Bits & Bytes

Arkansas' Premier Computer Club

May 2022

Bella Vista Computer Club - John Ruehle Center

Highlands Crossing Center, 1801 Forest Hills Blvd Suite 208 (lower level), Bella Vista, AR 72715

Website: http://BVComputerClub.org **Email: editor@bvcomputerclub.org**

MEETINGS

Board Meeting: May 9, 6pm, in John Ruehle Training Center, Highlands Crossing Center.

General Meeting: May 9, 7pm, "Q & A: Panel of Experts", with Woody Ogden and Pete Opland: an opportunity to submit your computer-related questions to our panel. If our panel doesn't know the answer, someone else in the audience may. Questions are accepted in advance or from the floor; but if research is required to give the best answer, email your question in advance to Q.and.A@bvcomputerclub.org .

We will meet in-person in Room 1001 on the lower level of The Highlands Crossing Center, 1801 Forest Hills Blvd, Bella Vista, or you may attend the meeting on-line via Zoom. Zoom access information is published on our website.

Visitors or Guests are welcome.

Because of COVID-19, we recommend observing any current masking and social-distancing guidelines that may be in effect at the time of the meeting. