

On and Off entries

A few additional points about creating On-Off entries:

- You can only select one date (which is the date for the On portion of the schedule entry) and the On time and the Off time. You can't create a single entry that has two different date selections.
- The Off portion of the schedule entry always follows the On portion in time. For example, suppose you have a schedule entry where the On portion is for 8 p.m. and the Off portion for 1 a.m. The On portion of the schedule entry will happen at 8 p.m. and the Off will happen five hours later (which is 1 a.m. the next day). This is very useful for creating a single entry where On happens at sunset and where Off happens at sunrise the next day.

Except

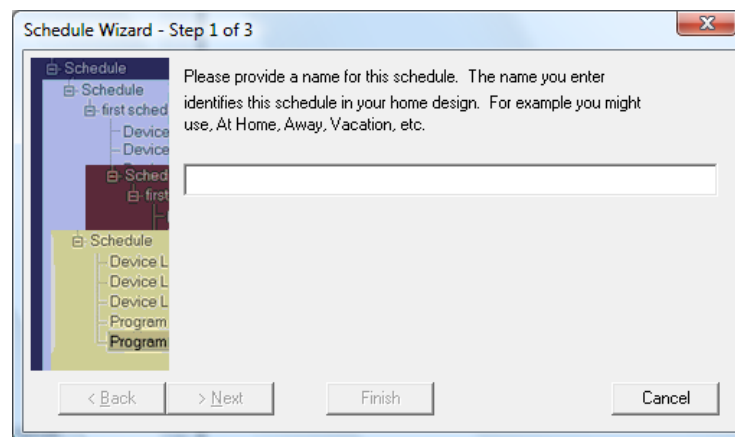
. When working with sun-based times in a schedule entry it was possible to create schedule entries that, due to the time of sunrise and sunset, wouldn't work as intended. For example, a schedule entry that specified "lights on a sunset + 30 minutes and off at 8pm". If sunset was 7:45, then the Off would happen at 8pm but the lights would come on at 8:15. Using the Except clause, the schedule entry can say "lights on at sunset + 30 except when past 8pm".

Creating a new schedule

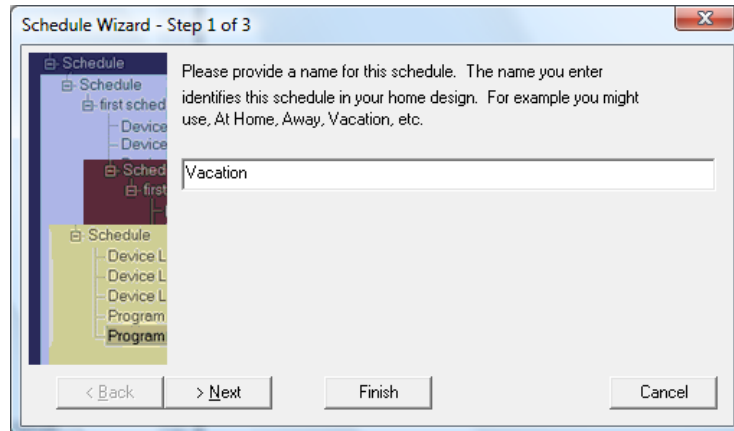
Creating a new schedule is very easy. All you do is open the Schedule Wizard, give the schedule a name, and then make a few decisions about the schedule.

1. On the Home Control Assistant menu bar, click New, and then choose Schedule.

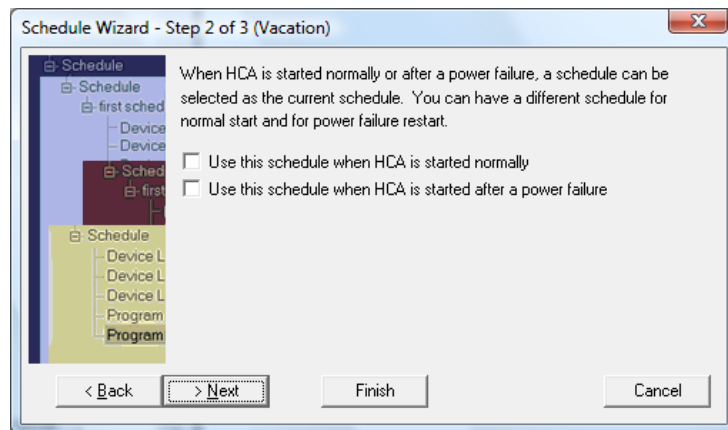
This opens the Schedule Wizard.



