Chapter 7
Rooms

Each device, program, and group in your design is stored in a folder. That folder can be a "folder" or a "room".

A folder is simply for organizational purposes. It allows you to have a device, for example, call "Lamp" in one folder and a different device called "Lamp" in another folder. That is really all a folder does.

A room is in many ways similar to a folder except it comes with extra meaning. In many ways a room is similar to a device in that:

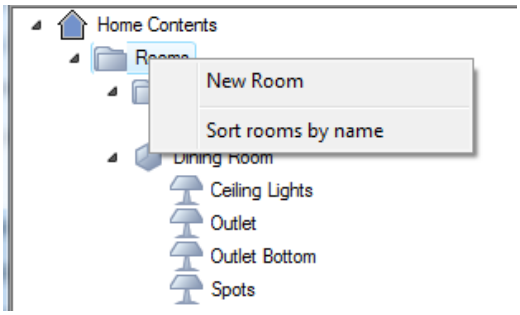
- It can be on or off. It can be scheduled.
- It can be controlled by a program.
- An auto-off condition can be established for it.
- In can participate in a power track graph.

This chapter describes how Rooms work in HCA and includes these topics:

- How rooms are created
- What circumstances cause a room to be ON or OFF.
- Working with rooms: Turning on and off, scheduling, using in programs
- Device interaction with rooms

How rooms are created

A room is created using a similar mechanism as a folder is created. Right-click on the Rooms root in the design pane and select New Room from the popup menu.



The room is added then to the design with the default name "New Room" and you can then change the name to something more meaningful.

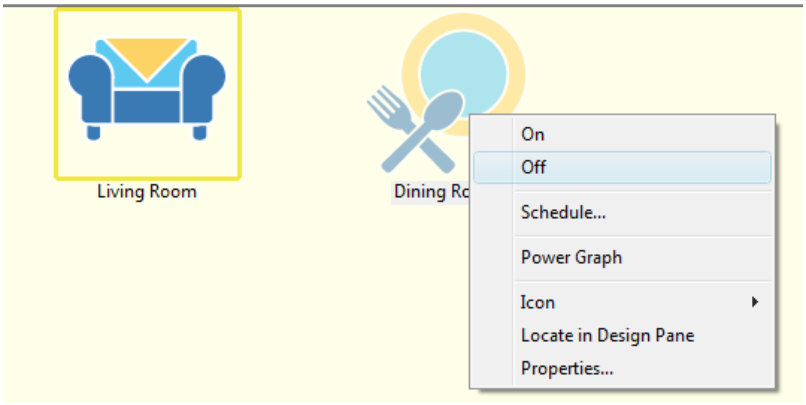
You can also create a new room when you add a new device, program, or group to your design. In the first wizard step you can choose an existing room or folder name or you can enter a new name. If you enter a new name then a room with that name is created.

Hint: If you have a folder, perhaps from a design created using a previous version of HCA, and you would like it to work as a room, you can drag the folder icon in the design pane and drop it into the room section. It then becomes a room.

Rooms on and off

A room, like a device, can be ON or OFF. To turn a room on or off, you can right-click the room name in the design pane and select On or Off from the popup menu. When the room is On it shows with a yellow background in the design pane.

If you have an icon for a room on a display you can right click the icon to access these menu choices:

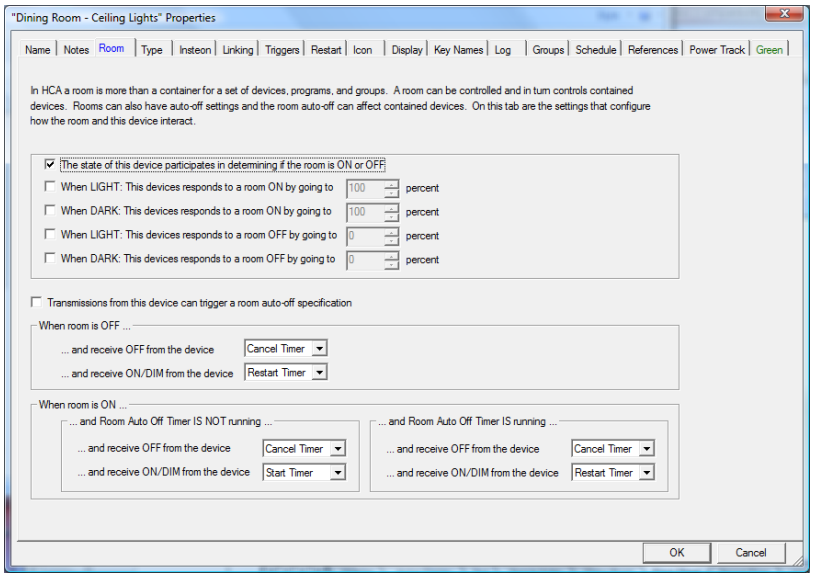


But what does it mean for the room to be on or off?

