# Getting Started with HCA 14

## From install to full function in ten steps (updated 2-Jan-18)

Everyone has seen those advertisements by many different companies that show people turning off their lights, unlocking doors, turning off the kitchen sink faucet (really, you left it on?). And they supposedly work well once you have all the hardware installed, you pay to have the service configured for you, and then you can remotely do those things.

But is that all you want to do? Turn things on or off? Wouldn't you rather build the solution you want? Using HCA, you can easily turn things on and off remotely but much better is that HCA gives you the tools to create solutions that take into account the time of day, weather conditions, who is at home, whether it is light or dark, inputs from sensors and keypads, and your knowledge of how devices in your home should work together to perform tasks.

HCA isn't simply a remote-control program. What HCA gives you is a toolbox that you use to **integrate automation devices and program your home**. And like any good set of tools it can take a bit to understand how they work best. This getting started guide will take you from the beginning all the way from Install to using Amazon Alexa or Google Home to control devices in your home using simple voice commands. Along the way references supplied to other documents, web sites, and videos that help provide extra info.

This document may seem long – lots of pictures! - but the journey is worthwhile as it gives you a solid base for expansion in the future.

**If you have not already purchased HCA and you are looking to test drive this software, you can download a free 30-day trial of HCA Plus from the HCA support website at** www.HomeControlAssistant.com**.**

Also at this web site is a complete user guide that documents all aspects of HCA. Also check out the HCA You Tube channel with a "HCA 101" video course.

Briefly the "Top 10" HCA features are:

1. Support for Insteon, UPB, X10, Phillips Hue, Wireless, IR, and thermostats.
2. Create "programs" to respond to events in a conditional manner
3. Integrate "Internet of Things" devices like the Ring Doorbell and the Nest thermostat
4. Multi-station within your home with a client-server model
5. Remote access using iOS, Android, and Windows clients
6. Integrate with Amazon Alexa and Google-Home
7. Complete scheduling facility
8. Power Track features to keep track of power usage over time
9. Integrate weather data from a variety of sources
10. Technical support direct from the developers

The idea behind this Getting Started Guide is to get you going with HCA as quickly as possible. Here is an overview of what you will learn in this Getting Stated guide.

## Getting Ready – HCA Install

Installing HCA is the same as installing most Windows programs - just run setup.exe. After installing you will see that in the program listing two programs (except as noted above, HCA Standard doesn't contain the server application):
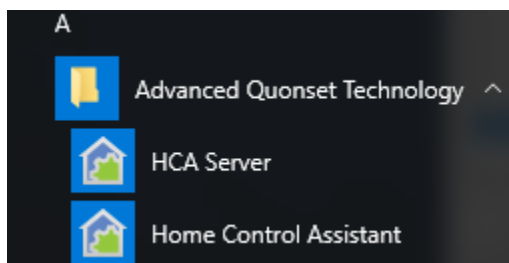


You want to begin with Home Control Assistant. This lets you run HCA in what is called "stand-alone" mode and using that you can create your design file. Later, you will start using the HCA Server.
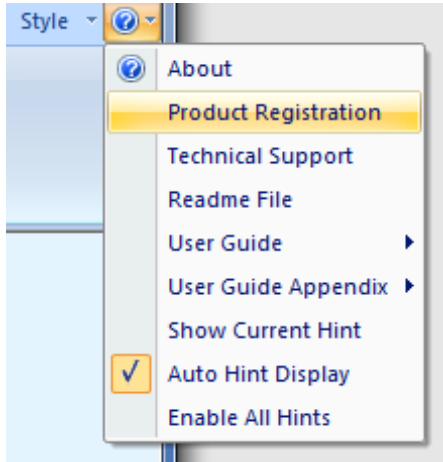
Once started the first thing to do, if you are <u>not</u> using the 30-day trial - is to register you copy of HCA. Open the Help menu – "?" icon at the right end of the ribbon - and select "Product Registration" from the menu.
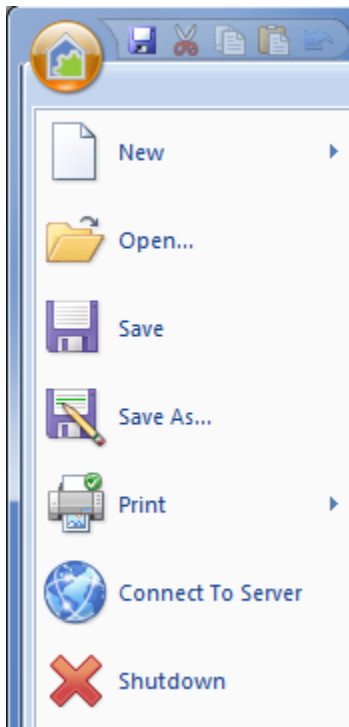
HCA needs to be working all the time, so unlike most Windows programs, using the close button (the red x in the upper right of the window) doesn't terminate HCA but minimizes it and puts and icon in the Windows notification area.
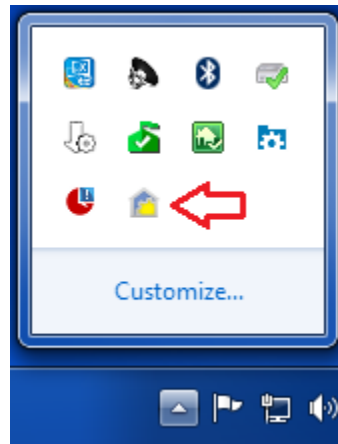
To terminate HCA, select from the application menu *Shutdown*.

This was implemented to prevent the unintended termination of the program which stops HCA from sending and receiving commands.

## Getting Ready – Automation interfaces

Before HCA can control device in your home, you must connect one or more interfaces to your computer. Some of these connect to serial ports, network ports, or USB ports. Follow any instructions provided by the manufacturer of the interface. For example, the Insteon PowerLinc interface and some

of the UPB interfaces require installation of a device driver that creates a virtual serial port. Refer to any documentation that came with the interface as the instructions are generally very clear and tell you what must be done.

**Note**: If you are working with X10 and you want to use the CM15, HCA requires a different device driver than the one supplied with the hardware. On the HCA Support web site in the documentation area is a technical notes section. In there are instructions for installation of the HCA driver for both Windows 10 and other Windows versions.

If you are connecting a serial interface but don't have a serial port – many recent PCs don't have them – there are 3rd party devices that make a serial port from a USB port. We can recommend the IO-Gear GUC232A USB to Serial Adapter as we have tested with it extensively.

Once you have the automation interfaces connected to the computer select the *Interfaces* category from the HCA ribbon and press the *Configure* button. The *Hardware* tab of HCA Properties opens.
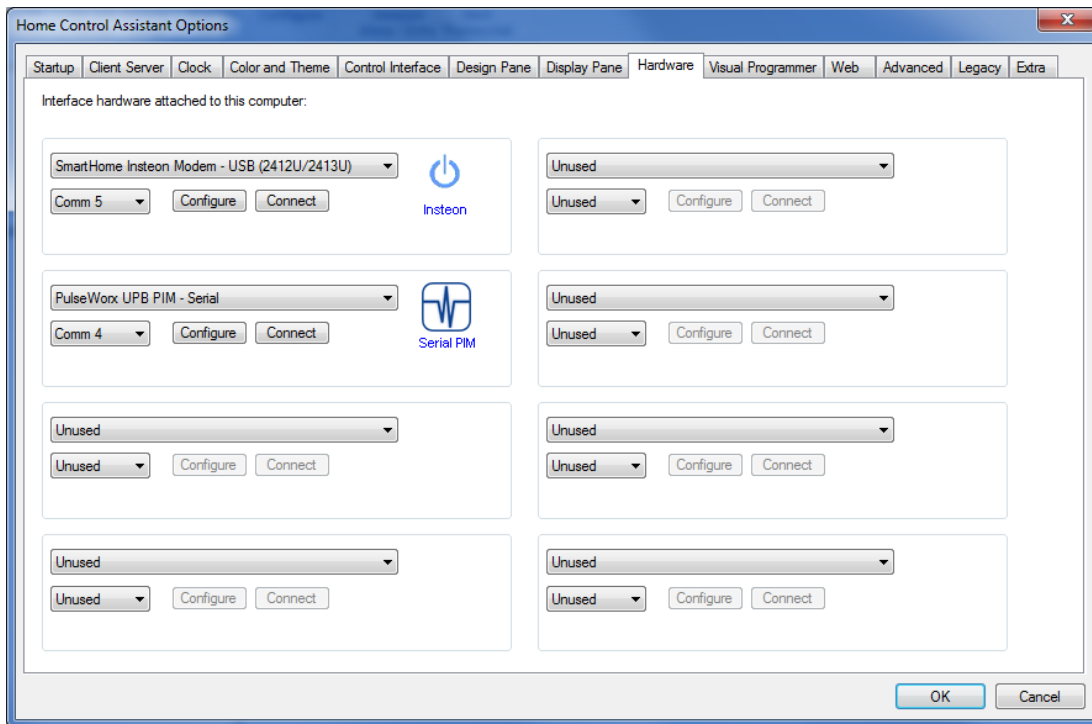


HCA can have up to eight interfaces connected simultaneously. Select the type of interface from the dropdown and the port it is connected to. Press the Connect *button* to test if HCA can communicate with the interface. A popup shows if the connection is successful or not.
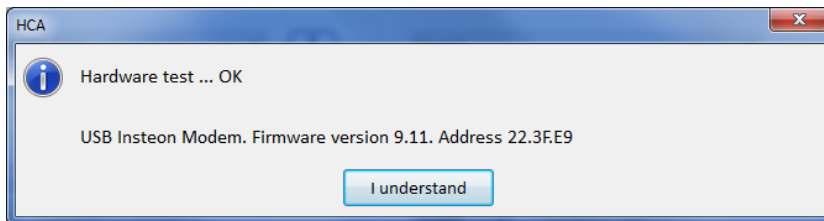
Some interfaces have options and the *Configure* button for the interface shows you those options. For example, the Smart Home Insteon PowerLinc model 2413 can send both Insteon and X10 and the configuration dialog lets you choose if you want to use both of those protocols with this interface.
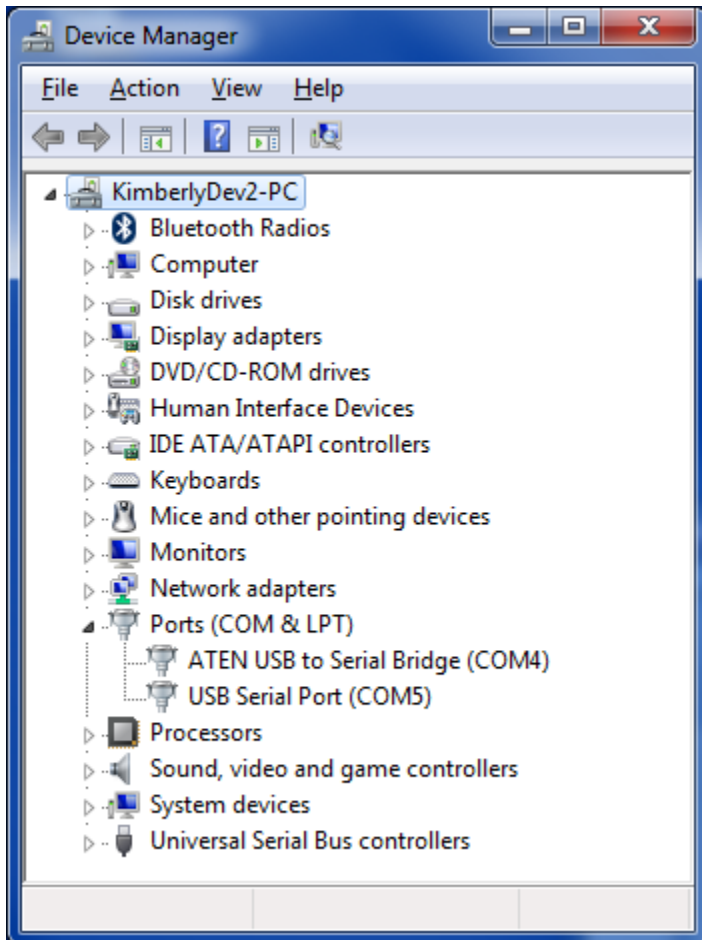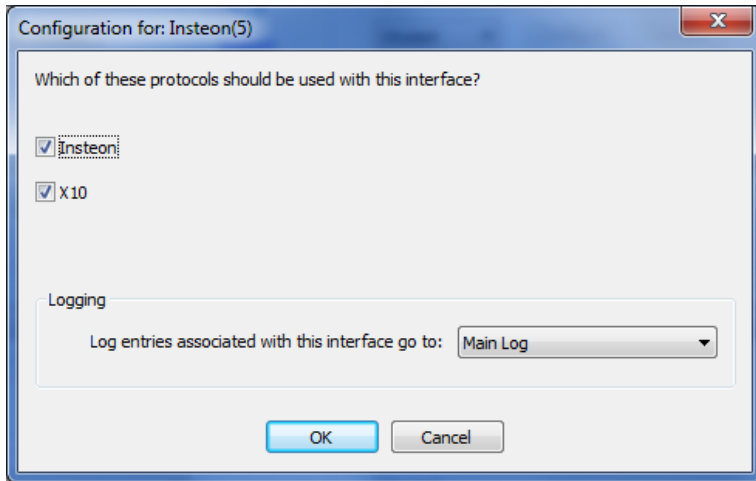


**Note:** In the image of the interface selection dialog above both interfaces have a serial port selected. If you open the Control Panel Device Manager applet you can see these ports.

The Smart Home Insteon Modem model 2413 has a USB port but when connected to the computer its device driver creates a virtual serial port. That port is what HCA must know to communicate with it. In the device manager it appears as "USB Serial Port"

The PulseWorx UPB PIM is a serial device and is connected to this computer using one of those USB to Serial Adapters mentioned above. In the device manager it appears as a "USB to Serial Bridge"

It's not always clear what serial port has been assigned when plugging in a USB device. The port number can be found using the Control Panel Device Manager.

# Step One – Which path to take?

There are two ways to begin creating your automation design. You can start with an empty file – as soon as you start HCA, an empty file is already available so you can immediate start adding all elements of your design as "step 2" shows.

Or you can start with what we call the "HCA Framework". The framework is a design file that already contains several items that you may find useful. It contains no devices yet – the type, quantity, and location of them are different for each installation, but it does contain pre-defined rooms and user interface elements to start you off.

If you want to go this route, load the file "Starter Design.hca" form the HCA documents area. The file is read-only so when you go to save it HCA asks for a new file name.

The starter design has rooms already defined into which you can add your devices, programs, and groups. These rooms can be used as is, renamed, deleted, or new rooms added.

Tiled display

The starter design has a tiled display as the home page for the Control User Interface. It is preconfigured to show your rooms and most used devices, a page to view and change the current home mode, a page for alerts that show possible problems in your automation design, a page for power usage information, and a page for weather data. If using a larger monitor, there is a page you can use for images captured from IP cameras

There are two sets of displays for different size displays. The home page for smaller displays is named "Page Home" and for larger displays named "Large Page Home". Choose which display used for the Control UI home page by selecting the display name in the tool opened from the ribbon "Tools" category, "Control UI" panel, "Home Page" button.

If neither display is fully appropriate for your monitor size, the Tiled Display tools can be used to adjust the tile sizes for a better fit. This is described in the User Guide "Displays" chapter.

Weather data integration

One page of the Control UI display shows the current local weather, forecast, and any weather alerts for your location. The program "Hourly Weather Check" creates variables that tell if it is too hot, too cold, raining, or windy. You can use these in programs you create to perform different actions based upon environmental conditions.

For all these weather programs to operate correctly you must first sign up for an account with Weather Underground and configure Weather Underground as your weather provider. It is simple and is free. Instructions are in a tech note available from the support web site.

Make the file yours

Your first step is to save this file with a filename that makes it yours. For example, "House on hill.hca", or "14 Palm Court.hca". Make sure you save it in the HCA documents folder. **If you don't store it in that folder the HTML displays will not operate correctly.**

Once the file is saved, set your location by pressing the "Properties" button in the Design ribbon category, "Home Configuration" panel.

# Step Two – Identifying hardware and building a design

In this step, we start from having just installed HCA on your computer. This assumes that you already have some automation hardware – Insteon, UPB, X10 – installed in your home.