2. Give the schedule a name and click Next.



3. Decide whether you want this schedule to be the current schedule when HCA is started normally. If so, click the appropriate check box.
 You can designate only one schedule in your design as the normal start schedule, however, you can change this designation whenever you like.

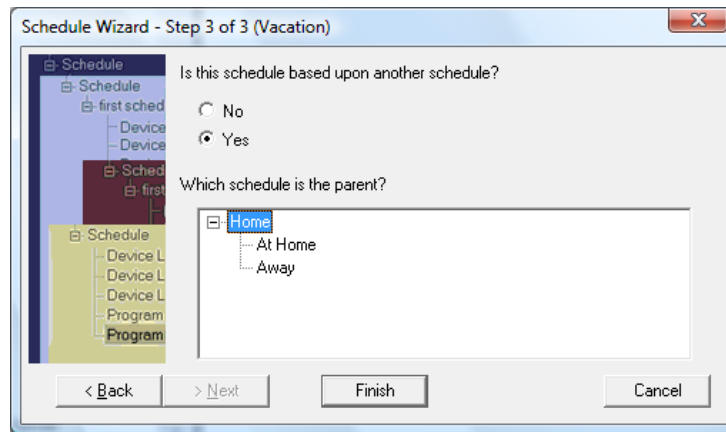


When you have made your choice, click Next.

If you attempt to designate more than one schedule as the normal start schedule, the last one you choose becomes the selection.

Hint: The schedule you are creating does not have to be the default schedule, although you should probably choose one of your schedules to be the current schedule when HCA is started normally (that is, not from a power failure).

- The next step of the Schedule wizard is to select if this new schedule is to be a parent schedule or a child of another schedule.



Once you have created a schedule, you can modify its properties by first selecting the schedule in the design pane, then right click with the mouse and choose Properties from the popup menu. The properties are almost the same as those you created using the wizard. Refer to *Modifying an Existing Schedule* later in this chapter, for details.

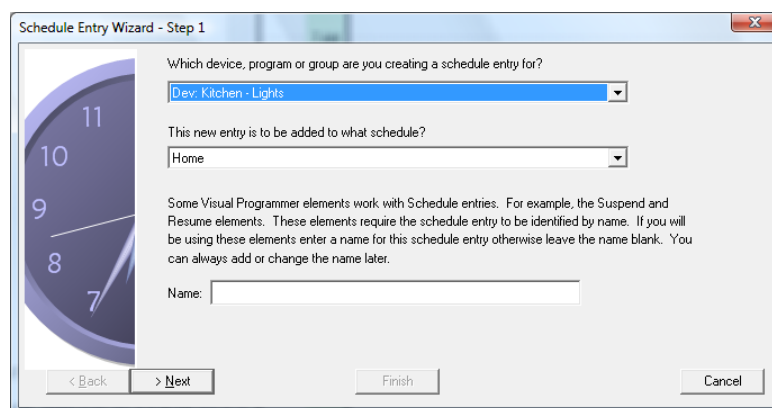
Now you are ready to create schedule entries.

Creating a new schedule entry

Once you have one or more schedules, you can add entries to the schedules. An entry contains the date and time that one device or group is turned on or off. This is done in either of two ways: you can use the Schedule Entry Wizard to create any schedule entry, or you can use the Visual Scheduler, which allows you to graphically create new schedule entries. This section discusses the Schedule Entry Wizard. Refer to the Visual Scheduler chapter for details.

- In the ribbon click the "Schedule Entry" button in the "New" panel..

This opens the Schedule Entry Wizard.