A room is ON when **any** of the devices in the room that participate in determining the room state are on.

A room is OFF when **all** of the devices in the room that participate in determining the room state are off.

What determines if a device "participates in determine the room state"? It is a property of the device. One of the tabs in the property dialog for a device is the *Room* tab.



There are a lot of options on this dialog and they will all be covered in the chapter. For now only the first checkbox is important. If that checkbox is ticked then the device participates in determining the room state as described above.

Working with rooms

Like a device, a room can be scheduled to go on or off at a certain time or, in a program it can be controlled by the On and Off elements.

What happens when a room goes ON or OFF as the result of a program, schedule, or your interaction with the user interface?

What happens is that any device in the room that is configured to go on or off with the room is sent on or off commands.

In the device's property dialog on the room tab are four checkboxes that control this. The picture above shows these checkbox options.

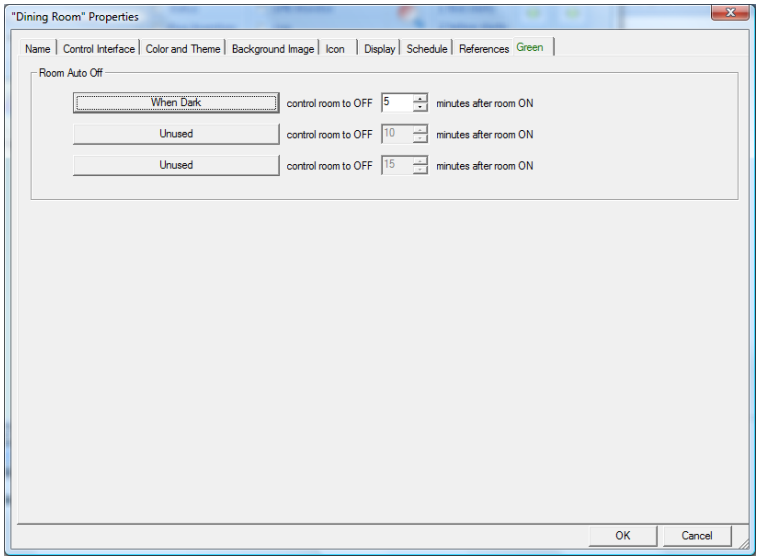
As explained in the *Your Home* chapter, HCA has a concept of Light and Dark - that chapter describes all the different ways that can be determined by time, astronomical time, or by one or more light sensors.

When a room goes on or off, you select in the device's properties how the device responds. And this can be different depending if the room is going on or off, and if it is light or dark. For each of the four conditions you specify if the device responds – tick the box if it should – and how it responds – choose a level.

Hint: It can be very useful to set different light levels for at night when you want the lights to go on at a lower level than during the daytime.

Auto Off

A room, like a device can have an auto-off mechanism. This is configured on the Room properties Green tab:



In the same way that a device auto-off is configured, you can have up to three different auto-off specifications. In the above example, 5 minutes after the room is tuned on – when it's dark – the room goes off. This means that any devices in the room configured to respond when the room goes off, are sent a command to go off.

Hint: Even if the devices in the room have their own auto-off specifications, the room auto-off operates independently of device auto-off specifications. This can get confusing so be careful.

Device Interaction with rooms

Devices and rooms can interact in a relationship that allows you to build complex actions with only the settings in the device and the room. Here is a simple example.

Suppose you have a room with two lights and a motion sensor.

The motion sensor is configured to participate in the room state.

One device is configured to turn on when dark at 50% and the other is configured to turn on when dark at 80%. Neither device is configured to participate in the room state nor are they configured to turn off when the room goes off.

Here is a time line of what happens:

1. The motion sensor detects motion so it sends a command that HCA receives.
2. Since the motion sensor is now on, the room becomes on.
3. Since the room has become on, the two lights are sent commands to turn on to the levels chosen and that depends on if it is light or dark.

And all of this is accomplished without any additional work on your part except configuring the devices and the room.

You can also configure the room with an auto-off so that the devices turn off after a preset time.