If you are starting with an empty file or if you loaded the starter design, the best way to begin adding your devices is by using the **HCA Designer**. When it first starts, you are offered a link to a video that shows how it works depending upon the automation protocol you have.  We urge you to watch the video for the kind of automation devices installed in your home.

## The Designer

Start the designer from the *HCA Designer* button from the ribbon *Design* category.
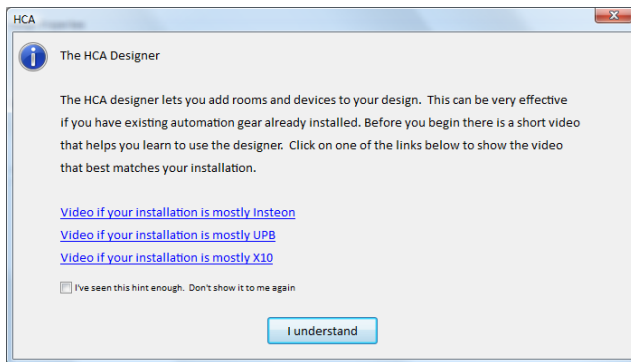


The first step in using the designer is to enter a name for your design, specify the location and select which automation protocols you are using.
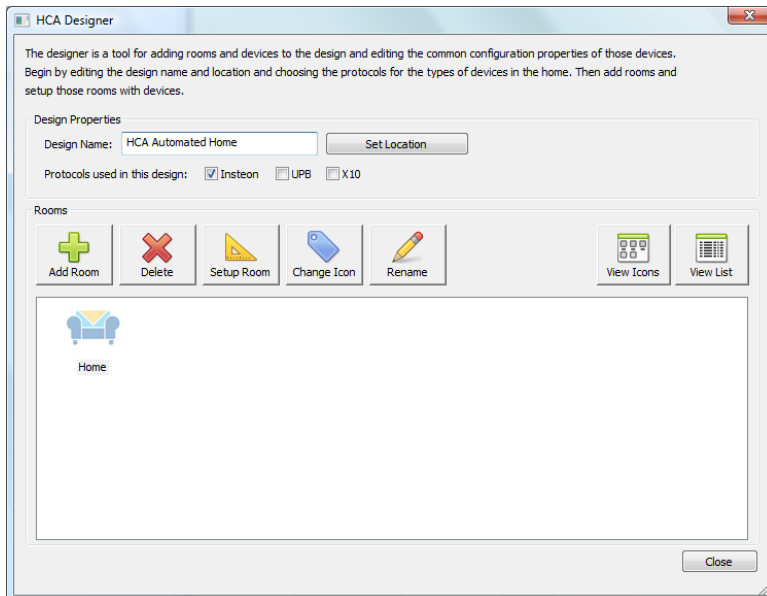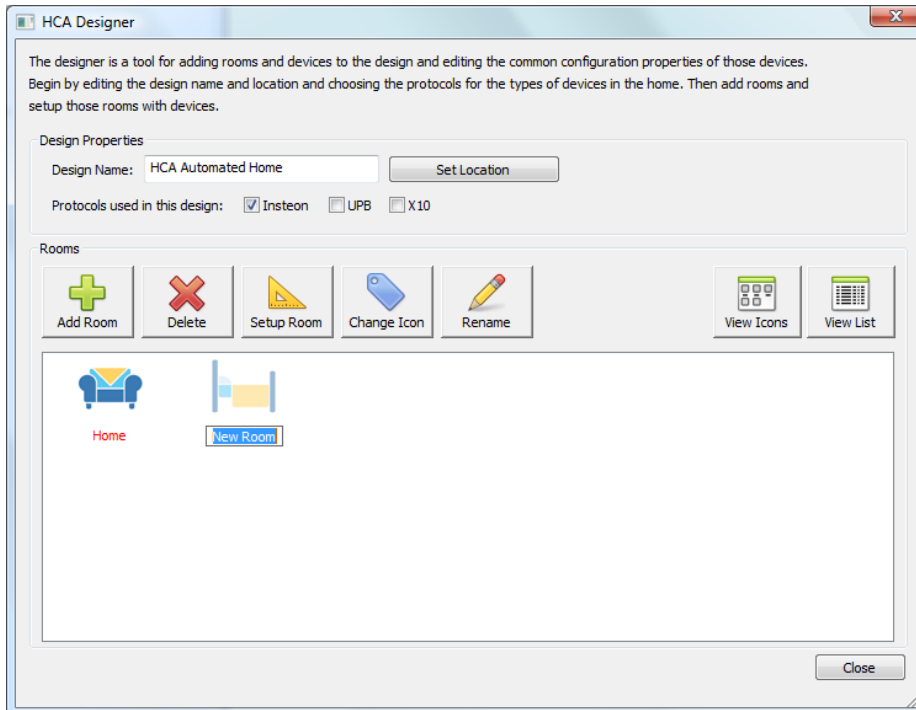
Type in a name for your design, tick the appropriate boxes for which automation protocols you are using, then select your location after you press the "Set Location" button.
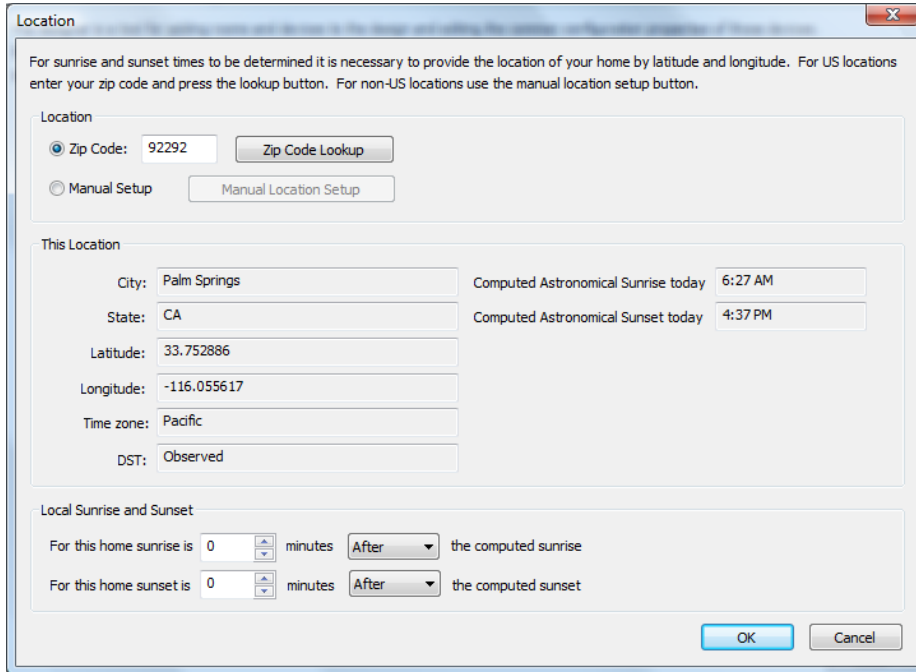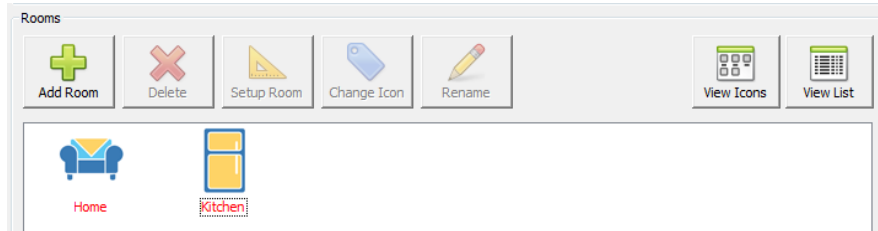


## Adding Rooms

Once the location is set, the next step is to add rooms. Each time the "Add Room" button is pressed a new room icon is added to the display:

Once the room icons appear, it is all set for you to type in the name you want for the room. When you complete entering the room name and have pressed the enter key, then HCA guesses an appropriate icon.



In this example, "Kitchen" was entered as the room name and an icon representing a refrigerator (Kitchens have refrigerators so that's the icon) was chosen.

If at any time you want to change the icon of a room, just select it and press the "Change Icon" button. To change the room name, select it and press the "Rename" button. And to delete the room, select it and press the "Delete" button.

**Tip**: You can also right-click on the room icon and the popup menu contains these actions as well.

The text below the icon gives the room name. The icon label displays in red if there are no devices yet added to the room.

The design also lets you show the rooms by icon or by a list.  The buttons at the right control this. Some users like to see things by icons and others prefer a list.  It's up to you.

The next step is to add devices to the room and how that happens depends upon the protocol of those devices, but they all start in the same way. Select the room icon and press the "Setup Room" button.

**Tip**: You can also double-click on the room icon to setup the room.
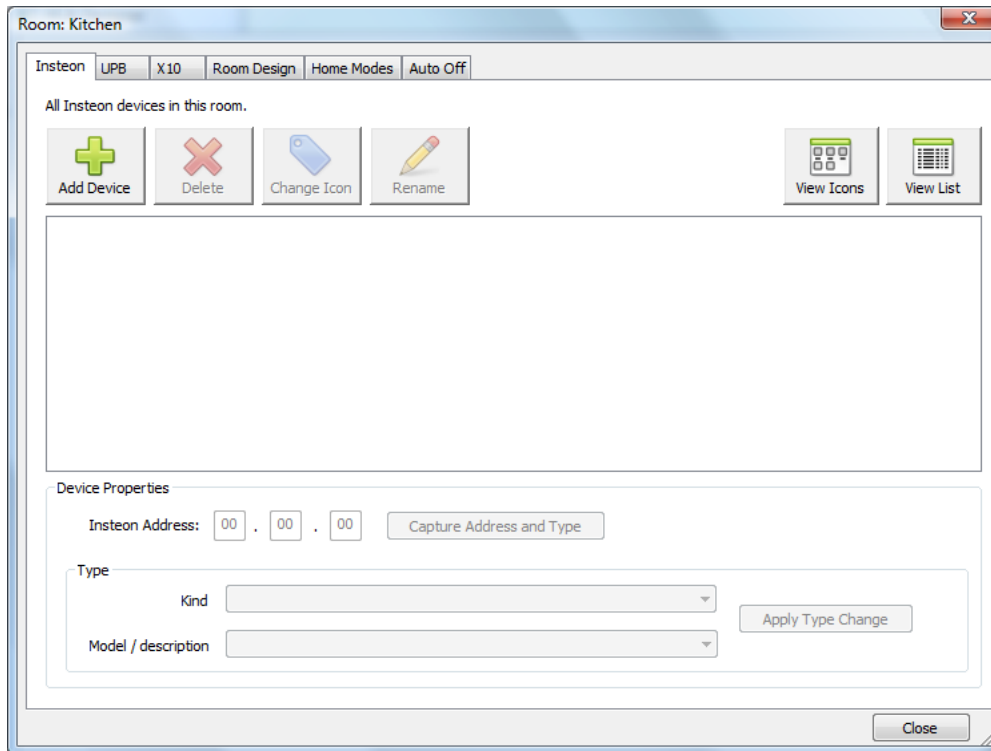
Note that at the top of this dialog there are six tabs. These are:

- Insteon: For adding an Insteon device

- UPB: For adding a UPB (Universal Powerline Bus) device

- X10: For adding an X10 device

- Room Design: How devices interact with the room they are in

- Home Modes: How devices act depending upon the mode the home is currently in

- Auto Off: If the device automatically goes off a specified number of minutes after it is turned on

Depending upon the checkboxes on the main Designer dialog, only tabs for the protocols you selected appear.

Once the room is open, to add a new device select the tab for the protocol of the new device and then press the "Add Device" button. It works in the same manner as adding a room.  An icon for the room is added and you can enter the name for it.  Once the name is entered, HCA guesses at the appropriate icon for it.
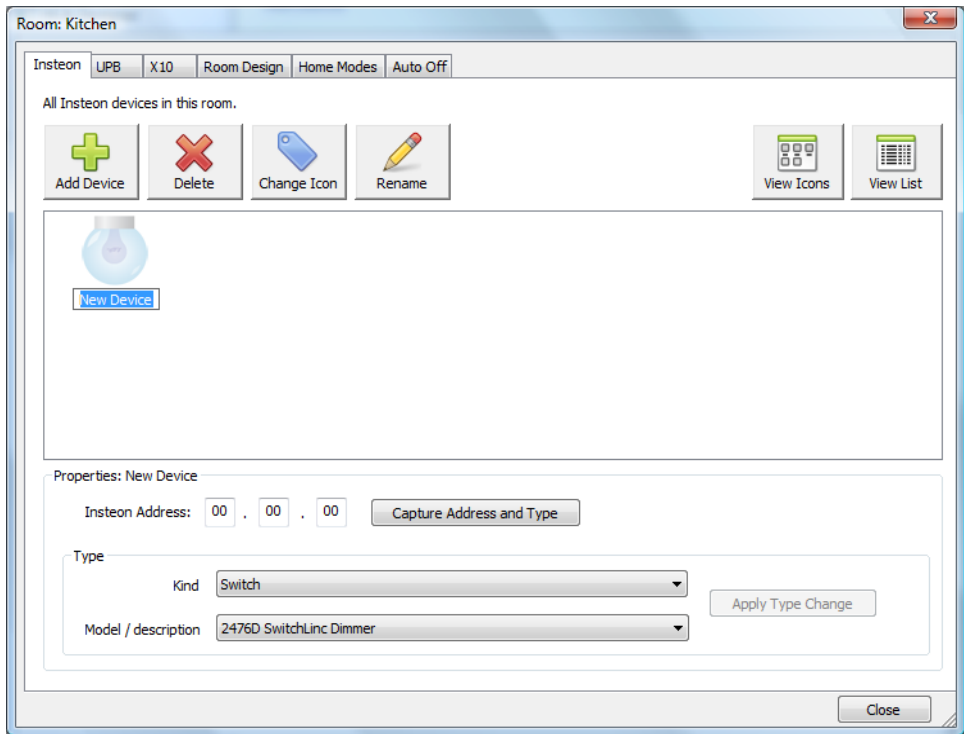
In this example, the device name was changed from "New Device" to "Ceiling Lights" and the icon changed to reflect that:
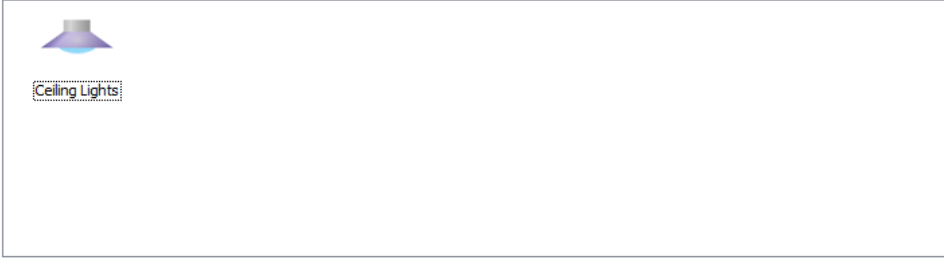


Like working with rooms, you can delete a device, change the icon for it, or rename it. All these actions are carried out by selecting the device and pressing the appropriate button. Again, as in working with rooms, a right click on the device gives you a popup menu of these actions.

## Adding an Insteon device

For Insteon devices the next step after adding the device is to capture the address and type for it. Select the device and then press the "Capture Address and Type" button. This dialog opens.
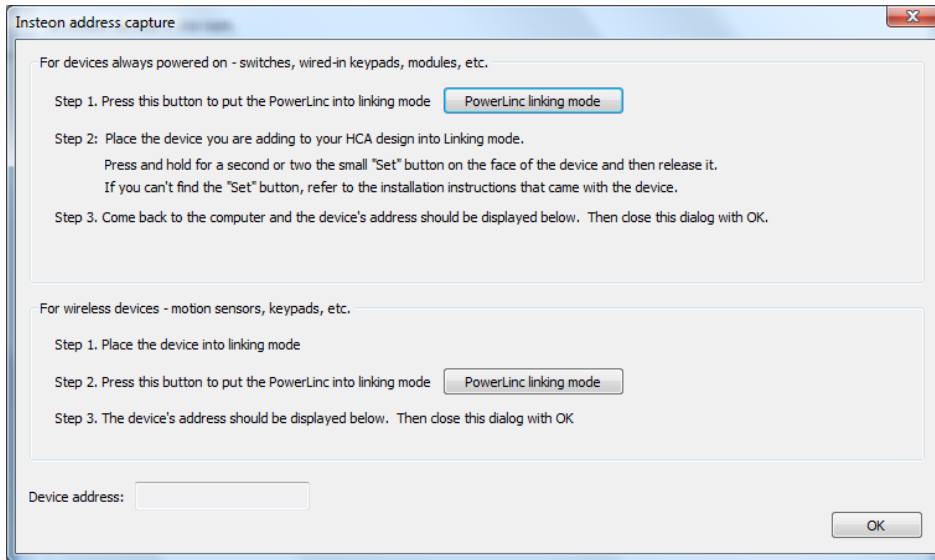


Follow the instructions in the dialog. For devices like switches and modules that are always powered on, press the top button in the dialog to place the PowerLinc into linking mode and then at the device, press its "Set" button to complete the link. For wireless devices like the open/close sensor, wireless thermostats, etc. use the second section of the dialog. In this case you place the device into link mode first then press the dialog button to put the PowerLinc into link mode to complete the link.