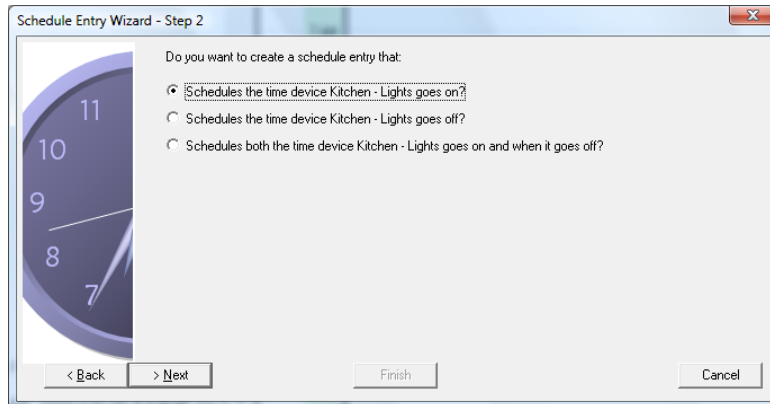


The upper dropdown contains the devices, programs, and groups in your design. The lower list contains all the schedules in your design.

- Click the arrow at the right of the upper dropdown, and select the device, program, or group that you are creating a schedule for.

Click the arrow at the right of the lower dropdown, and select the schedule to add the new entry to. Then click Next. Use of name you can enter for this schedule entry will be explained later.

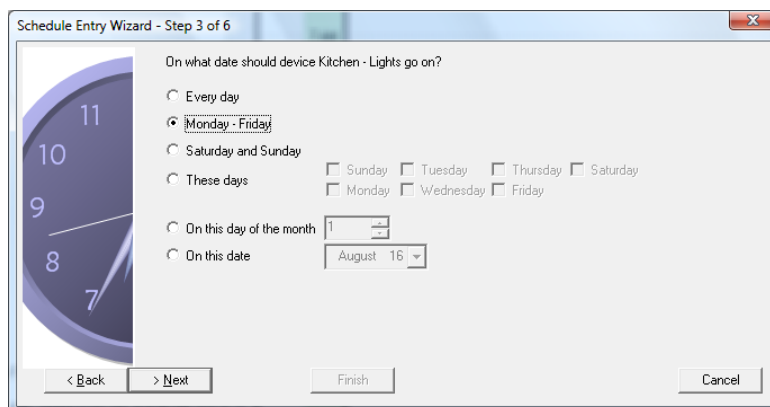
The next steps of the wizard depend upon what type of object you are creating a schedule entry for. If you choose a device or group, the next wizard step prompts you to choose the type of entry you are creating.



If in the first step of the wizard you selected a *program* to create a schedule entry for, you may or may not see this wizard step. If the program can be started only by an On command or only by an Off command, then this wizard step is skipped. If the program can be started by both On and Off commands, then this step is shown.

Once you have completed these first two steps of the wizard, the next steps you see depend upon the type of schedule entry you are creating.

3. Click the type of entry that you are creating, and click Next.
4. If you are creating an On entry, in this step of the wizard, you select the day, days, or date that this schedule entry applies to. You can choose only one option, but if you choose *These days*, *On this day of the month*, or *On this date*, you must also provide additional information.



Click your choice, and then click Next.

5. Now you need to specify the time you want the on (or off) command to be sent. This step contains many different options for specifying the time.

You can create an entry that happens:

- At a specific time (like 6 p.m., 4 a.m., 12:32 p.m., etc.)
- At Sunrise or Sunset
- At so many minutes before or after either sunrise or sunset

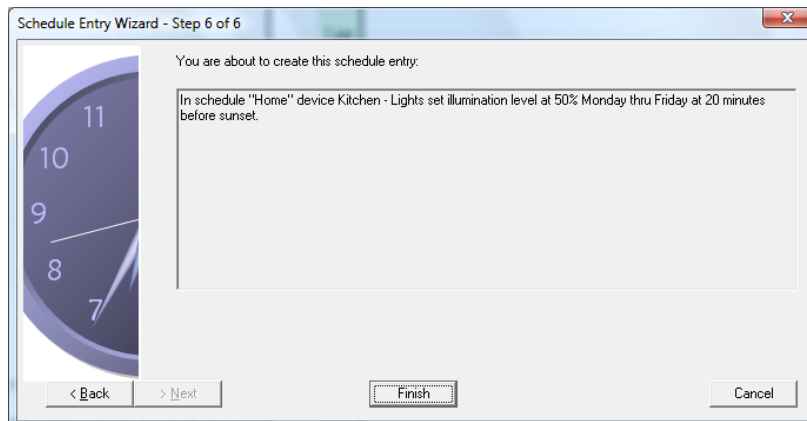
If you choose one of the options based upon sunrise or sunset, the time when this schedule entry happens changes each day as the times for sunrise and sunset change. See *Considering your schedules and entries* and *Using Vary* earlier in this chapter for more details about these options.