Device Auto Off

One problem with auto-off is that it can be very unyielding at times. Yes you want an auto off to happen but sometimes you really wish it could be controlled.

Devices and rooms interact to make this possible. As part of the device properties you can configure how auto off can be controlled. This is best shown by some examples.

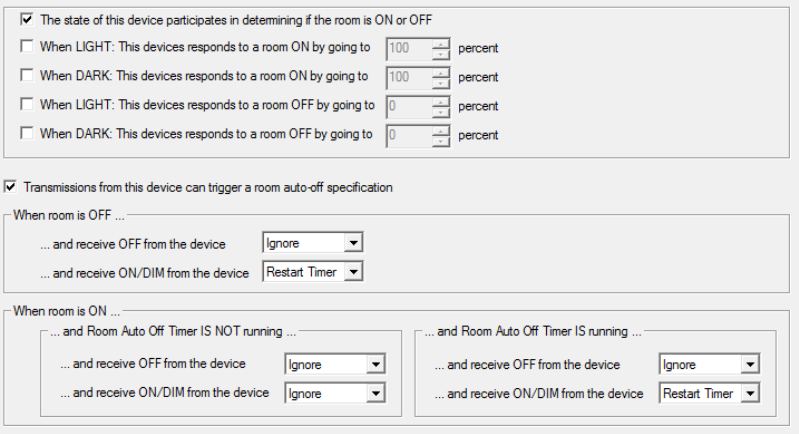
Example 1

*Suppose a room contains a motion sensor and a switch. Here is what we want to have happen:

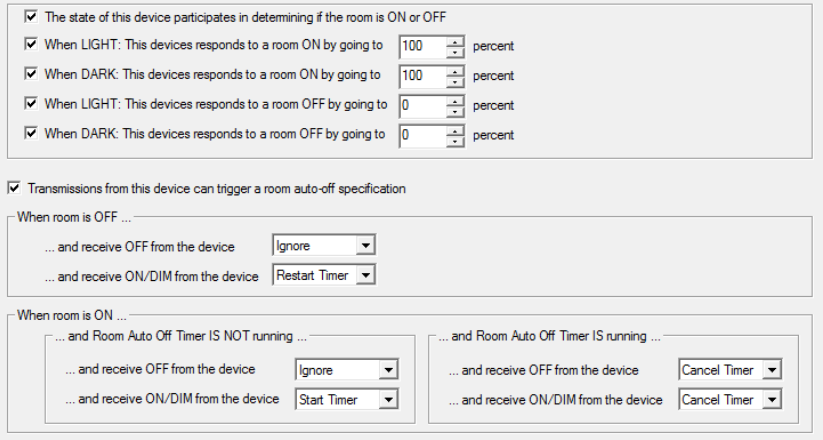
- You walk into the room. The motion sensor turns on the light and starts an auto-off timer.
- If you leave the room then when the timer expires the light goes out.
- If you stay in the room then each time the motion sensor sees you the timer is restarted
- If you change the light level using the switch, the timer is canceled and not restarted until the room is off and the motion sensor again sees something.

Here is the configuration for the motion sensor and the switch:

Motion sensor settings



Switch settings



Here is a timeline of what happens:

- The room is off.
- The motion sensor sees you and starts the timer. This is because the motion sensor has the setting enabled to trigger an auto-off specification and that specification says when the room is off and an ON command is received, the timer is started.
- Since the room goes ON, the light in the room is sent a command to go on. This is because the motion sensor is marked as participating in determining if the room is on or not. The motion sensor is the only device so marked and since it is ON the room is ON. The light is marked as responding to the room going on or off so it is sent a command to go on.
- Each time you move, the motion sensor restarts the timer. This is because the motion sensor options say that if the room is ON and a command is received and the auto off timer is running then the auto off timer is restarted.
- If you change the light level at the switch, the timer is canceled. This is because the switch is marked such that if the room is on and the timer is running and a command is received then the timer is canceled.
- Since the room remains on – the light is on and that participates in the room state - and the timer not running, the motion sensor now has no effect. The room is still ON since the light is on. And when a command is received from the motion sensor it is ignored.