When the link is complete the address of the device is shown at the bottom of the dialog.
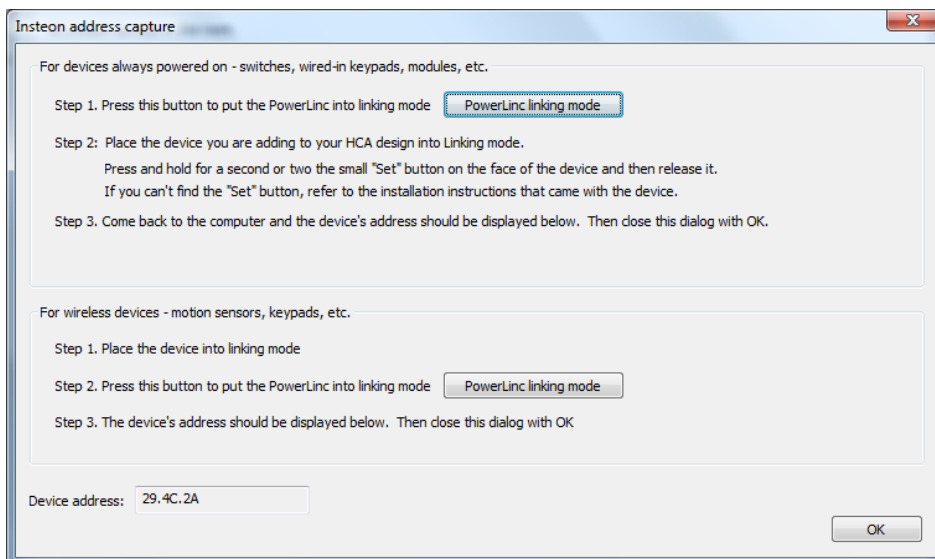


Close the dialog with OK and the address and model/description of the device shows in the room contents display.
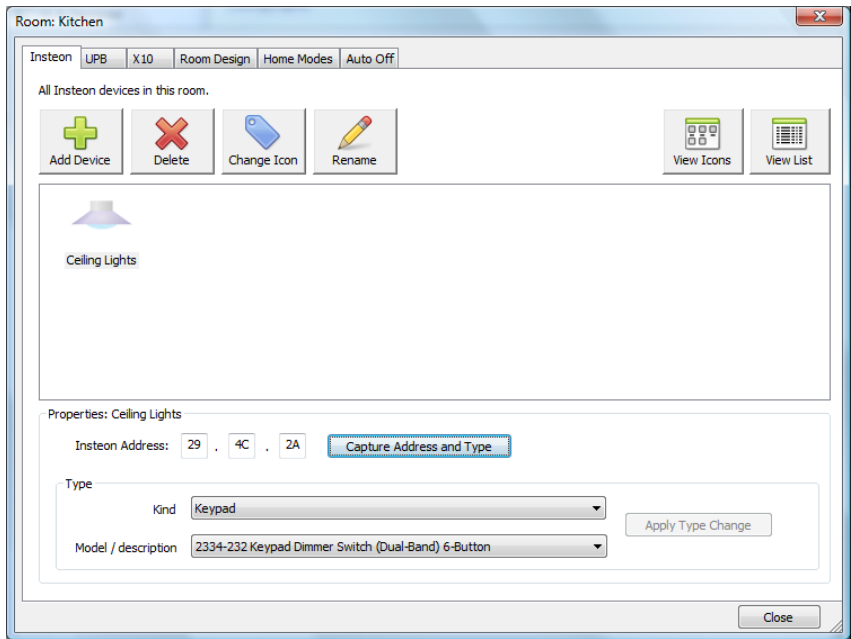
In general, there should be no reason to override the type determined unless the device is very old or a very new type, but if you need to, then select the new type with the "Kind" and "Model/description" dropdowns and then press the "Apply" button.

## Adding an X10 device

Adding an X10 device starts the same as adding an Insteon device: On the X10 tab, press the Add Device button, and enter the name of the device. Once added then select the type of the device and its X10 address in the lower part of the dialog.
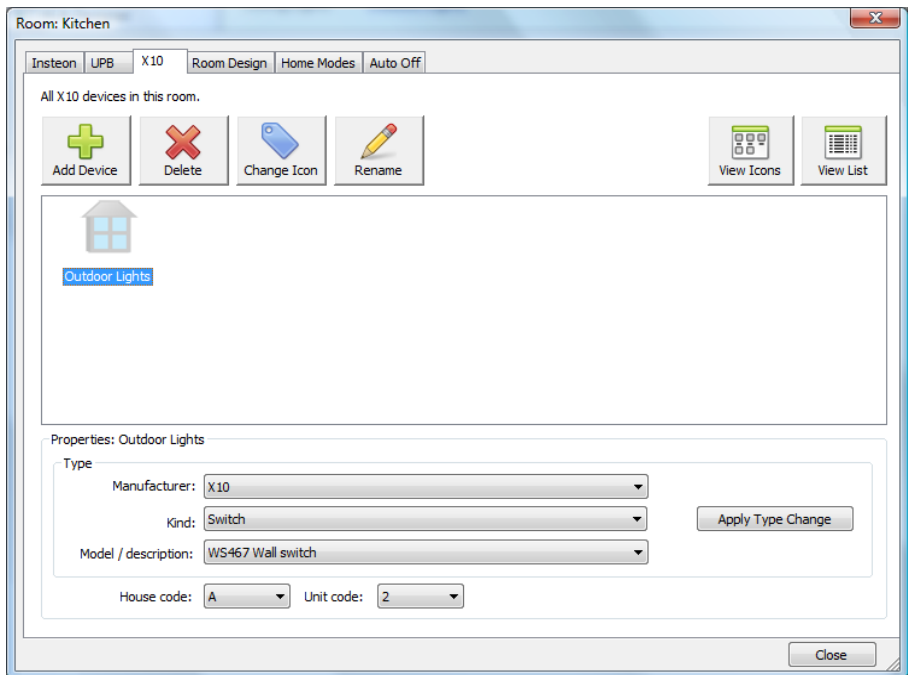
After selecting the Manufacturer, Kind, and Model, choose the X10 address and then press the "Apply Type Change" button to capture the information. Most X10 devices have a way to set their House and Unit codes – some by switches on the device - and what is entered into HCA must match what the device is configured for.

If at any time you want to change the type or address, just select the device, make the changes, and press the "Apply" button again.

## Adding UPB devices

Adding UPB devices to your design proceeds differently than X10 or Insteon as all the devices in the UPB network are added at one time.  When the "Add Device" button is pressed on the UPB tab this popup explains:
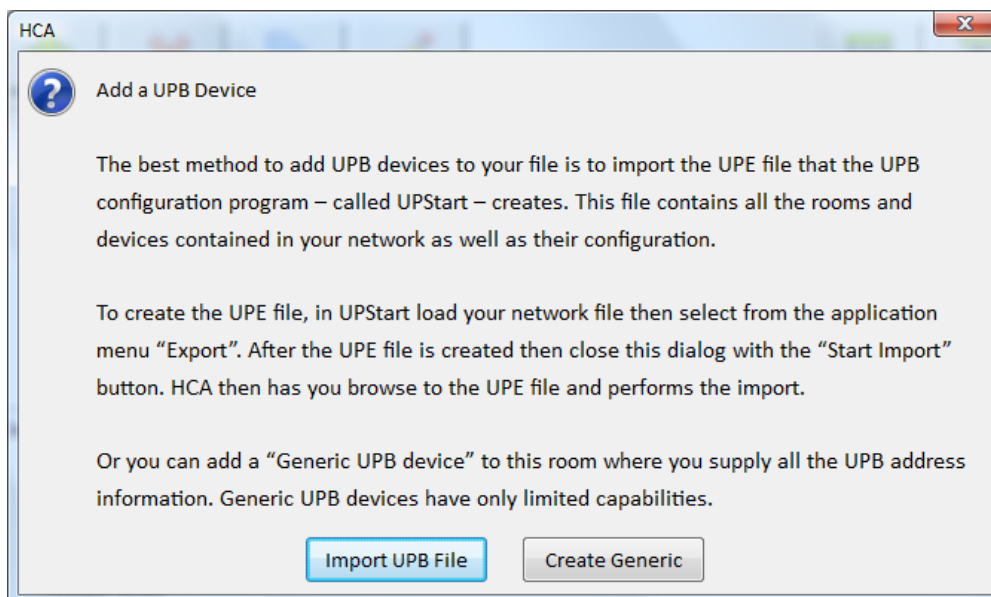


If you press the "Import UPB File" button a File-Open dialog lets you select the UPStart Export File (UPE) and then the devices in that file are added to you design. When complete a popup shows you what has been imported:
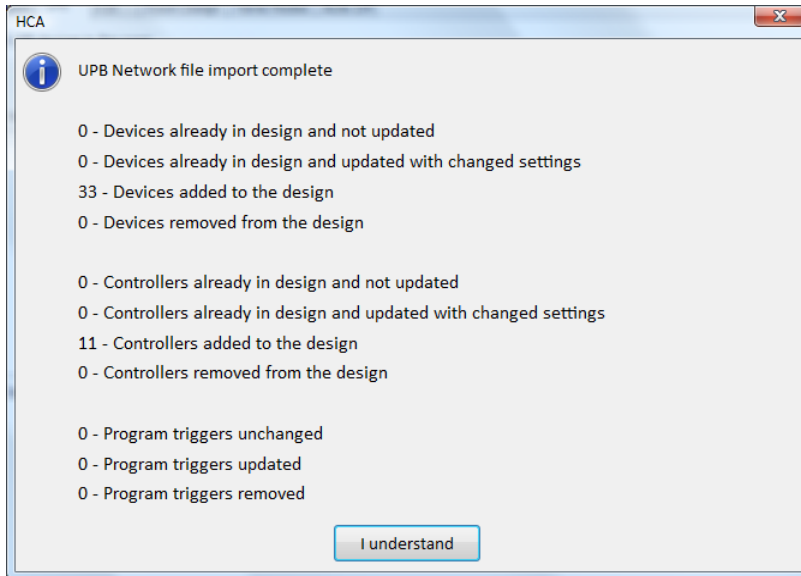
**Using UPStart**

UPB devices are configured by a separate program called UPStart and transferred to HCA using an export file which has a file type of UPE. Before creating the UPE file from UPStart, you should take a few minutes to configure how icons appear in HCA for rooms and devices.

**Tip**: If you are using UPStart you probably are familiar with UPStart. He latest version of this program can be downloaded from the UPB device manufacturer.

When running UPStart with your UPB file loaded, in the "Gateway Export" ribbon category there is a button labeled "Room Icons".  Press that to open the room icon selection tool. It shows each room in your UPB network and what icon is used for that room.  You can change the icon selected by pressing the "Change" button on the line for the room.  This opens the icon selection tool.  The currently selected icon is shown in the upper left.  Just select the icon you want and then close the icon selection tool with OK.
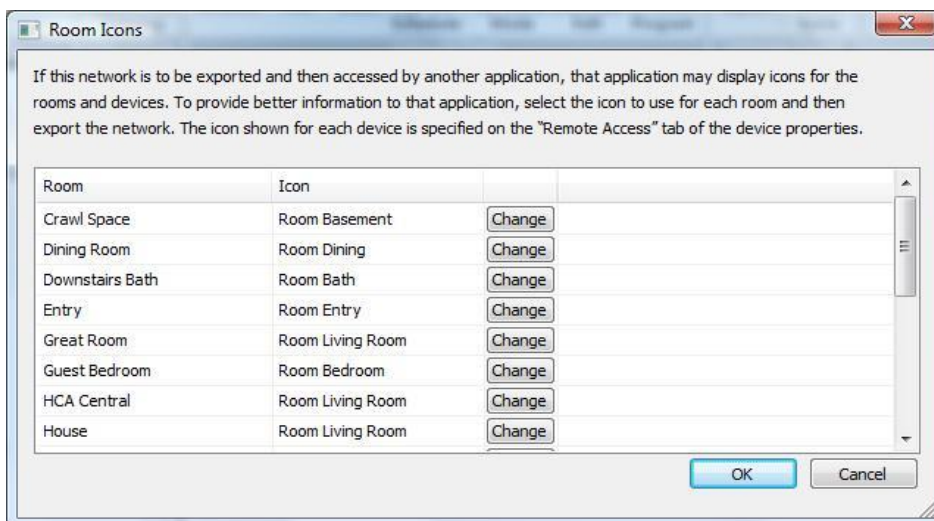
For device icons, you need to open the properties of the device.  In the properties for a device is a tab labeled "Remote Access". For simple devices like switches and one-channel modules there is only a single icon to select.  The icon choice is displayed and can be changed in the same manner as room icons.  From this tab, you can also change the text that shows below the icon – the "label".  Normally this is just the device name but you can change it if you want.  In the icon selection tool, the icon label is shown at the top of the dialog for editing.

Additionally, if you don't want this device to be imported into HCA – maybe it is something you never want to work with in HCA - you can disable the "Show Icon" option by "un-ticking" the checkbox.
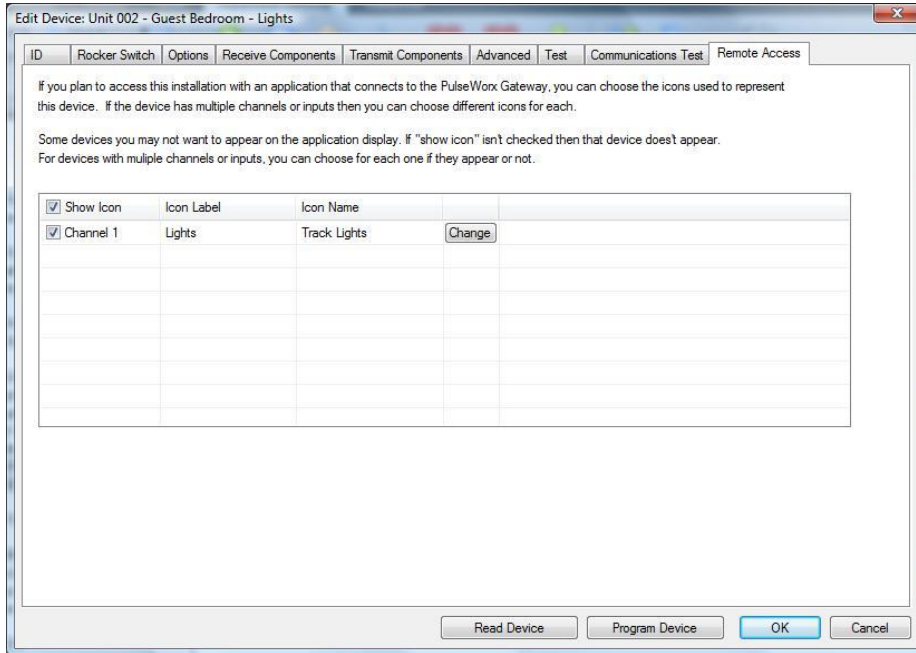


For a two-channel device like the PulseWorx Output Control Module you can select an icon and icon label for each channel.  If you are only using a single channel of the device, you can un-tick the unused channel so it doesn't appear in your HCA design.

For an Input module (ICM, TCM, DBM) you can name each input and those appear on the application display to show the state of the input.  Again, you can choose to show 1 input, both inputs, or no inputs.