6. The next step of the Schedule Entry Wizard depends upon if you are creating an ON entry and if the device can be dimmed or supports scenes. If so, then the next step allows you to specify the illumination level or scene.

There are five options. The first has HCA send an On command to the device. The second sets a specific level, for example come on at 50% illumination. The third and fourth choice changes an existing level either up or down. The last option is for devices that have the capability to store scenes – preset illumination levels – in their local memory.

Make your choice then click Next.

- The final step of the Schedule Entry Wizard is the most helpful of all. This step presents the schedule entry you created in a text form.



After going through so many wizard steps, you may have lost track of exactly what you are creating. This wizard screen shows you exactly what you have created, as a sentence. This gives you a chance to check your work and see if the schedule entry is going to do what you really want it to.

After you check the schedule entry, if it is what you want, use the Finish button to create the entry and add it to a schedule. If you need to change it, you can use the Back button to go back to previous wizard steps and make your changes.

Any schedule entries you create are displayed in the design pane under the schedule they are part of. If you later find that you need to change a schedule entry you can modify it. Select it in the design pane and then choose Properties from the popup menu you get when you right click the mouse. Refer to *Modifying a schedule or entry*, later in this chapter, for more details.

Names for schedule entries

In the first step of the schedule entry wizard you can optionally supply a name for this schedule entry. The name is like the names used for devices, programs, groups, etc. It identifies this schedule entry from all other schedule entries.

Later on in this chapter is a discussion of suspending a device, program, or group from schedule control. In this same way, you can also suspend a schedule entry. In this way the schedule may still be the current schedule but when the time for the schedule entry occurs the schedule entry is not processed if it is suspended.

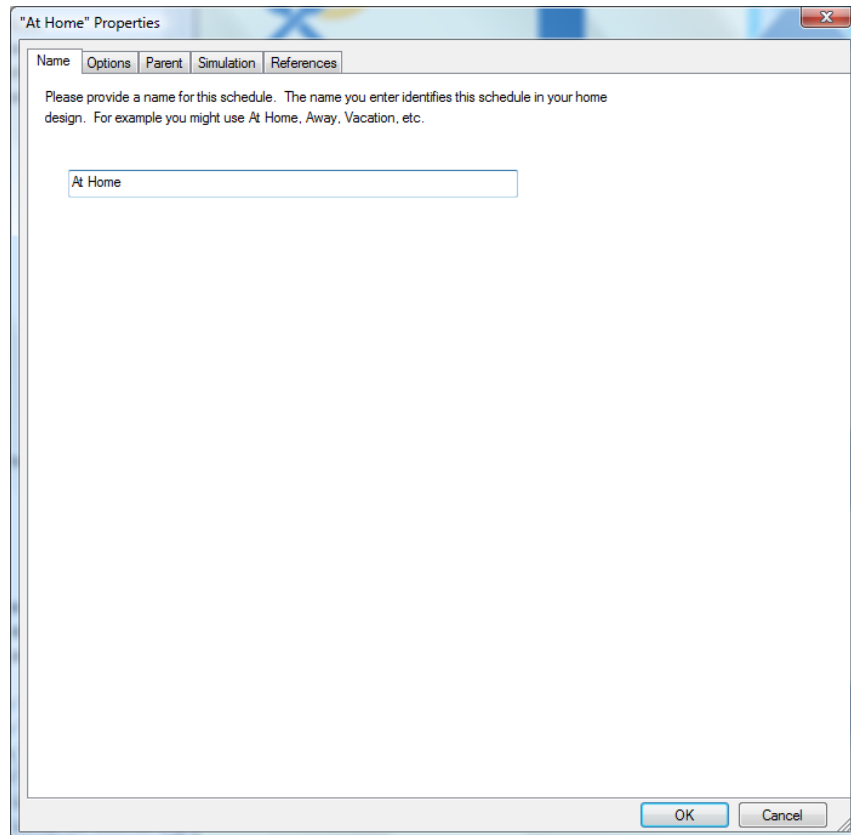
You can only suspend schedule entries that have a name. If you suspect that you may want to do this, give the schedule entry a name. If you don't give it a name during the wizard you can always add a name to an existing schedule entry by opening its properties and entering or modifying the name.

Modifying a schedule or entry

Once a schedule or schedule entry is created, you can modify any of the properties that you set in the Schedule or Schedule Entry Wizard. You do this in the Properties dialog box for the particular schedule or entry. To get to the properties:

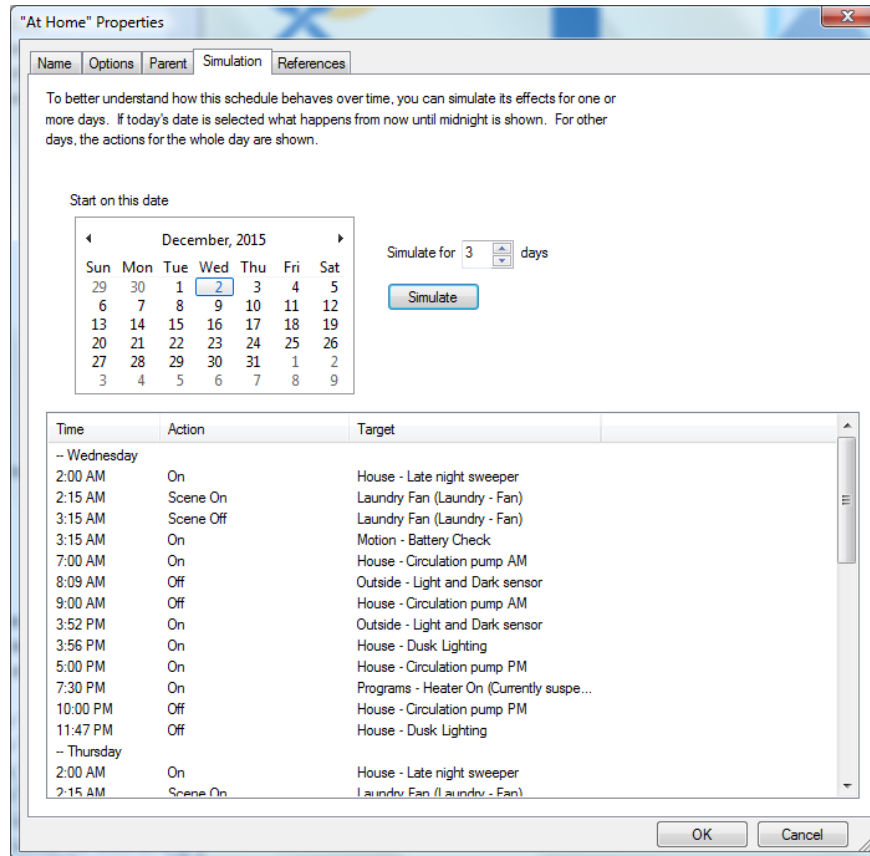
- Select either:
 - the **schedule** name in the design pane of HCA

- the **schedule entry** name in the design pane of HCA
2. Click the right mouse button.
 3. From the popup menu, select Properties.
The Properties dialog box title reflects the name of the schedule (but not the schedule entry) you selected.



In the Schedule Properties dialog box, you can change the schedule name, the options for normal or power failure start up, and which if any parent this schedule belongs to.

There are two additional tabs in the schedule properties dialog that are not found in the wizard. The "Simulation" tab doesn't change any properties of the schedule but is very useful for making sure that your schedule does what you expect it to do.

