Creating Hubitat Virtual devices to mirror HCA devices (updated 25-Nov-22)

Hubitat can be used in two manners. Firstly, as an "interface" for HCA to control Hubitat managed devices. You could use this if you have, for example, ZWave devices or sensors that you added to the Hubitat design and you wanted HCA to be able to control the switches and/or receive reports from the sensors. Configuring this is described in Technical Note #613.

Secondly, Hubitat can use HCA like an "interface" so that the facilities in Hubitat – automation, scheduling, and voice control – can be used to control HCA devices. This is what this technical note describes.

Terminology

When this note says "HCA Devices" that also includes HCA Programs that you want to start via voice, programs that operate as a device, or HCA Groups. It's just too much text to say "device, program, or group" each time.

This document refers often to "Friendly names". These are the names given to devices, programs, and groups that you speak to a voice assistant. You can see the friendly name for an object on the Name tab of the object properties:


For this device, the friendly name is "Downstairs hallway". For voice control you must have entered a friendly name **and** enabled it using the checkbox.

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You can see the friendly names for all devices and easily modify the name and enable for them all in one place by opening the External Assistants tool on the HCA Cloud ribbon category.
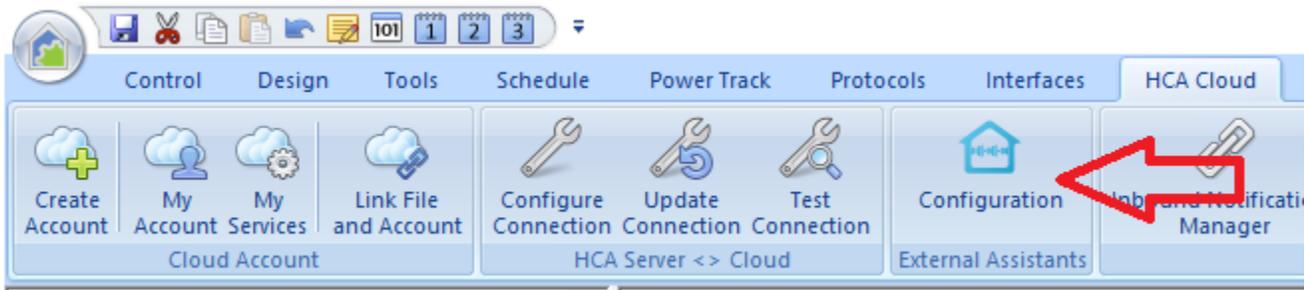
Getting Ready

Before beginning on the steps in this note, first a few tasks may be necessary. The goal is not to break any existing function. Here is a checklist:

1. Do you have the correct HCA Version?

First make sure you are using HCA Plus version 17.0.46 or later. This Hubitat integration will work with HCA in client-server or stand-alone mode.

2. Have you previously followed the directions in technical note #613?

Technical note #613 describes how to use a Hubitat App called the "Maker API" to allow HCA to control Hubitat devices and for Hubitat to send status change messages to HCA. If you don't remember if you did that or not, look at the interfaces defined in HCA. Open the "Interfaces" category and look for an interface called "Hubitat Event Server". **If you do NOT have the "Hubitat Event Server" interface skip ahead to Getting Ready Checklist item #3.**

IF you implemented what is described in technical note #613, and IF you used port 80 with the "Maker API", you must change that. I suggest you change to port 8080.

Briefly, this is what you need do. Open the Hubitat UI in your browser then click on "Apps" in the left-hand menu. Click on "Maker API". If you don't see "Maker API" then you shouldn't be in this step of the Getting Ready checklist. Scroll down until you see this section and make the change to add a colon and the port number. It may not look editable, but it is.

URL to POST device events to
http://192.168.0.68:8080/Hubitat

Note that the IP address is the address of the HCA Server. Change the URL to include the port number as was done in the image above. That is the <u>ONLY</u> change you need make. Now scroll down a bit more and press the DONE button.

Back in HCA interface configuration, change the port used for the "Hubitat Event Server" interface to use that same port number. Press the Configure button next to that interface. Once done, restart the HCA Server and test that it all still works for HCA controlling Hubitat managed devices and for HCA receiving messages from Hubitat managed devices like sensors.

3. Choose HCA devices and programs that will have virtual devices created in Hubitat

The HCA App you will add to Hubitat creates virtual devices in your Hubitat design, one for each HCA device that has a "friendly name". If for any reason you don't want a device with a friendly name to have a virtual device created for it in Hubitat, add a tag to that object with name "NoHubitat" and leave the tag value blank.