Also, make sure that any keypads in your design have engraving info specified that gives the name for each button.  This text is exported into the UPE file and HCA uses it in popup keypads where you can virtually "push" keypad buttons. For this purpose, the button size and font choices don't matter.

Once you have all the devices configured in UPStart, to create the UPE file select from the UPStart application menu, "Export" and then "Export to file".

## Other configuration using the Designer

The designer also has other facilities for doing some quick configuration of how your devices operate and how they interact with the rooms that they are in and the mode the home is in, but that configuration can be done later.

Tip: The HCA User Guide chapter 3 *Your Home* goes into detail on this.

# Step Three – Testing basic control

In this step, we build upon the design created in the previous step and do some basic testing to see how well control works. Some troubleshooting tips are presented that may help you understand potential problems.

Now that you have a basic design, it is best to pause a minute and make sure that HCA can control your devices. This sounds simple but, depending upon the technology you are using and the state of your home, may not be that simple. Insteon, UPB, and X10 all sends signals over your house wiring and that is subject to signal strength, noise, number of devices, and many other factors.

Before you can control anything, you need to have the necessary interfaces attached to your computer so that signals can be sent to the devices. HCA can simultaneously control up to eight different interfaces. To open the configuration dialog, press the *Setup* button in the *Interfaces* ribbon category.
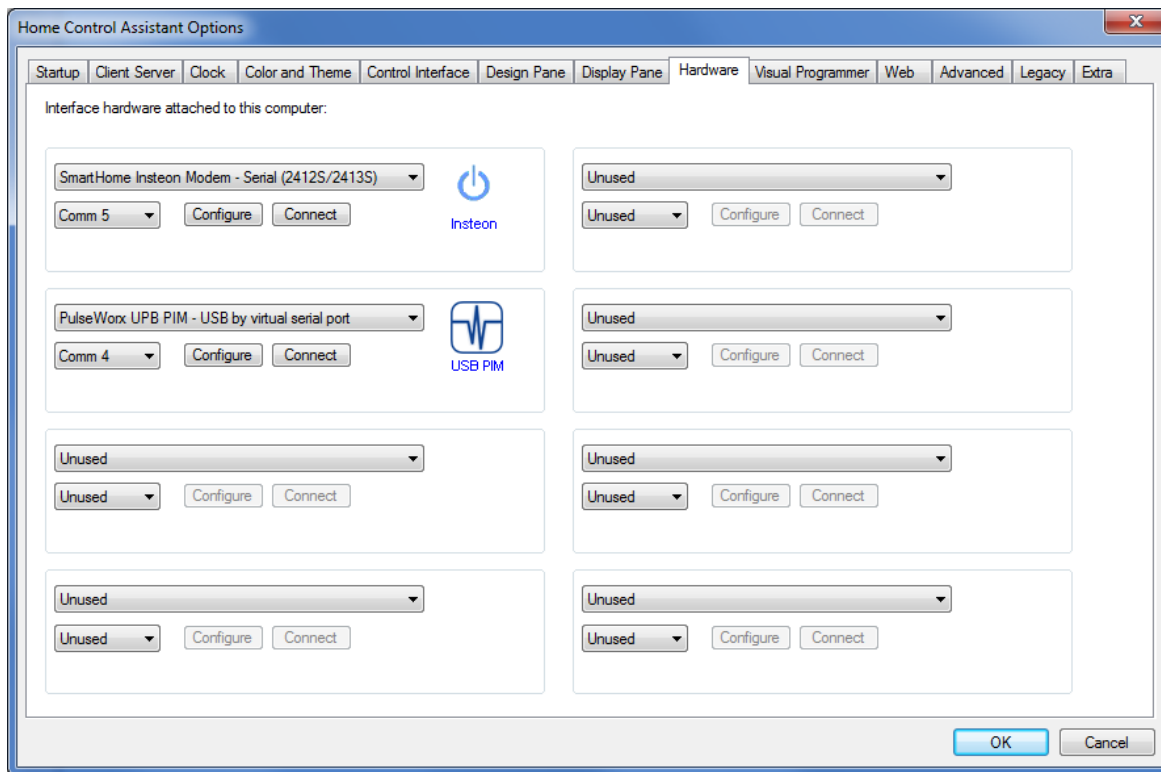
For each interface, select its type and the serial port it uses and then press the *Connect* button to attempt a connection.

Tip: Some devices support multiple protocols and you can tell HCA which ones to use for an interface. This can be done from the Configure dialog for each interface.

Tip: Even if a device has a USB connection to the computer it probably creates a virtual serial port and that port is how HCA communicates with it. The Insteon 2413 PowerLinc does this. If no serial port seems to be available, refer to the 2413 PowerLinc quick start guide where it shows how to install the needed device driver.

If you can control all your devices – right click on the device name in the left pane of the HCA application window, or on the icon for the device in the left pane, select ON, OFF, DIM – then that's great. The problem comes if you can't.

All signals on the power line are different from each other. For example, a keypad linked to a module so when a button is pressed on the keypad, the module responds every time. But when the module is controlled from HCA, it doesn't respond. In cases like these it is best to double check everything to eliminate the simplest things before looking for complex reasons. For Insteon, is the address that HCA has the correct one? If you captured the address and type when you added the device to your design it should be. For UPB, was the UPE file imported current with the UPB installation? For X10, does the house and unit code in HCA match the actual switch or module is set for?

You should also check that the interface for controlling the device is connected to the computer, identified to HCA, and working correctly.  If you can't control any devices this is the first place to start.

On the HCA *Interfaces* ribbon category, press the *configure* button to open the interface setup panel. The connect button for each interface verifies that HCA can communicate with it. Also press the configure button to open the configuration for the interface. If the interfaces support multiple protocols, HCA needs to know what ones to use with that interface, so check that you have that configured correctly.

If HCA can communicate with the interface, and you believe that all your configuration for the devices is correct, but you still can't reliably control them, then unfortunately there could be a signaling problem in your home. The best tip is to try controlling the device on different house circuits if possible by moving the device around in your home. As was said above, just because a keypad can control a device doesn't mean that HCA can control it. The interface sends commands at different signal levels and it may be on a different branch circuit.

If there are signaling problems, there are couplers and repeaters that are installed in your power panel that help correct these problems. Refer to the manufacturers of the gear you are using.

Don't forget to save your work in a HCA design file – file with type ".HCA". Use File-Save from the application menu.

## First Intermission – Time to pause and consider

At this point you have the start of your automation solution and you can add to it by creating schedules and programs to respond to various events.

While adding devices gives the ability to *control* what you really want is to *program*. That is, to create a solution that responds to events. In HCA we call these programs. Unlike more traditional programming or scripting environments, you don't have to learn how to declare variables, variable types, syntax, and all that. In HCA programs are constructed visually. For example, here is a program that works with a motion sensor and a wall switch in a bathroom. It takes into account the time of day to decide upon the light level, if the light should go off automatically, and what happens if the user adjusts the light level which cancels the auto off.
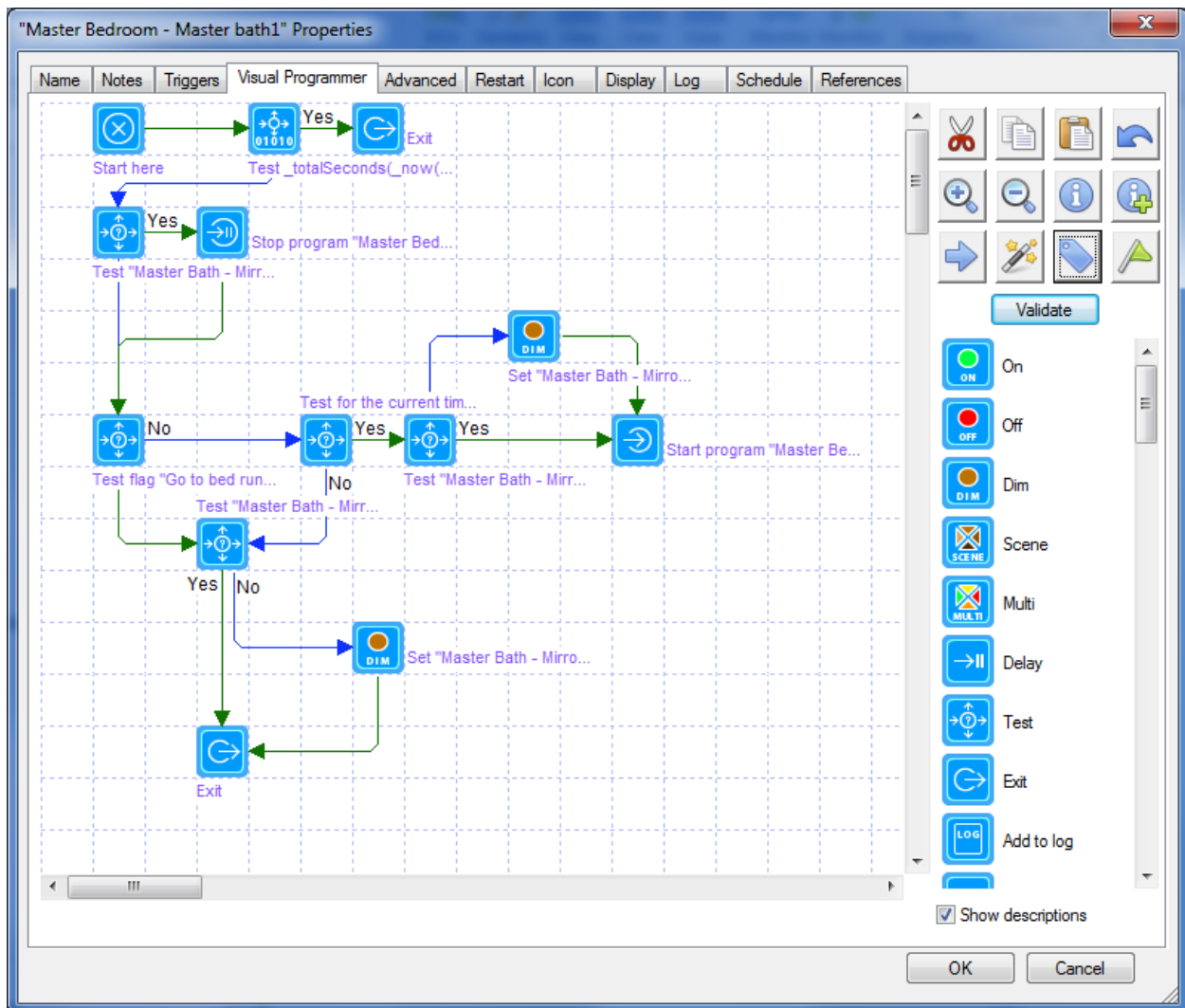


In a similar manner, schedules are created in a visual manner. And what does HCA support? Well we have covered the three basic protocols – Insteon, UPB and X10 - but HCA also supports IR devices, Wireless devices, Phillips Hue, and many different tools to integrate them into a comprehensive automation solution.

HCA running in stand-alone mode on one computer – what you now have if you followed the steps above - is the preferred operating mode if you don't need or want to use the client applications on tablets and phones or control devices using Alexa. If what you are trying to achieve is to have HCA running quietly in your home on a computer carrying out your automation solution, then you should continue to use HCA in stand-alone mode and you can skip the rest of this guide.

The next steps describe configuring HCA in client-server mode which is needed to allow the Android, iOS, and Windows applications to connect and control devices, start programs, work with on-screen keypads, etc. It is also needed for control using Voice Assistants. HCA calls them "External Assistants" since, depending upon the Assistant, you can also control the HCA devoices from phone/tablet apps provided with the Assistant.

If you do continue with client-server mode, you can install HCA on as many computers as you personally own. On one of them you must complete the registration process.
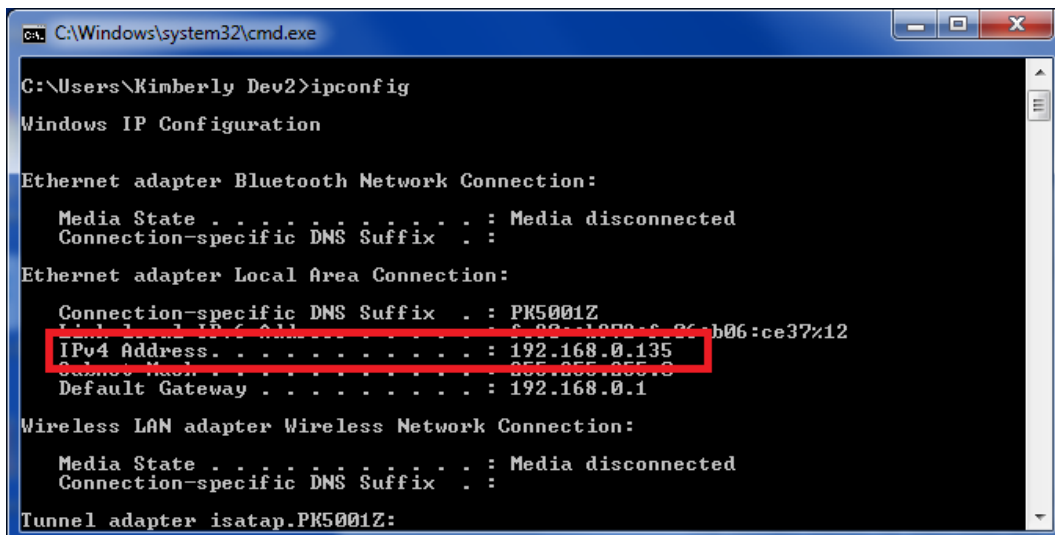
## Step Four – Client-Server on one computer

Now that an automation design is completed and devices can be controlled, it is time to see what client-server can do for you.

Up until now you have been running HCA in what is called stand-alone mode. That is, you are running HCA.exe on a computer and that computer has the interface hardware attached.

And stand-alone is a perfectly ok way to use HCA except that it limits what you can do. For remote access from other computers, mobile clients, and Amazon Alexa to operate, you need to use HCA in client-server mode.

Every computer on a network has a unique address called an IP address. This is typically written as 4 numbers separate by dots. For example, 192.168.0.135. Every computer on your network has just such an address and you can find it out in many different ways. One of the easiest is to start a Windows command prompt (search for cmd.exe) and type IPCONFIG at the prompt.

For this step you will need to know the IP address of the computer that you are running HCA on, so determine that using the method given above and write it down. In the above example it is 192.168.0.135.

The second piece of info you need to know is the port that the HCA server uses to send and receive messages. When a connection is made between computers it is necessary to know not only the IP address but also a port number. This number, chosen by either the application or determined by you, provides the second piece of addressing needed. By default, HCA communicates from client to server using port 2000.

Before trying to connect between two different computers, you should run the HCA server and HCA client on the same machine. This is a good test as it delays the impact of many possible network issues.

To do this, first shutdown HCA. Select from the application menu *Shutdown* – don't just click on the close box (X in the upper right corner of the application Window) as that just stores HCA in the Windows notification area.

Now start the HCA Server. It is installed along with HCA Plus – called HCAServer3.exe - and, depending upon your version of Windows, use the usual procedure to find and start it. The server is just another Windows program and has a very simple application window.
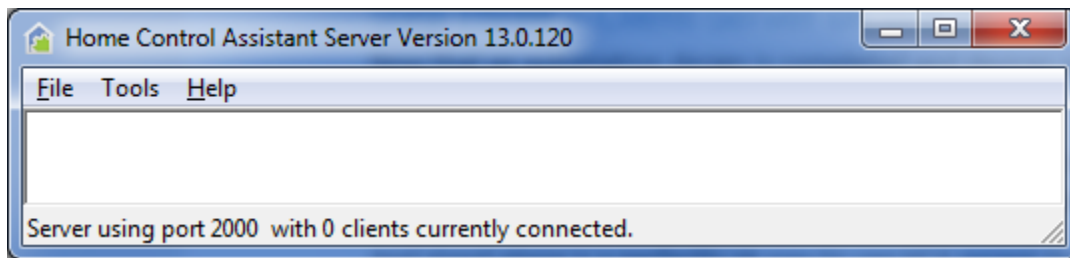


The first step is to open the design file you created in the previous steps. Simply select from the menu *File - Open*, browse to the HCA file, and open it.