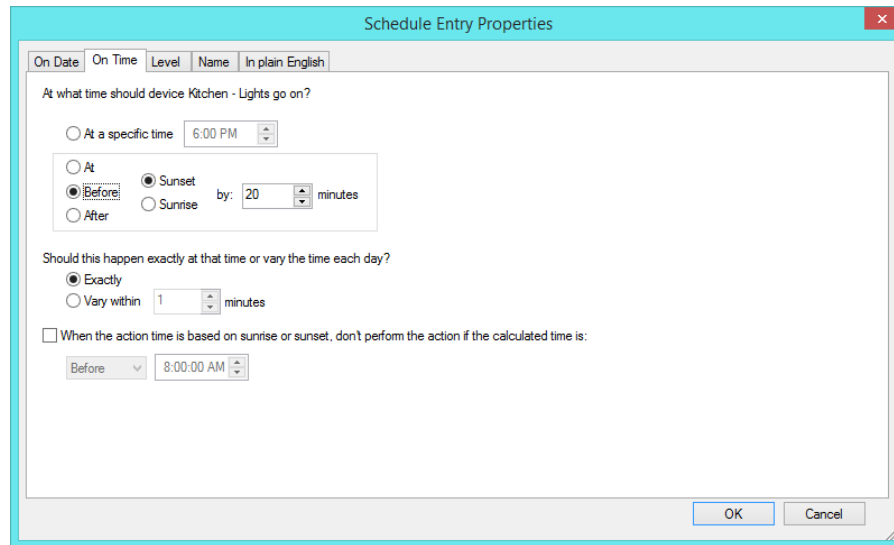


This tab is titled *Simulation*. In a complex schedule, especially one that is a child of a parent schedule and one that contains many entries, it can be hard to see just what the schedule does over time. The Simulation tab will help you with that.

To use the simulation facilities, select a date in the calendar and the number of days to simulate and press the Simulate button. The dialog then shows, sorted by date and time, how each device in your home is controlled.

Modifying a Schedule Entry

In the Schedule Entry Properties dialog box, you can change the schedule entry date or time, or review the *In plain English* text version of what your entry does.



For either properties dialog box, click the tab you want to change properties on and make changes. You can change whatever you like (except the text version of your schedule entry) and click OK to save your changes.

Deleting a schedule or entry

If you find that you have created an entry you don't need, or a schedule that doesn't work for you, you have two options.

- You can modify the properties for the schedule or entry. For instance, you can change the name or the schedule, or change the date or time for an entry.
- You can delete the schedule or entry.

To delete a schedule or schedule entry:

1. Use the right mouse button to click the schedule or schedule entry name in the design pane of HCA.
2. Click Delete.
HCA removes the schedule or schedule entry name from the design pane.

Monitoring your schedules with HCA

Once you have created schedules and schedule entries, HCA can use them and act on them once the schedule is the current schedule.

At any given time, there can be only one schedule selected to be the current schedule. The current schedule is the schedule that HCA monitors to determine when it is time to turn a device (or group or program) on or off. HCA chooses a schedule to be the current one based upon the schedule properties when your design is first loaded.

- If HCA is starting normally, it chooses the schedule with *...when HCA is started normally* checked.
- If HCA is re-starting after a power failure, it makes the schedule that was current when the power failed current again, unless you have a special power failure restart schedule.
- If HCA can not find the correct option for the circumstances, then it doesn't make any schedule current.

Hint: The name of the current schedule is always shown in the ribbon when the "Control" category is selected.

You can choose a schedule to become current at any time by using the Schedule dropdown in the ribbon.

Suspending device, programs, and groups from HCA control

Another aspect of HCA to discuss under schedules is your ability to suspend items from control by HCA.

Devices, programs, and groups can be marked as suspended in various ways. If you do this, depending upon the type of suspend, the normal actions of HCA may not apply to a device, program, or group.

If something is suspended from schedule control, HCA acts as if there are no schedule entries for it in the current schedule. The schedule entries still exist, they just have no effect.

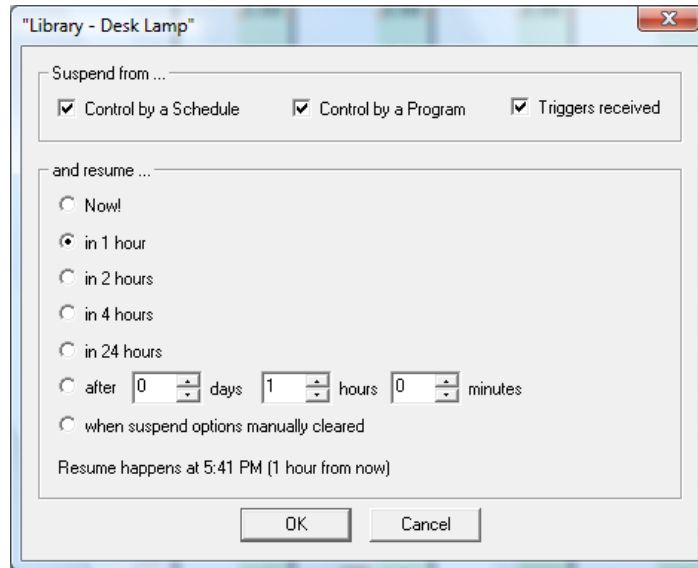
Why would you want to suspend something?