If you have device that <u>doesn't</u> have a friendly name, but you want HCA to create a virtual device created for it in Hubitat, perhaps so it can keep the Hubitat state updated so you can use it in the "Rules Machine", add the tag "Hubitat" to it with an empty tag value.

4. If you had used the older method (technical note #700) to create virtual devices in Hubitat, you must delete them. If you didn't use the technical note #700 method, then move on to Getting Ready #5

If you had previously created virtual devices in Hubitat – you followed the steps in technical [note #700](#) – you must delete them in Hubitat because the HCA App must create them for you so they are connected to the HCA App for state updates. You can easily find them in the Hubitat devices page by looking in the "type" column for devices with type "HCA Dim Object" and "HCA Non-Dim Object".

Great room repeater (Device)		Device	System
HCA Office Lights (HCA Office Lights)		HCA Dim Object	User
Hot Water (House - Circ Pump)		HCA Non-Dim Object	User
Kimberly Presence Sensor (Kimberly Presence Sensor)		SmartThings Presence Sen…	System

The middle two in the above image are the ones to remove. *Take care to not delete all the devices in Hubitat. Only remove the ones you previously created using the "HCA Dim Object" and "HCA Non-Dim Object" types.*

Open the properties of a device by clicking on the name and scroll to the bottom of the page that appears and there is a big red "Remove Device" button.

Sorry about all the work you did to create those devices manually, but unless the new HCA App creates them itself all the status updates will not work.

5. Get your voice assistant ready

If you have HCA devices and programs with friendly names and you are currently using the HCA Cloud for voice control, you must stop that so Hubitat can take over. A friendly name like "Kitchen Light" can't be managed by both HCA and Hubitat simultaneously!

If you are using the HCA Cloud for voice control, you will need to delete all the devices that are linked to HCA from Alexa or Google Assistant. Deleting devices and/or removing the HCA Alexa skill is described in the HCA Getting Started with Alexa guide on page 8-9. For Google Assistant, look in the HCA Getting Started with Google Assistant guide pages 9-10.

Take care not to delete all the Smart Home devices in your Alexa or Google Assistant account. You may have some there that are managed by other services.

6. Can you download packages from the online HCA Library?

You can download packages from the online HCA library if you have previously created a HCA Cloud account and linked your design file to it. Try and remember if you have a cloud account or not. If you attempt to download a package from the online library and you get an error message, send HCA technical support a request for the library packages for Hubitat and they will be emailed to you.

If you do get them by email, later in this note when you are asked to import some packages from the library, take the files you were emailed, save them to some folder, and then use the "Import" button on the "Design" ribbon category to do the import.

7. Do any of your devices you are making available to Hubitat have an ampersand ('&') or slash ('/') in the folder or device name?

If so, change the name. Those two characters will cause problems.

Now that you have completed all the steps in the Getting Ready Checklist, you are ready to start!

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Step 1: Create or modify interface in HCA

In the HCA Server create a new interface on the *HCA Options – Hardware* tab if you don't already have one with this name and configured exactly as described here. It can be any one of the eight interfaces. The type is "Generic Server" and the name must be "HTTP Server" (*with a space between "HTTP" and "Server"*)
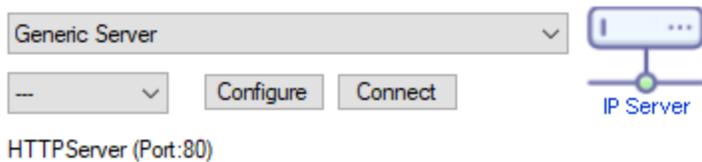
Big note here: Hopefully you read the Getting Ready section of this note and if you already had an interface on port 80 for HCA to use Hubitat as an interface, you changed it to use a different port #, right?

The configuration for the HTTP Server interface must be like this:

The key points are the name, port 80, data in text form, and no delimiters for sends or receives.

Step 2: Import packages from the library

Import into your HCA design the package "HTTP Server". Make sure you get the latest version of that package from the online library. It is the one marked as needing HCA Version 17.0.46. To import from the library, click on the "Library Browse/Import" button from the HCA "Design" ribbon category.