NOTE: As soon as you open a file Windows may popup a message at this point giving a security warning as the HCA Server opens a port for communication and this is something that Windows security looks for. **It is expected and you must allow it to happen as it configures the Windows Firewall for you**. Also, for HCA to communicate with other computers both inside and outside your network you must allow HCA to communicate across your router's firewall. Most client issues are caused by a misconfigured router firewall. More on this later when port forwarding is discussed.

The HCA Server has all that is needed to "execute" your design. That means it will carry out all the events in your time-based schedules, handle processing of any input signals that start programs, run those programs, do any periodic tasks that need to be done, and handle any requests from clients.

Next, on the computer running the HCA Server program, run HCA as well. You will notice that almost all the ribbon and application menu items are disabled. HCA has detected that the server is running and will only allow connection using the server.

Before you attempt a connection, it is first necessary to configure it so it knows the IP address and port to use when communicating with the server. In the application menu click on the *HCA Options* button and select the client server tab.
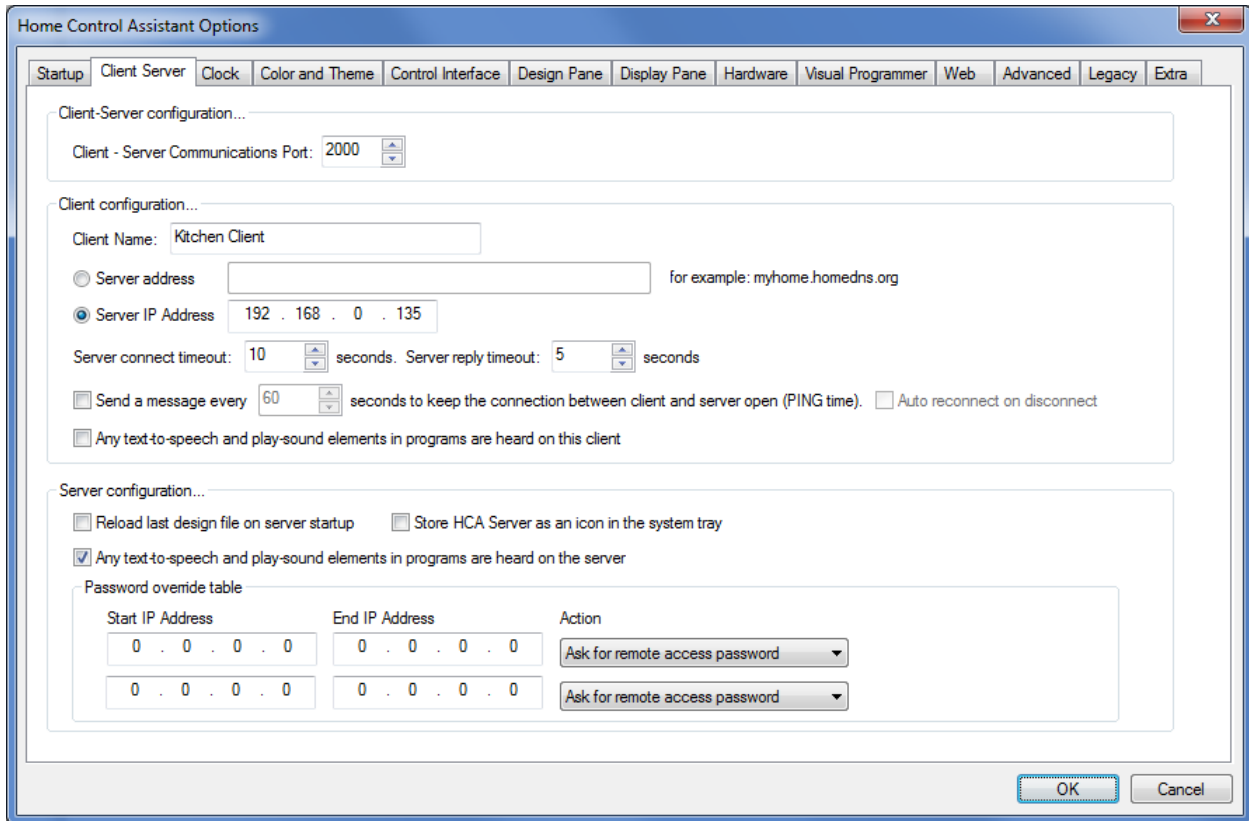


Make sure that the port number is the same as the server is using. The server application window shows the port it is using in its application window status line.
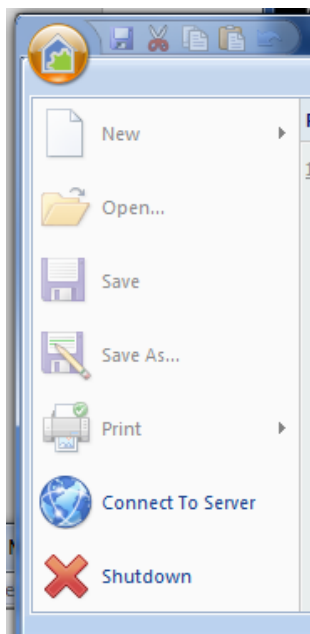


Enter in the IP address of the computer and port number if you need to change it. You can leave all the other options unchanged at this point. Close the dialog with OK. Attempt the connection by choosing *Connect to server* from the HCA application menu.

HCA then attempts the connection.
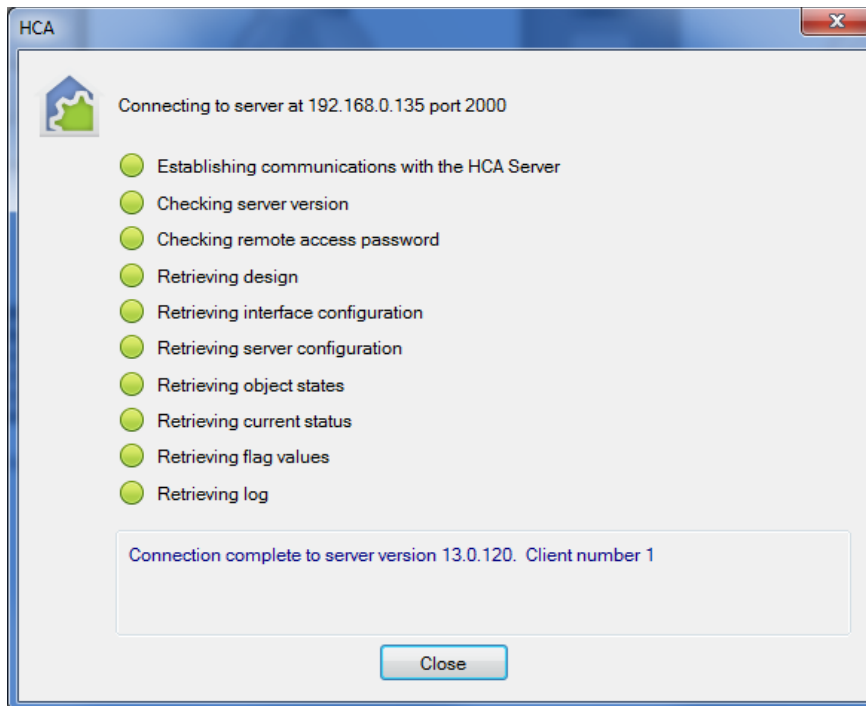


If it doesn't connect, then go back and check your work to make sure that you have configured the IP address and port correctly. If it still doesn't connect then you may have to configure your firewall – Windows Defender or other – and any Anti-Virus programs. Unfortunately, there aren't any clear rules about how to do that since there are so many different firewalls and anti-virus programs. Just know that many users are working with HCA client-server so whatever the problems are, they probably can be resolved by some configuration change on your computer.

Once HCA – running as a client – has connected to the server then you can do almost everything you can from HCA running stand-alone (everything except make a new design file). You can add new devices, control existing devices, create and view programs, configure background tools like status-export, weather provider setup, etc.

You could also download and install the Windows client. This is a simplified control interface for an HCA design. It doesn't let you modify the design but only control it. You can find that download on the HCA support web site.

http://www.hcatech.com/index.php?sid=products&pid=clients

After installed, to get to the settings on the Windows client so you can enter the server IP address and port, click on the HCA icon at the left end of the title bar and select *Settings* from the popup dialog.

## Step Five – Client-Server inside the network firewall

The next step is to use a second computer on your internal network, install HCA or the Windows client, and make a connection to the server. This again tests to see if you have configured client-server appropriately and clients can connect from different computers. Since there are two different computers involved another set of network issues may arise. If you don't have such a computer, then you obviously can't do this step. This step is not absolutely necessary but is a good check on your client-server network.

To get started, install HCA or the Windows client (see previous step) on another computer on your internal network. During the install don't worry about software registration as once you are registered on one computer you can install HCA on as many computers as you personally own.

After the install completes, configure client-server as in the previous step with the IP address of the computer that the server is running on and the port it is using for communication. Connect to the server as before. If all the configuration was made correctly, then it should connect fine. If it doesn't, then as described in the previous step, you need to look at firewalls and anti-virus programs. Since you are running on two different machines then your router and its configuration may be involved.

At this point you now hopefully have client-server working on your internet network and in the next steps the connection moves from inside the network to outside it.


## Step Six – Security

Before allowing access from outside your network into your home it is necessary first to assign a remote access password. During the connection from client to server, the HCA clients must be configured with the password so it can be checked by the server and access granted.

Select from the *Design* ribbon category the *Security* button.
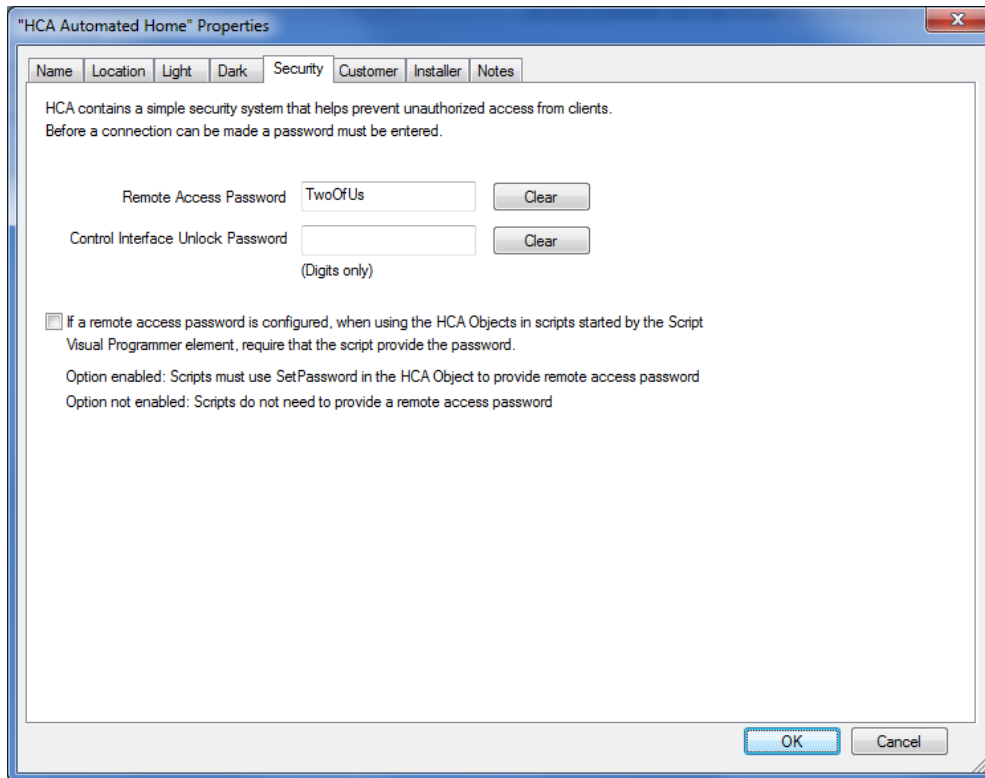
Enter a remote access password and close the dialog with OK **after you write it down someplace as it will no longer be displayed when you open the security dialog again**.

Tip: The other password's use is described in the User Guide *Your Home* chapter.

## Step Seven– HCA Cloud

Running on a computer in your home, HCA controls devices and executes schedules and programs. And at one time that is all there was. Everything resided in the home. But with the advent of the "Internet of Things" and "Voice Assistants" this has all changed.

To make all this possible, HCA also has several other pieces running on computers someplace in the world, collectively called the "HCA Cloud". These pieces provide the connections used by external assistants and partner services.

For example, when talking to a Voice Assistant like Alexa, the Amazon Echo hears what you say and communicates it to the Amazon servers. The part of Alexa running on the Amazon server decides what type of device is being controlled, and if it is one managed by HCA, the HCA Alexa service is invoked to control the device. The HCA Alexa service then connects to the HCA server in your home and your device is controlled.

In addition to Amazon Alexa HCA is also partnering with other "Internet of Things" devices like the Ring Doorbell. Their systems talk to the HCA Cloud to pass messages to the HCA Server in your home.

*Note: All this applies to only HCA Plus as it all requires that HCA operate in Client-Server mode. HCA Limited and HCA Standard do not support client-server.*

Working with the HCA Cloud requires a bit of work on your part to authorize HCA to link with those kinds of devices and services.

## Do I need a Cloud Account?

Having a Cloud Account is necessary if you want to use all the parts of HCA that don't reside in your home. A cloud account lets you use External Assistants, any of the partner services that HCA supports, and a way to integrate the HCA service into applications that you may develop.

If you don't want to use a voice assistant like Amazon Alexa or Google Home <u>and</u> don't want to connect your automation design to any of the partner services, then you don't need to have a HCA Cloud account and can skip forward. Without a cloud account, HCA is fully functional for device control and, when using HCA in client-server mode, remote connections are available from the iOS, Android, and Windows clients.

A HCA cloud account comes with many features:

- You can choose your own account user name and password.
- You can change your account password at any time.
- You can recover your account password if forgotten.
- It is a much more secure system as the password to your account isn't stored in your HCA design file.
- All the connections to your HCA Server require permissions and those permissions can be viewed and revoked at any time. You are in control of what services can access your HCA server and you can change that at any time.
- Both the Amazon Alexa and Google-Home voice assistants are supported.
- You can add to your design products made by manufacturers that are HCA Partners and handle messages from those devices.
- You can create your own applications and hardware that interface with your own HCA Server in a much simpler way than previously possible.


A cloud account is an "add on" to HCA so there is a yearly subscription that must be purchased to have all the HCA Cloud services available.

Just to make this completely clear:

- A cloud account is <u>not</u> needed If you do not want to use HCA with a voice assistant or any of the partner services. HCA will continue to operate in your home forever for no additional cost.
- A cloud account is <u>not</u> needed to work with the client-server features of HCA and access the server with the mobile applications.
- A cloud account <u>is </u>needed for voice assistants – Amazon Alexa and Google Home – and any partner services like Ring Doorbell or Nest.

## Creating a Cloud Account

To create a cloud account, press the *Create Account* button in the *HCA Cloud* ribbon category. Follow the instructions to create and confirm a new account.
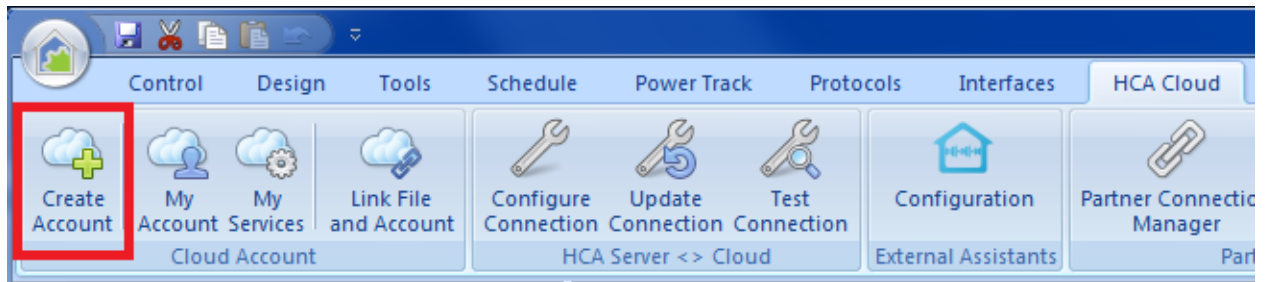


The account operates without a subscription for the first 30 days with no payment needed so it is free to evaluate.