Generally, the reason is to account for some unusual happening. Suppose for example that you schedule your living room lights to go off at 11 p.m. But tonight you are entertaining some friends and will be using the living room after 11 p.m. You could just delete the schedule entries that control the living room lights, but then you would have to put them back tomorrow. You could deactivate HCA but that would shutdown automatic control of the rest of your home—and you don't want to do that! In this case, suspending the living room lights from schedule control prevents them from automatically going off at 11 p.m., but leaves the rest of your home functioning as usual. If you later remove the schedule suspend from the living room lights then tomorrow they will function as normal.

To suspend a device, program, or group:

1. Select either
 - the **icon** on the display or
 - the **name** in the design pane
2. Click the right mouse button.

From the popup menu, select Suspend and this dialog appears:

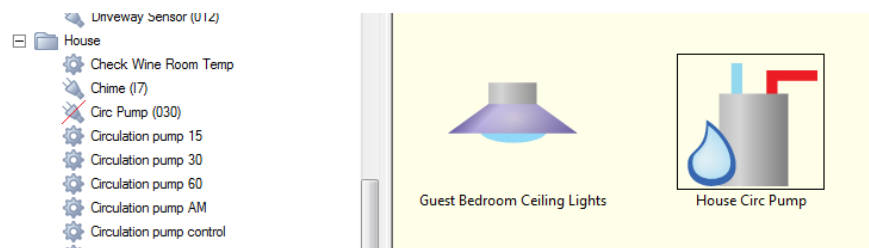


This dialog allows you to both suspend and to resume a device, program or group. In the *Suspend from* section of the dialog you can select what kind of actions you are suspending. These are:

Schedule	Prevent any HCA schedule from controlling this device, program, or group regardless of any schedule entries for it.
Program	Prevent any HCA program from controlling this device, program, or group using ON, OFF, or DIM elements.
Triggers Received	Prevent receipt of any commands that are the trigger for a device, program, or group from starting the program or controlling the device or group.

Hint: If you find that a device, program, or group doesn't seem to be responding as it should, check to see if it is suspended. This is one of the conditions that the Inspector looks for.

When something is suspended, the design pane icon shows this by a red slash through the icon and in the display pane the icon shows a black border. In the picture below, House – Circ Pump is suspended.



The resume part of the dialog tells when the suspended functions are resumed. There are two major choices: To suspend until some action you take resumes it or to have HCA automatically resume it at a given time. If you are using automatic resumption, several useful time limits are given as options. If you open the suspend dialog when something is already suspended, the time to resumption shows in the bottom of the dialog.

Hint: There are visual programmer elements for Suspend and Resume that make it simple for you to create programs that perform suspend and resume options as part of their actions. This way you can control suspend and resume without having to interact with the HCA UI. Just give the program a trigger and send that trigger from a keypad in your home. You can also use these elements to suspend and resume schedule entries. This only is possible if you gave the schedule entry a name as you use that name in the element.

The Occupancy Wizard

The Occupancy wizard is designed to produce a schedule that controls lights in your home to make it appear that someone is home even if they are not. It does this by asking a series of questions about the rooms in your home, where you spend time, when you get up, and when you go to bed. While the schedule it produces is far from perfect, it does provide a good enough schedule that is more realistic than just turning on a few lights at the same time every day.

To start the wizard select Occupancy Wizard from the ribbon “New” panel. There is a lot of information in the wizard dialogs that should guide you through the process.

Once you have produced this schedule you can use the Visual Programmer to create a program that makes that schedule the current schedule when you leave home – just press a button on the way out and the schedule becomes current. Another button press on the way in, and your normal schedule is back in control.

