

HCA 16: Cloud Connect

One of the major issues in HCA has been the need to configure port forwarding in the local network router to allow remote access. Most modern IOT devices don't need this – like the NEST thermostats, Ring doorbell, etc. Why not? Because each of these devices make an outbound connect to some server and maintain it 24/7. If you use an app to change the temperature on the nest thermostat you talk to the NEST server and the NEST server talks to your thermostat. The server doesn't connect to the thermostat, the thermostat already has established a connection to the server, so it has the communication path already to use.

That's great because no configuration is needed in your router, but it also means that the connection needs to be available 24/7. And things can happen to break that connection. We had no idea before this how often my internet connection "glitches out". It happens every few days for maybe only a few seconds but long enough to take out a connection. Extensive work on the HCA Cloud side and in HCA have been done to allow these persistent connections and to reestablish them if they disconnect.

Not all the clients can take advantage of this new way to talk to the HCA server. Currently, only some pieces of the HCA world can connect through the HCA Cloud to your server though this new mechanism we call "Cloud Connect". The mobile apps for Android and iOS can't. But that's ok as the HCA server still accept connects the old way via an IP address and port as long as the port forwarding is in place for connections remotely. You lose no function.

Client	Supported by Cloud Connect
HCA	YES
HCA Client	YES
HCA Cloud Web	YES
HCA Cloud	YES
Alexa	YES
Google	YES
HCA Cloud Dev	YES
Android App	No
iOS App	No

Very important to understand so here it is again: The server can still accept connections from clients using the IP address of the server computer and port from inside your network or from outside your network if port forwarding is configured. That has not and will not change. Cloud Connect only provides an additional method.

Note: This only works if you have an active cloud account active and have performed the "Link file to account" operation.

The first step is Install HCA 16.

If you are using HCA as a client, before you can connect to the server via the cloud, on the computer that will run HCA you must do either:

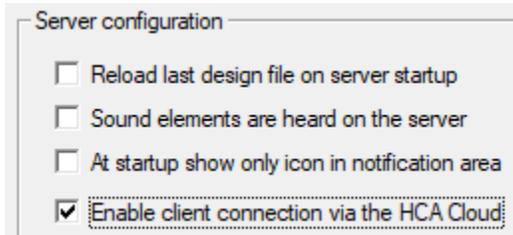
- Load your design file into HCA stand-alone and then shutdown

- Connect to the server using the same method as before (IP address and port #) and then shutdown HCA. This can be done on your local network.

This saves the connection info needed in the Registry that is needed.

Now you can begin. It will go much easier if you follow these directions carefully.

Start the HCA Server and select *Tools – HCA Options*. On the Client-Server tab, tick the new “Enable client connection via the HCA Cloud” option to enable.



When you close the options dialog, a popup tells you that the server must be restarted. Do that. After the restart and when your file is loaded, the application window shows extra info in the status bar:



The status bar shows the number of connections direct to the server port, the number of connections via the cloud, and the status of the persistent cloud connection. The Cloud Status will be either “Disconnected”, “Connected”, or “Error”. If the server becomes disconnected from the cloud, it will automatically reconnect within 2 minutes.

If you open “Tools – Show Connected Clients” for a cloud connection, the IP address is the IP address of the client that connected - same as before but even for a connection from within your network it will now show the external IP address of your site.

There is one consideration: If you connected a client to the server from within your internal network, you used a local IP address (192.168.x.y). If you have a remote access password on your design, you could use the “Password Override Table” to prevent a connection from asking for a password. This no longer works since the “connection from” IP address is now the external IP address of your site. You could update the password override table, but your external IP address could change. A better option is to use a stored password in the connection options.

Home Control Assistant Options

Startup Client Server Color and Theme Control Interface Design Pane Display Pane Hardware Visual Programmer Advanced Legacy Extra

Client Name: Client - Server Communications Port:

At this point the server has made the connection to the cloud and will reestablish it anytime it gets disconnected.

HCA running as a Client

Start HCA and open *HCA Options*. On the “Client Server” tab of HCA Options is a new connection choice.

Client to Server Connection

Connect to the server directly using an IP address and port

Connect to the server via the HCA Cloud

Server address:

Server IP Address:

Choose the “Connect to the server via the HCA Cloud” option. A popup tells you that you must restart the client and you should do that restart.

With this new option enabled, when you start the client and connect to the server, it connects via the cloud and you should see that in the server status bar as a “Cloud Connect”.

If there is a problem, you may see these messages:

- Necessary cloud credentials not available. Connect directly to the HCA server once to acquire
- Target server not connected to the HCA cloud
- Unable to connect to the HCA Cloud
- Connection to the HCA Cloud timeout
- HCA Cloud reported not ready

The first message says that you have not followed the directions and connected using the IP address and port at least once or loaded the file stand-alone.

The second message says that the server isn’t running, or no file is loaded or a different file than you expect is loaded.

The final three messages are problems with the cloud, and you should contact support to resolve.

The Windows Client

Install the Windows client 16.0.1 or later.

Configuration is like configuring HCA running as a client.

Before you can connect to the server via the cloud, it is necessary first to directly connect at least once – same method and same IP address and port # as before - with these new versions of the client and server. The new version of the server can accept still accept connections directly from an IP address and port as before. Go ahead and connect the Windows client to the server.

Open the client Control Panel: click on the “HCA Icon” at the left end of the title bar and then click on the Client Options button.

Connect to the server directly using an IP Address and port. Requires port forwarding configured on the server network for remote access.

Port:

Primary Connection	Secondary Connection
<input type="radio"/> By IP Address: <input type="text" value="0 . 0 . 0 . 0"/>	<input checked="" type="radio"/> By IP Address: <input type="text" value="0 . 0 . 0 . 0"/>
<input checked="" type="radio"/> By Name: <input type="text" value="localhost"/>	<input type="radio"/> By Name: <input type="text"/>
<input type="button" value="Find the server port and IP address"/>	

Connect to the server via the HCA Cloud. Does not require port forwarding for remote access.

Tick the new “Connect to the server via the HCA Cloud” option. A popup tells you that you must restart the client. Go ahead and restart.

Now when you start the client and connect to the server, it connects via the cloud and you should see that in the server status bar as a “Cloud Connect”.

As in the case of HCA running as a client, if there is a problem you could see those same messages as shown above.

##end##