**NOTE:**  It may take a bit of time to load the Account Creation web page.

Enter the information asked for in the form, do the "I'm not a robot" test and then complete the creation with the "Create" button.
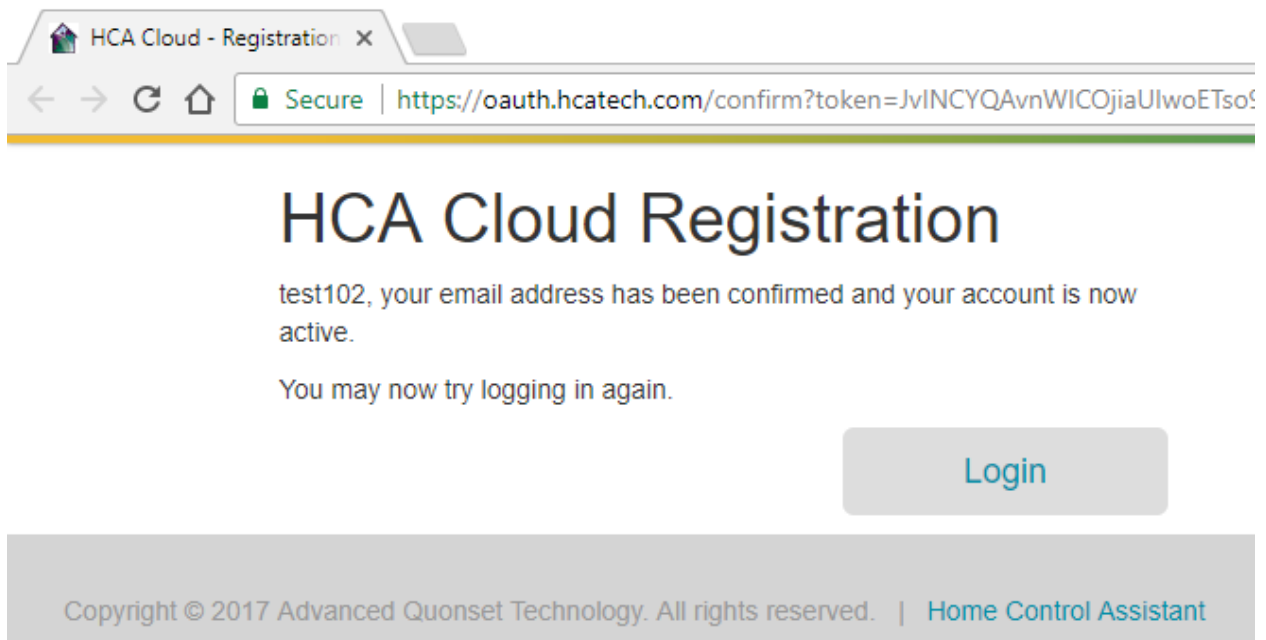


**Step B.**

If all in the form was filled out correctly, this page appears:
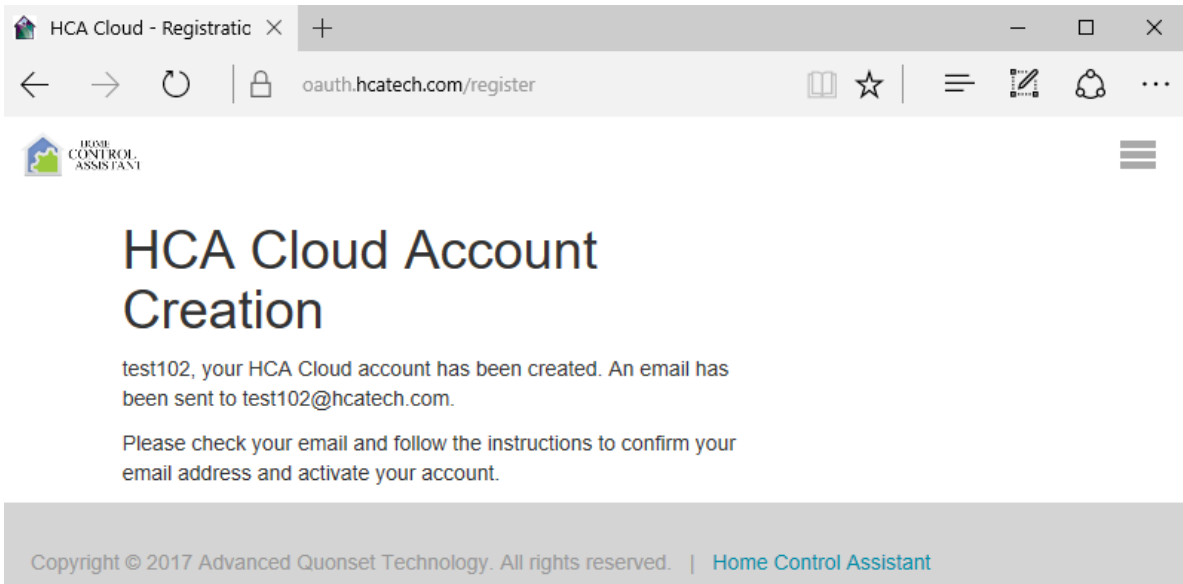
Follow instructions on the page and after a minute or two you should receive an email that looks like this:
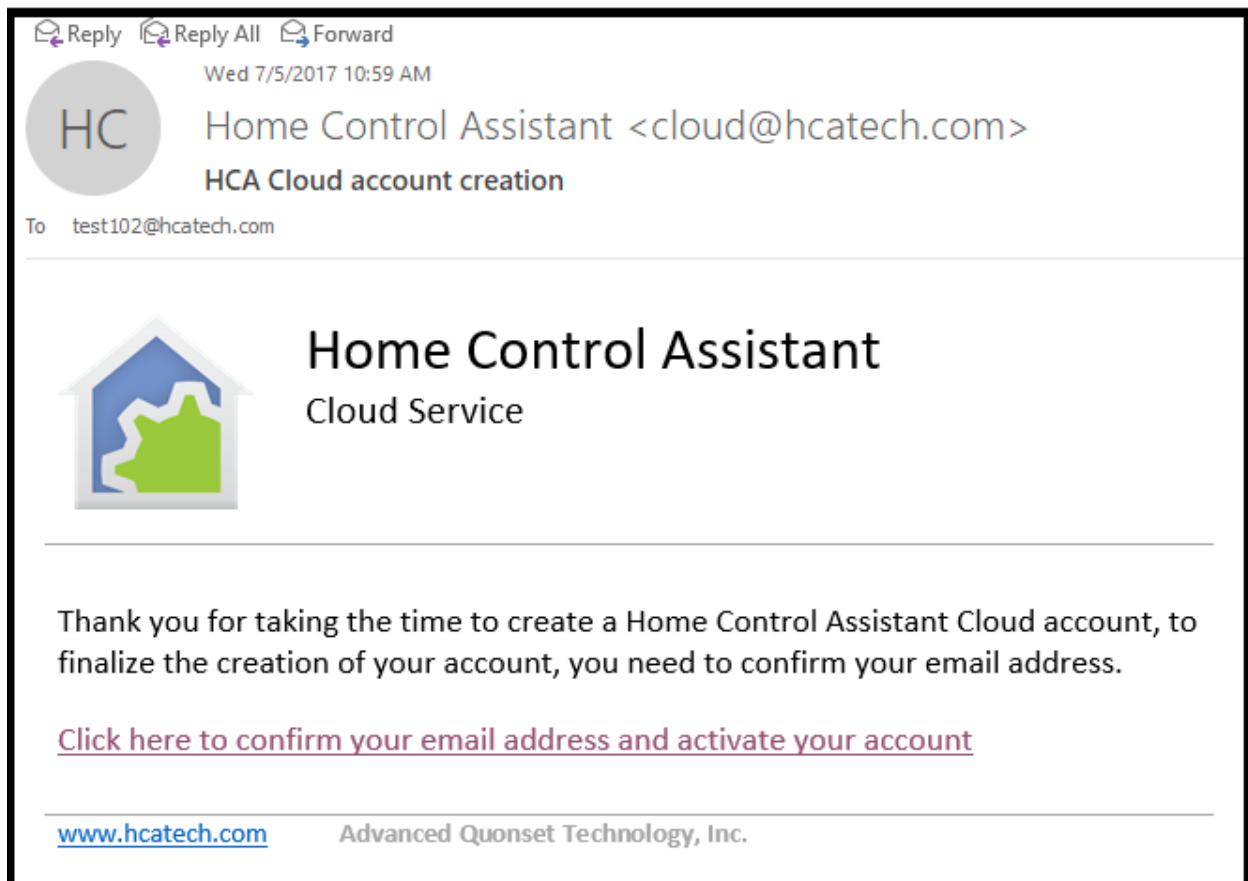


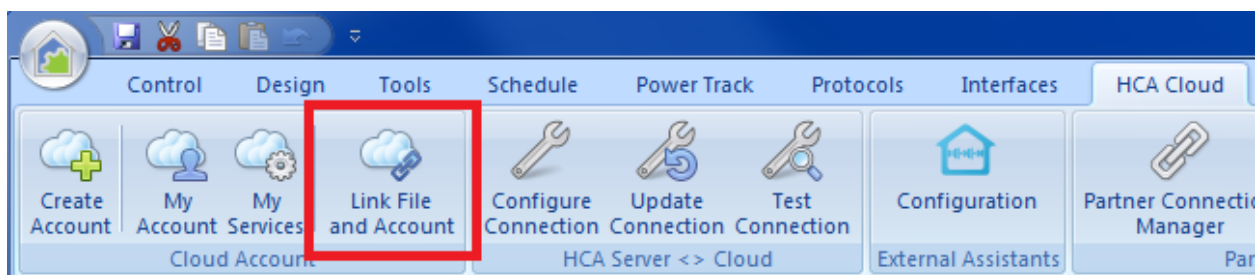Once you click on the confirm link, a browser page opens showing this:

Your cloud account is now created. Write down in some place you will not lose the login information and the email address you used in creating the account!

## Step Eight – Connecting your installation to your cloud account

As you build your automation design, everything is saved on your computer – not in the cloud – in a file with type ".hca". In this step information is saved in your file that links your file to your cloud account.
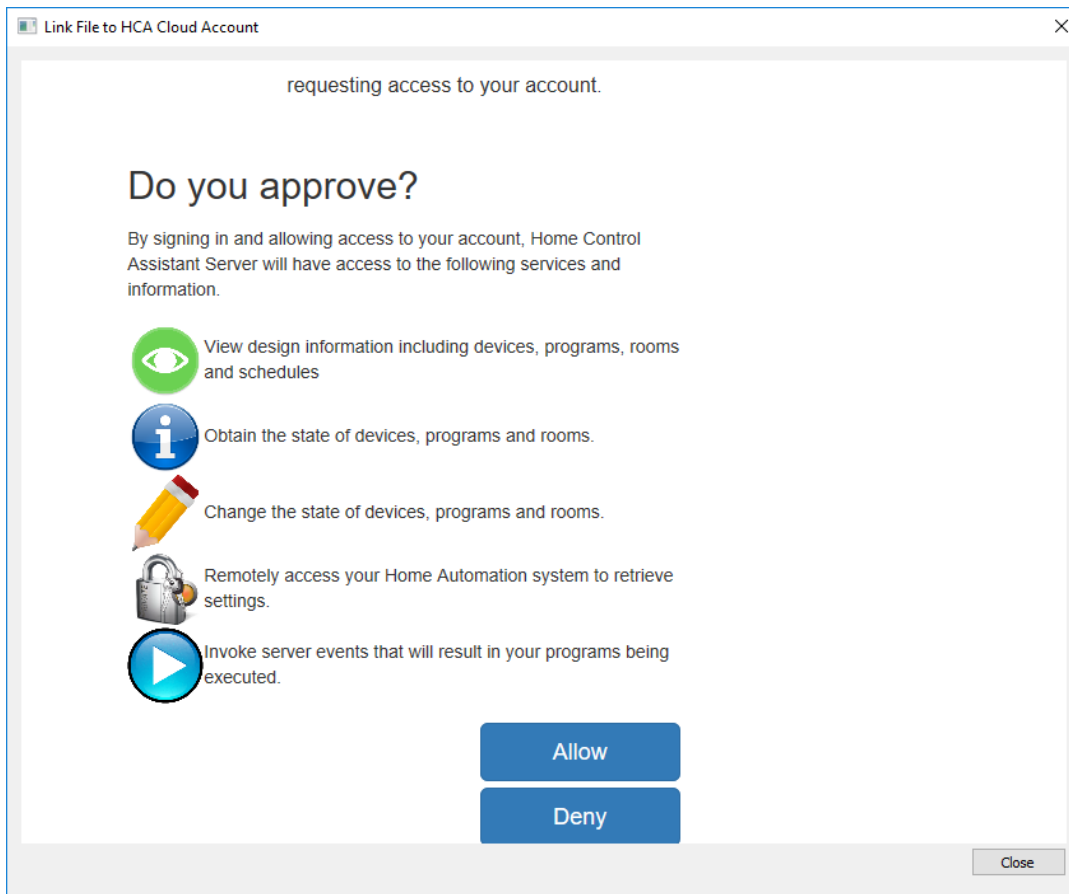
To begin is very simple: Press the *Link File to Account* button in the *HCA Cloud* ribbon category and follow the directions. This step joins your file to your account.



After the helpful message displays and is dismissed, a dialog with an embedded browser opens where you must login to your cloud account.
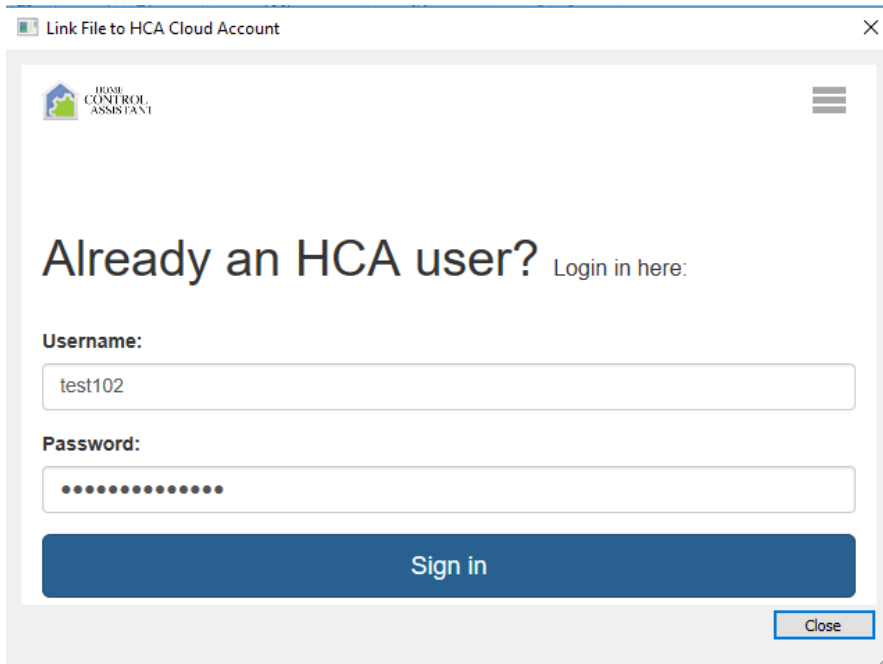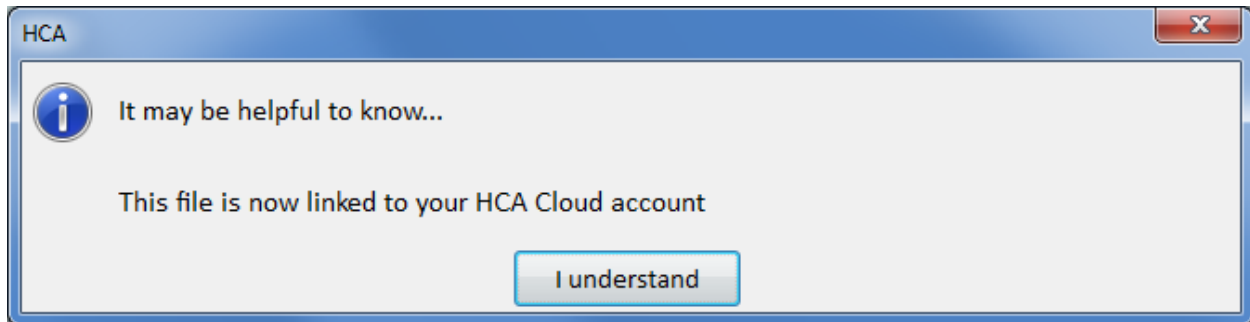
Once logged in, the access approval page appears:



Press "Allow" to continue.