These programs are added or updated:
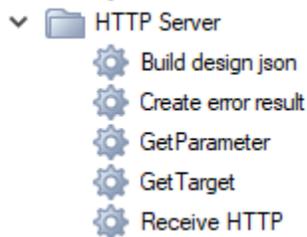
Next, Import the "Hubitat State Connector" package into your HCA design from the online library. It adds only this program to your design.
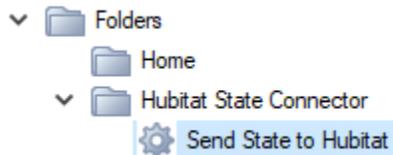
Step 3: Test HCA

Now is the time to test that you have HCA configured correctly. Start a browser on any computer connected to the same network as the HCA server and enter this into the address bar – substituting the IP address of your computer running the HCA Server - and hit [Enter].
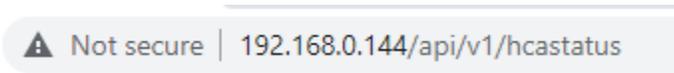
(This image is from the Chrome browser)

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If it works, then the display area of the browser will show a report similar to that which HCA sends as the daily report.

If it doesn't work, check that you typed it correctly and have the IP address of your HCA server computer as part of the address. Mine is 192.168.0.144 but yours will be different. If that still doesn't work, check that you named the interface in HCA "HTTP Server" and it is set for port 80 with the other configuration as shown above.

Step 4: Create drivers in Hubitat

For this step you will need three text files. They are available on the HCA website.

https://homecontrolassistant.com/download/Hubitat2/DimObjectDriver.txt

https://homecontrolassistant.com/download/Hubitat2/NonDimObjectDriver.txt

https://homecontrolassistant.com/download/Hubitat2/HCAStateConnectorDriver.txt

If you had previously used the techniques described in technical note 700, these are different so make sure you get these updated files. You will know you have the correct ones because in the header of the file it references technical note #703

As you need them, you can just open one in your browser (follow the link), do a select all (ctrl-a), and copy the file contents on to the Windows clipboard (ctrl-c).

Connect to your Hubitat as usual and click on "Drivers Code" in the left-hand menu. Click on the "New Driver" button. The display changes to a largely blank screen with "New Driver" in the upper left corner. If you already have the driver, just open it, select all the text, delete, then replace with the updated driver text.

Take the contents of one of the text files and paste it into this page and then press the "Save" button in the upper right.

```
New Driver                                    modified  « Drivers code   Import   Spaces  ∨  4  ∨  No wrap  ∨   Save
 1   /*
 2    * HCA Connector for DIMable devices and programs
 3    *
 4    * Calls HCA Server for control
 5    *
 6    */
 7 ▾ metadata {
 8 ▾     definition(name: "HCA Dim Object", namespace: "HCA", author: "HCA Central", importUrl: "") {
 9           capability "Switch"
10           capability "Switch Level"
11       }
12   }
13
14 ▾ preferences {
15 ▾     section("HCA Connection") {
16           input "ServerIP", "text", title: "HCA Server IP Address", required: true
17           input "HCAName", "text", title: "HCA 2-Part name", required: true
18           input name: "logEnable", type: "bool", title: "Enable debug logging", defaultValue: true
19       }
20   }
```

Note: Don't use the Import button, I could never get it to work. If you figure out how to make it work, please let me know.

Next, click the "<< Drivers code" button to return to the previous page and start the process again of creating or updating the other drivers using the other text files.

When you have all three drivers created you should see this. There may be other drivers listed, just make sure you have the three like in this image:

Name	▲	Namespace	▲	Capabilities	⇵	Last Modified	⇵
HCA Dim Object		HCA				2022-06-03 10:38:03am PDT	
HCA Non-Dim Object		HCA				2022-06-03 10:38:25am PDT	
HCA State Connector		HCA				2022-06-03 10:37:39am PDT	

Step 5: Create the HCA App in Hubitat

For this step you will need another text file available on the HCA website.

https://homecontrolassistant.com/download/Hubitat2/HCAApp.txt

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Open the link in your browser (click on the link), select all (ctrl-a), and copy the file contents on to the Windows clipboard (ctrl-c).

Connect to your Hubitat as usual and click on "Apps Code" in the left-hand menu. Click on the "New App" button. The display changes to a largely blank screen with "New App" in the upper left corner.