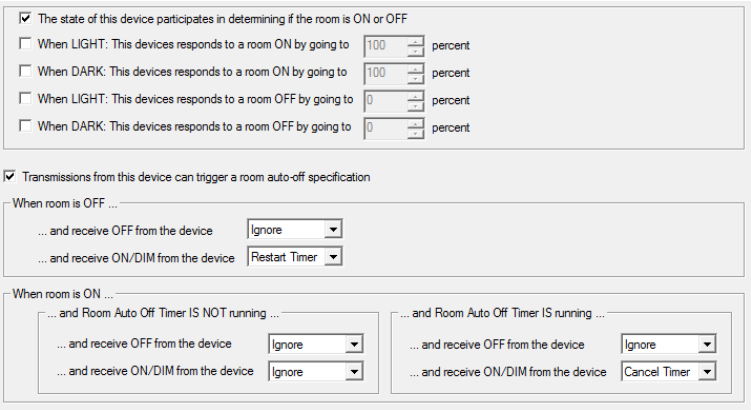
Wow! That is a lot of function from just a few checkboxes.

Example 2

In this example there are two lights in the room. Here is what we want to happen:

- You walk in the room.
- You turn on one switch
- An auto off timer starts
- You turn on a second switch
- The timer should be canceled because by turning on multiple lights you are saying you want to stay in the room.

And since you may turn on either light first, the settings of each light must be the same. Here are the settings for both devices:



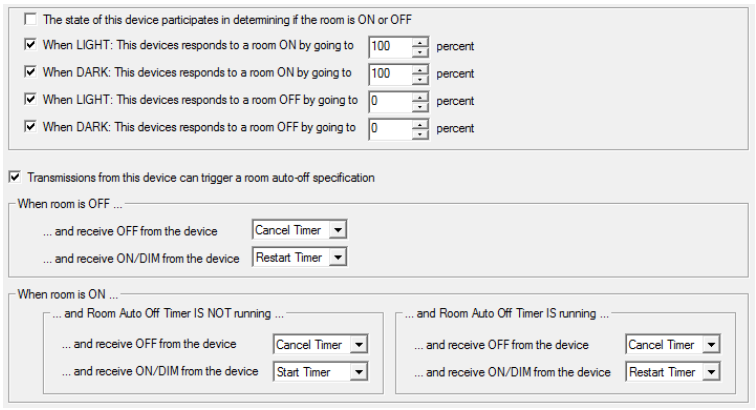
The action of turning on either light causes the room to go ON. Since the room was OFF and an ON was received then auto-off timer is started. Controlling the other light causes the timer to be canceled.

If you had a third light in the room, since the room is ON and the timer is not running controlling that light has no effect.

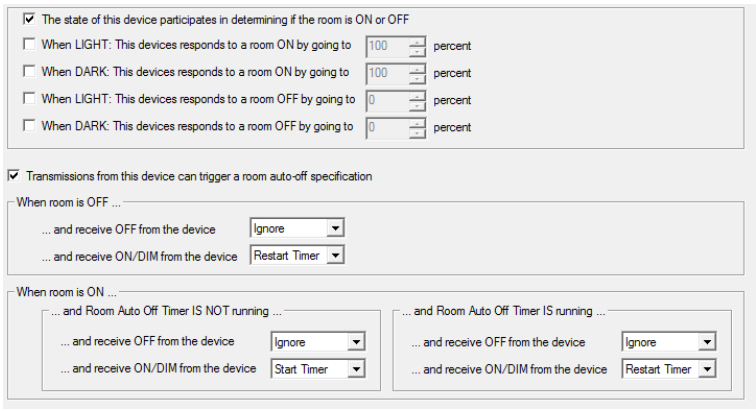
Example 3

- This example is simpler than the first two. Here is what we want to happen.
- You walk into the room
- The motion sensor detects you so the lights come on and starts an auto off timer.
- You change the light level at the switch. You want the auto off timer to restart but not to be cancelled.
- Each time the motion sensor sees you the timer should be restarted.
- If you turn off the lights manually then the timer should be cancelled.

Switch settings:



Motion sensor settings:



Timeline of what happens.

- You walk into the room and the motion sensor sees you. Since the motion sensor participates in the room state, the room is now on. When the room goes on, the switch is sent a command to go on.
- As long as the motion sensor sees you the timer keeps getting reset.
- You change the light level of the switch. The timer is restarted. When the motion sensor next sees you, the switch is not sent a command. Why? Because the switch is only sent a command when the room goes from off to on.
- You turn off the switch at the paddle. While the room may still be on – the motion sensor is the only determinate of that – the timer is cancelled.

The interaction of devices, rooms, and auto-off can be complex but there is a lot of power in the concept. Hopefully the above examples will get you started.