A few seconds after the Allow button is pressed the window automatically closes and this popup message appears:



Close this popup. Additional popups may appear and should be closed. And that – finally! – completes the process.

Remember at this point to save your file! And even though this was said above, it is worth repeating: <span style="color:red">Write down in some place you will not lose the login information and the email address you used in creating the account!</span>

## Second Intermission – Quick talk about Firewalls and Dynamic DNS

Once you move outside your network then issues of IP addresses become paramount. This section discusses Dynamic DNS (abbreviated as DDNS) and how HCA provides that service for you. If you already are using DDNS from another service you can continue to use it. This section also discusses how port forwarding must be configured in your network router – this could be an easy or difficult task – and offers some suggestions for where you can find additional help.

As described above every computer on your network has an IP address. Typically, they look like 192.168.x.y.  "192.168" is typically the first part of all small home networks. Your connection to the outside internet, typically though a DSL or Cable modem, also has an internal IP address (typically 192.168.x.1) but it also has an external IP address and that IP address is assigned by your internet provider and it may change over time.

A changing address presents a problem. Let's assume that one day the external address is 100.100.100.99 so you configure the HCA client for that address but the next day it changes to 100.100.100.70 and then your connection configuration would be incorrect.

To solve this, most cable and DSL modems can connect to a dynamic DNS service and keep it informed what the current IP address is. The big player in this market is DynDNS.org. It costs a few dollars a year and provides a way that you can say "myhome.dyndns.org" any place where you need to enter an IP address and it changes that name into whatever the current IP address is.

The good news is that you don't need to use such a service if you are not already using one – and pay for it – as HCA already has a Dynamic DNS service built-in.

## Configuring Port Forwarding

When you connect from outside your network to the HCA server you use an IP address – actually you use a name that, because of the DDNS service, gets changed into an IP address - and a port number. But how do messages sent to that IP address (the external address of your router) get sent on to the computer that is running the HCA Server? That is exactly what port forwarding does. Messages arrive at the router and then the router must determine where to send that message. It does this by looking in a table that has one or more entries. Each entry says: "If the message is for <this> port then send the message to <that> computer".

Unfortunately, this is where the story gets a bit hazy. Each router has a different method of setting up that table and providing instructions for all routers is way beyond the scope of this technical note. But there is a good reference online that has helped many people as it has specific information about many routers and firewalls.

http://portforward.com/

There is also a HCA technical note on port forwarding available from the support web site that contains additional information on this.

 **Just remember what you are trying to do**: You are trying to configure port forwarding to take requests from port x (probably 2000 unless you changed it) and send them on to the computer running the HCA server (whose IP address you know).

Before you go further you <u>must</u> configure port forwarding in your router so that the HCA Cloud and your mobile applications can access the HCA Server application on whatever computer it is running on.

# Step Nine – Mobile applications using client-server outside the firewall

Access to the connection configuration dialog is from the *HCA Cloud* ribbon category *Configure Configuration* button.
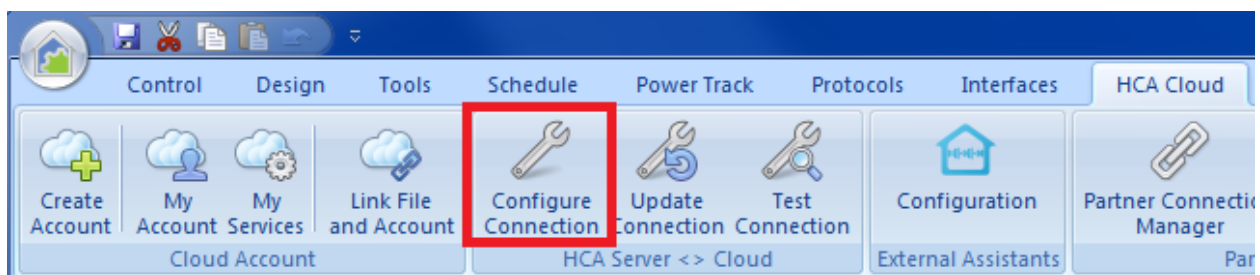


This opens the Configuration dialog
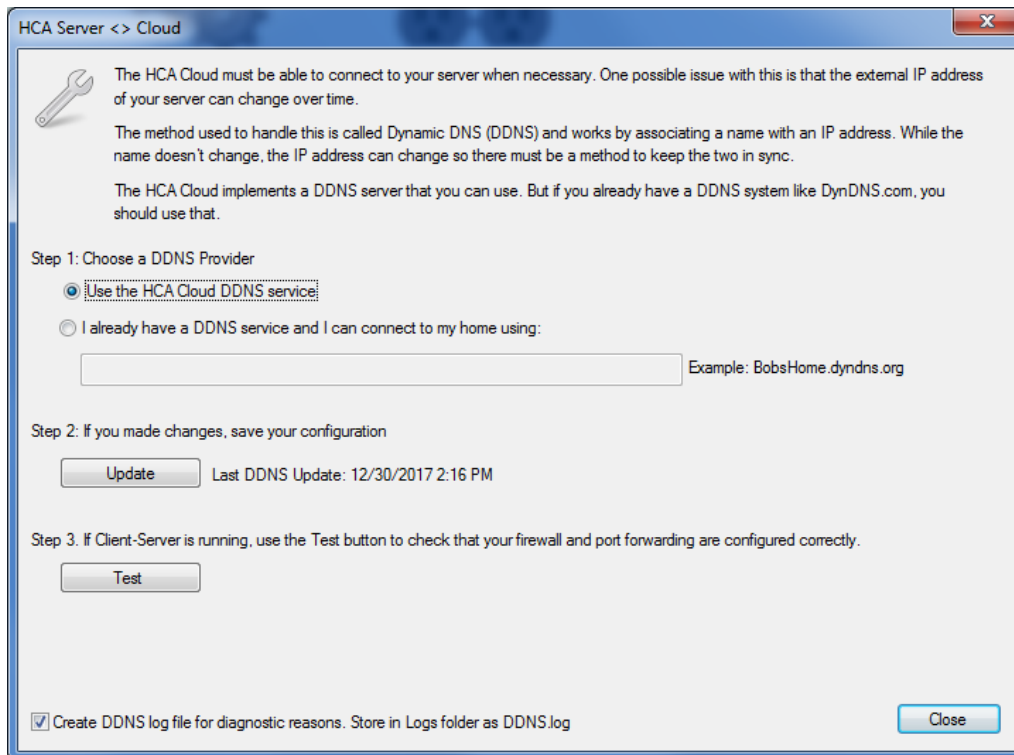
Follow the three steps outlined in the dialog text. If you already use a service like dyndns.org enter the DDNS name you were assigned.

Next, press the update button to record the information in your HCA Cloud account.

If you have configured port forwarding try the *Test* button. The *Test* button asks the DDNS service to attempt to connect to your HCA Server and reports if it is possible or not. If it reports success, then great! If it doesn't work then you should check that you have all the various pieces configured correctly – check port forwarding first - and if that looks ok, then you probably have either some setting in the router that isn't correctly enabled or you are back to the firewall and anti-virus programs.

If it fails, these are areas to check:

- The HCA server port. Use the "Update" button in the DDNS setup dialog to make sure that the HCA DDNS service has the current port.
- The remote access password. Use the "Update" button to make sure that the service has the current password.
- Port forwarding has been correctly configured in your router to allow access through your firewall.
- Your firewall is configured to allow port access. Some routers have an overall enable / disable of WAN (the outside world) to LAN (internal network) access.

**Tip:** There is also a "HCA Cloud Update" and "HCA Cloud Access Test" menu choice in the Server "Tools" menu and you can use them as well.

Now that DDNS is configured you can attempt connection from outside your firewall using a mobile application for Android, iOS, or from a Windows computer.

## Moving outside your firewall.

To continue, you will need either an Android phone or tablet, iPhone or iPad, or a Windows computer that you can connect to a network outside your internal network – one way would be to pair a wireless computer to a Hot-Spot created by your mobile phone so it is on the 3G/4G network.

**Tip**: You may try to use the DDNS name in your mobile or windows client while still connected to your internal network. On some networks this works and on others it fails. It all depends upon your networking gear. It's best to have your mobile device connected to a network outside your firewall for this step to ensure that the test is accurate.

The HCA client mobile applications can be downloaded from the mobile app stores – for iOS look in the Apple app store (aka iTunes), for Android look in the Google app store (aka Google Play) or the Amazon app store.  Search for "HCA" and/or "Home Control Assistant". Additional information is found on this page of the HCA support web site.

http://www.hcatech.com/index.php?sid=products&pid=clients

Once installed the application must be configured to connect to the server.

## Using an Android client

Once installed, the HCA Android client is started and then configured by opening the settings from within the application (tap on the wrench in the upper right) and go into the HCA Server settings. Set the primary address to the name you used when you configured HCA DDNS in the previous step followed by "dyndns.hcatech.com". For example:

HCA Server Primary IP Address

fruitsalad.dyndns.hcatech.com

Cancel          OK
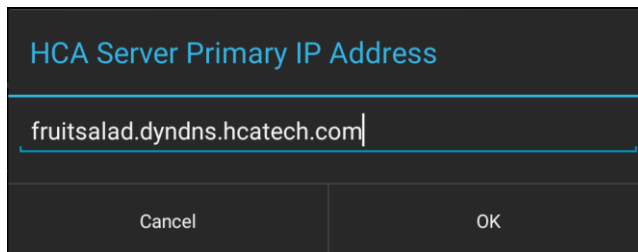
Configure the IP Port to the port that the server is using then close the settings.  You also need to enter the remote access password you assigned to your design back in step 5.

HCA Server Remote Password

apple

Cancel          OK
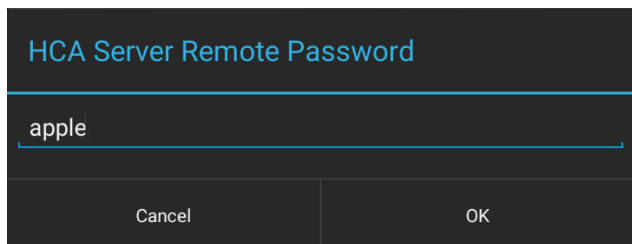
A connection is made by tapping the "Circle – Dot" icon on the upper right.

If it connects, then great! If not, and if the previous step *Test* button worked ok, then the problem is probably in the application settings. Double check those settings.

## Using an iPhone or iPad client

Once installed from the Apple App Store, the HCA client is configured from the Settings application. Set the primary address to the name you used when you configured HCA DDNS in the previous step followed by "dyndns.hcatech.com". For example:
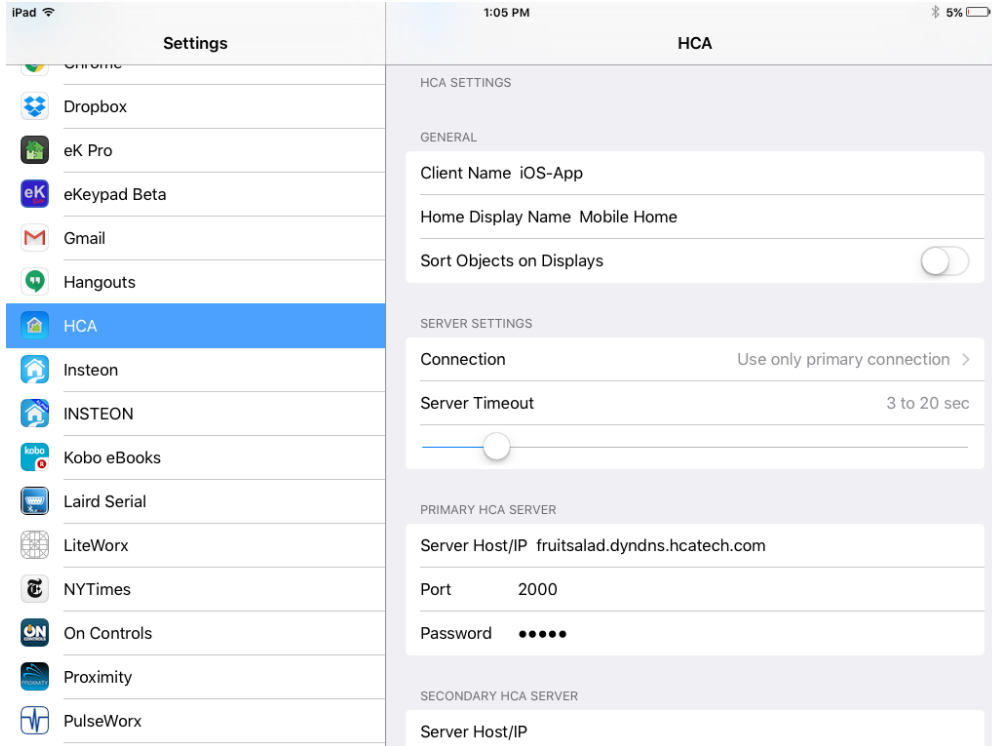


Configure the IP Port to the port that the server is using then close the settings. Connection is made once the HCA app is started.

If it connects, then great! If not, and if the previous step Test button worked ok, then the problem is probably in the application settings. Double check those settings.

TIP: You could also connect the mobile client to your internal network by making sure that it is wirelessly connected to your internal network and changing the IP address in the settings to the internal IP address of the computer the HCA Server is running on. The mobile clients have two connection settings so that it can connect to the internal network when you are at home and connect using the external DDNS name when on the road.

# Step Ten – Amazon Alexa

In this final step, the configuration for Amazon Alexa is made and voice control tested. You can also use Google-Home as well as Alexa as your voice assistant. There is a technical note on the support web site that provides the steps for Google-Home but many of the steps will be the same.

Alexa support begins with the *External Assistants Configuration* button on the *HCA Cloud* ribbon category.
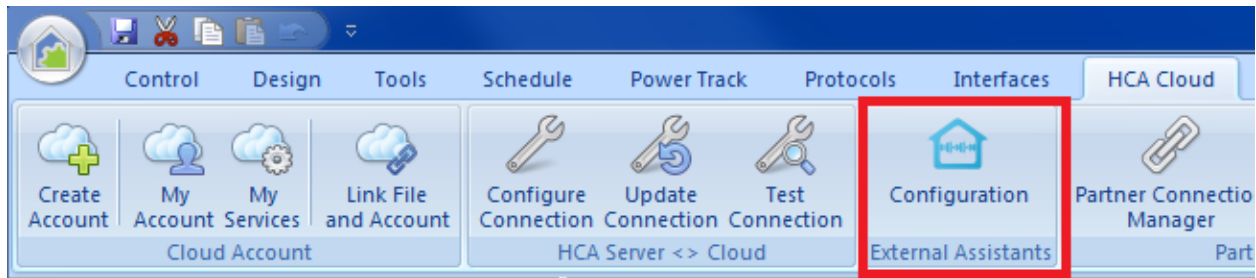


You want to expose your devices to Alexa so she knows what you want to control. How you refer to these when you speak to Alexa is important and you may want to use simpler names that you created your devices with.  Also, you may not want all your devices to be available to Alexa - you may have some devices that shouldn't be controlled by an external assistant.

Before going further, these are the things you can tell Alexa using "Kitchen light" as an example.

- Alexa, discover my devices
- Alexa, turn on kitchen light
- Alexa, turn off kitchen light
- Alexa, brighten kitchen light
- Alexa, dim kitchen light
- Alexa, set kitchen light to 50%
- Alexa, increase kitchen light by 20%
- Alexa, decrease kitchen light by 20%

In the case where you say "dim" or "brighten" without specifying a percent, the level is changed by 25%

There are also some thermostat related actions you can use if you have a thermostat in your design

- Alexa, set Great Room thermostat to 72 degrees
- Alexa, increase Great Room thermostat by 4 degrees
- Alexa, decrease Great Room thermostat by 8 degrees

While what you say isn't quite free-form, Alexa is smart in that you don't have to use these exact words. These also work:

- Alexa, Kitchen light ON
- Alexa, OFF Kitchen light

Alexa, unfortunately doesn't always match "Kitchen Light**s**" and "Kitchen Light" as the same thing when spoken so be careful with names like those.

In the External Assistant setup dialog you can configure what HCA calls "Friendly names". These are the names that you use to refer to devices, programs, groups, and rooms when speaking to Alexa.  This dialog is where those can be entered, viewed, and modified.
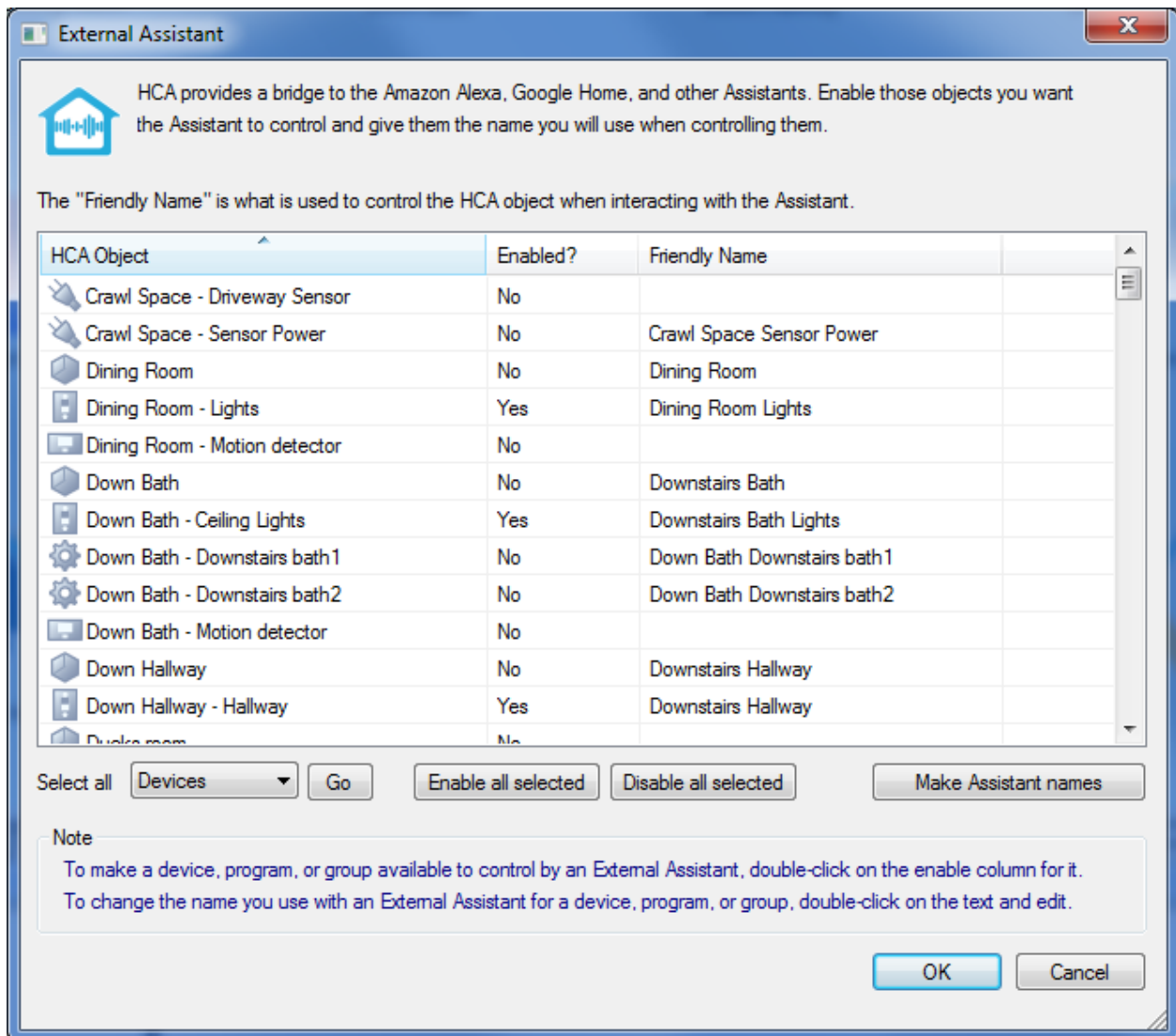
Create a friendly name for each device, program, or group you want to control.  You can use the "Make Assistant names" button in the dialog lower right to create names that are the same as the object name. This may be a good starting point.  As it says in the blue text in the dialog, you can double click on the friendly name and then edit it.  You can also toggle - enable / disable - support for the device by double-clicking in the Enable column on the row for the device.

There are these limitations on friendly names:

1. Names can contain only letters, numbers, and blanks.

2. Names shouldn't contain as a word – that is, embedded with blanks on both sides – that the External Assistant uses as key words.  HCA points out when you have use one. Some of them are:  discover, turn, on, off, brighten, dim, set, percent, stop, cancel, to, the, pause. An example name that wouldn't work would be "Kitchen dim light" since it has "dim" in it.

The "Make Assistant names" operation creates the name from the room name and device name but modified it to meet the above criterion.

Choosing good names is important:  You want names that are easy to say and unique enough to not be confused with others.

If you want to make major changes to the enable/disable settings, you can multi-select several rows and then use the "Enable all selected" or "Disable all selected" buttons.  You can also use the select dropdown and the "go" button to select all objects of a type and then enable or disable them in one operation.

In addition to using this dialog you can also configure the friendly name and enable/disable support for an individual device, program, group, or room by opening its properties and viewing/modifying the Friendly Name settings on the properties dialog *Name* tab.

**Some very important notes and Tips:**

If you make any changes to friendly names or change support - enable/disable - you must again perform the discover operation in the Assistant App. How this happens depends upon the Assistant so check the technical note for the one you are using. But don't start discovery until you close the External Assistant setup dialog as any changes are not saved until then.

The discovery operation may not update the names of existing devices when you do rediscover.  If that happens, then in the Assistant app remove all, then rediscover. Alexa and Google-Home have different ways to do this but the intent is the same.

HCA printing can print a list of Friendly names and what each name does. It might be a good idea to print out a list of the names you can speak until everyone in the family gets used to this new world. You can have the printout contain only a list of External Assistant names. Select from the print menu "Printout Setup" to control what gets printed. Printing is available in the HCA application menu.

## Adding HCA support in the Alexa application

In the Alexa app select the "Smart Home" section and then follow the "Enable Skills" button. to see the possible choices. Find HCA by searching for "Home Control Assistant" and tap what was found to open the HCA Skill page.
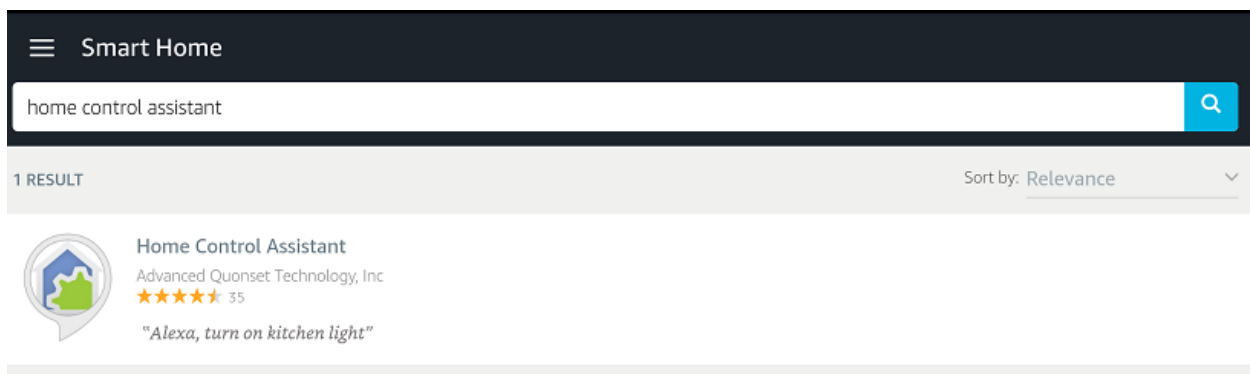
The info page for the HCA Skill opens.



Press the Enable button to continue.


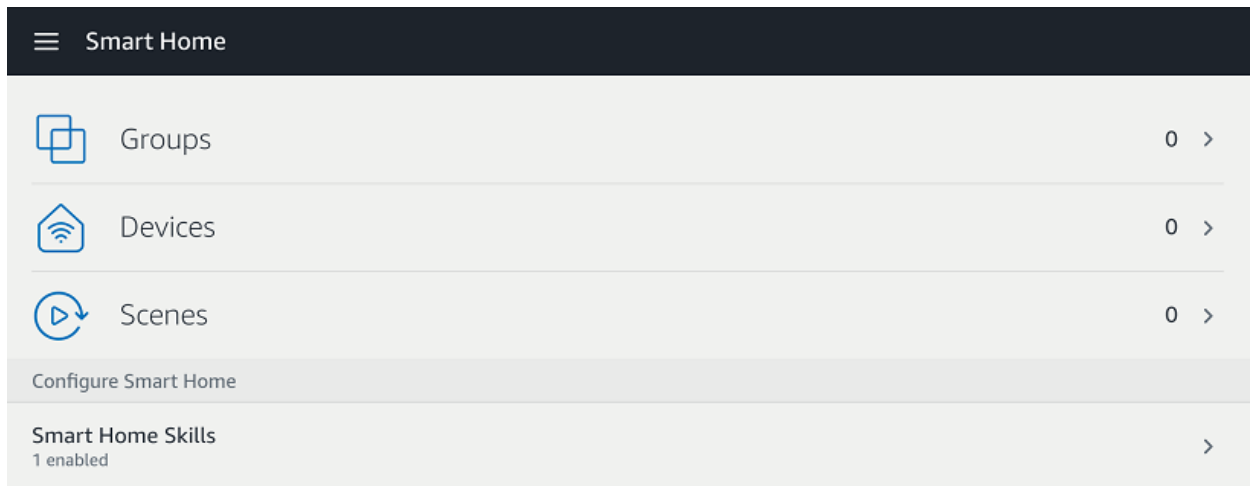
Enter your HCA Cloud account user name and password and "Sign in".

Press the "Allow" button to continue and this page displays which you then have to close to continue.

To continue, close this window to discover devices you can control with Alexa.

Back in the Smart Home section of the Alexa app you should now see this:

Click on "Devices" and this page appears showing that you have no devices available yet.
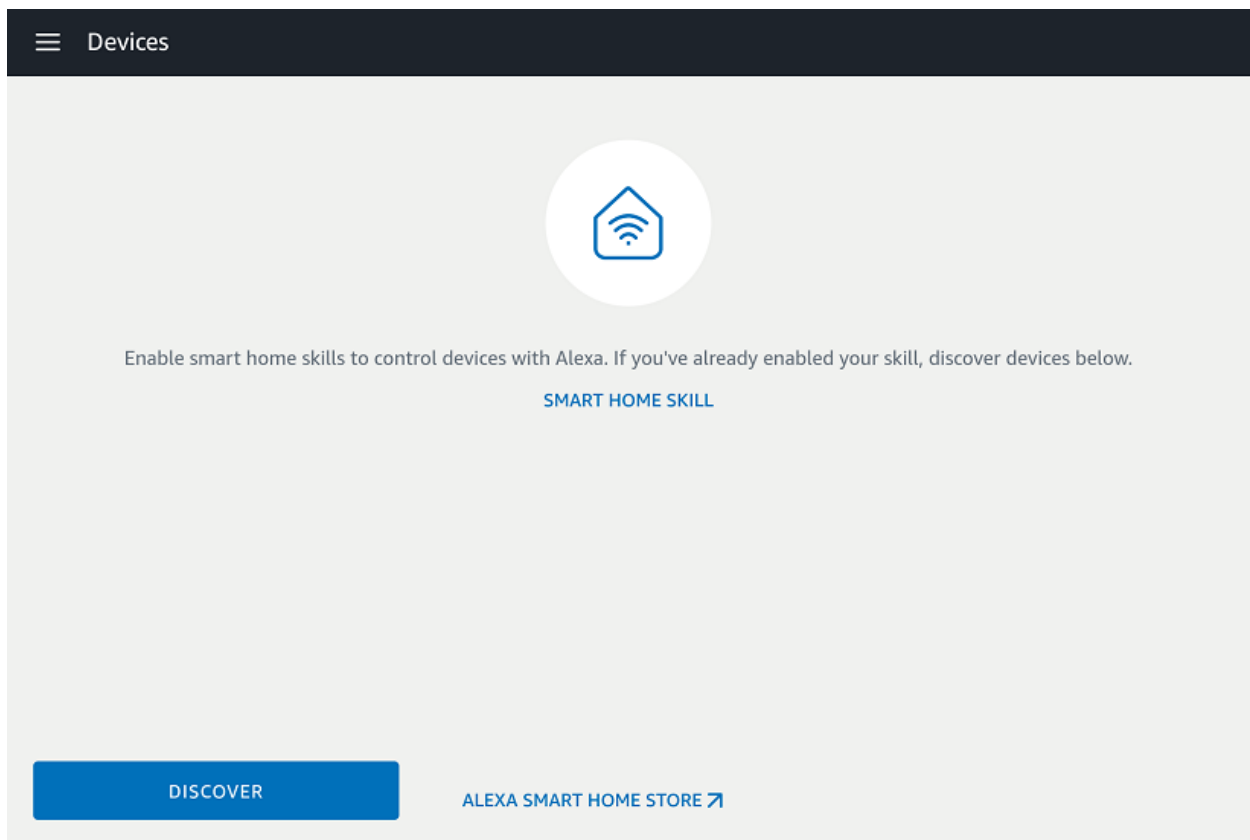


Click on "Discover" and Alexa contacts the HCA Cloud with connects to your HCA Server and locates all your devices that you have "External Assistant Enabled".

And that's it! You should now be able to use Alexa to control your devices, programs, groups, and rooms with HCA.

## Getting it to work

Unfortunately, many times the "error reports" Alexa says really don't help much. Many times it says "that command doesn't work on <device name>" regardless of what error HCA returns to Alexa.

Possible problems are:

1. Alexa can't connect to the server
2. When Alexa asks to control a device, the server reports a security problem
3. When Alexa asks to control a device, the server reports that there is no such device
4. When Alexa asks to control a device, the server reports it can't carry out the operation

Again, these errors may result in Alexa saying the same thing. So here is some help in figuring out what went wrong.

a) Make sure you are running the HCA Server and you opened your design file. Even we sometimes forget to open the .HCA file in the server.

b) Make sure that you have configured and tested the connection in the DDNS configuration dialog. Until the "Test" button shows a success, Alexa will not be able to access your server. You may have port forwarding incorrectly configured in your router and/or your firewall settings are wrong. Also check that the Alexa service has your current IP address and remote access password. Use the manual "Update" button in the DDNS dialog to make sure of this.

Once you have done these two things that should eliminate problem # 1 above. After this, then you have to dig a bit more for more resolutions.

The first thing to check is that you don't have any of the other HCA security options enabled except for the necessary remote access password. These can be checked by selecting the "Design" ribbon category, and pressing the "Security" button in the "Home Configuration" panel. Make sure that only the remote access password is in effect and the others are not.

Next, make sure that you have all your interfaces connected and working. You can see this by opening "HCA Options" from the Server application window "Tools" menu and looking on the "Hardware" tab. Also try and control the device from a client (Windows, Android, iOS) and see if that works.

Next, if you have renamed any devices, rediscover your devices to ensure she has the current names.

And perhaps the Alexa error is correct – for example trying to dim a non-dimmable device. It is unfortunate that many times Alexa gives only the one error statement rather than different replies to help show what the problem is.


## Step Next - To infinity and beyond

This quick setup only begins to touch the surface of HCA. Up until now it has all been about controlling devices. But as was said in the introduction, HCA is about so much more than that. This section offers some pointers to other areas and resources you can use to get deeper into programming your home.

A good place to get additional information is the HCA User Guide. Yes, we know no one likes to read documentation but a lot of effort was put into it to be as readable as possible. The HCA User Guide is divided into two sections – a main guide and an appendix. In the main guide are chapters on HCA features that apply regardless of the automation gear you use. The appendix is all about the support for specific types of devices and has chapters on Insteon, UPB, wireless, etc.

http://www.hcatech.com/index.php?sid=documentation

Also on that same documentation page are technical notes that can help with more detail on specific features and uses of HCA.

Another good place is the HCA YouTube channel. It contains lots of videos and a complete "HCA 101" course that video by video takes you through almost all aspects of HCA.

The HCA YouTube channel is reached at http://youtube.hcatech.com

##End##