Take the contents of the text file and paste it into this page and then press the "Save" button in the upper right.

```
New App                              modified  « Apps code    Import   Spaces  ▼  4  ▼  No wrap   ▼    Save    Help

 1  definition(
 2      name: "HCA App",
 3      namespace: "HCA",
 4      author: "HCA Central",
 5      description: "Creates virtual devices that connect to voice enabled HCA devices.",
 6      category: "Convenience",
 7      iconUrl: "",
 8      iconX2Url: "",
 9      iconX3Url: "")
10
11  preferences
12 ▼ {
13      section
14 ▼     {
15          input "HCAServerIP", "text", title: "HCA Server IP Address", required: true
16          input name: "logEnable", type: "bool", title: "Enable debug logging", defaultValue: true
17          input name: "DoGet", type: "bool", title: "Get From Server", defaultValue: false
18      }
19  }
20
21  void installed()
22 ▼ {
```

Next, click the "<< Apps code" button to return to the previous page.

With the app added you should see this. There may be other apps listed. Just make sure that the HCA app is listed.

Name	▲	Namespace	▲	OAuth	⬍	Last Modified	⬍
HCA App		HCA				2022-06-03 10:22:59am PDT	

Step 6. Use the HCA App

In Hubitat, go to the Apps section - *not the "Apps Code" section* – and press the "Add User App" button.

Click on the "HCA App" in the list of apps and the HCA App is added to your Hubitat design added and it opens.

First enter the IP address of the HCA Server. Please get this correct. Then click on the option button "Get Devices From HCA Server" to enable, and then click on the "Done" button.

The app creates a virtual device in Hubitat for each object that has a friendly name assigned in HCA and doesn't have the "NoHubitat" tag. Also, any device without a friendly name but does have the "Hubitat" tag will have a virtual device created. The dim driver is used for devices that can set percentages, and the non-dim driver otherwise.

If this doesn't seem to work for you, look in the Hubitat logs as the HCA App puts messages there. In the Hubitat UI, click on "Logs" in the left-hand menu. Then click on "Past Logs" in the header. Scroll around and you will probably see errors listed. If the App completes it does add one non-debug line should what it did.

app:36	2022-06-13 06:36:56.189 am	info	Devices added:8 updated:0 removed:0

Important Note: If in the future you change a friendly name, or enable a new object with a friendly name, or remove a friendly name from an object, again open the HCA App, enable the "Get Devices from HCA Server" option, and close with "Done". This updates existing Hubitat virtual devices created for an HCA device with a changed label (where the friendly name goes), adds a new virtual device if you have added a new friendly name, or removes a virtual device if that friendly name has been removed. To start the App again, just go to the Apps list and click on the HCA App link and the app opens.

Voice Control

These steps make it possible for Hubitat to control HCA devices. This lets Hubitat control your HCA devices and programs with friendly names via Alexa and Google Assistant. See tech note 702 for how to do that. Please review that as it also discusses how changes to your list of voice-controlled devices are made.

If all you want is to allow Hubitat to work with Alexa and Google Assistant and control your HCA devices by voice, then you are done. But if you plan to use the automation capabilities of Hubitat it may be useful to have HCA update the state of a device when HCA sees that its state changed. Also, you want to continue with the next step if you use the Alexa or Google Home app as it visually shows device state. To do that continue with the next step.

Step 7. Have Hubitat updated with HCA state changes

When the HCA App created virtual devices to mirror your HCA devices, an additional virtual device was created called "HCA State Connector" that provides the connection between HCA and Hubitat.

Do not change the name of this device. It must remain as "HCA State Connector". Just leave it as it is.

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The only change you need to make in HCA is to Import the "Hubitat State Connector" package – you did that back in step 2 – and make sure you have a **global** variable called "HE_HubAddress". Add that global variable if necessary and then set its value to the **IP address of the Hubitat hub**. Here is how mine is set – the IP address you enter will be different.

To open the global variable inventory, press the "Variables" button in the "Control" ribbon category "Tools" panel. If you don't see the "HE_HubAddress" variable, first create it using the "Create New" button. Make sure you enter the variable name exactly as shown.

Enter the IP address as the current value. Also enable the "Set it to this value" option and enter the same IP address again as is shown in the image below. Press the "Save changes" button to commit your changes.

The HCA program "Hubitat State Connector – Send State to Hubitat" sends any change to an objects state - and that object has a friendly name and doesn't have the "No Hubitat" tag or has no friendly name but the "Hubitat" tag - to Hubitat and the matching Hubitat virtual device has its state updated.

##end##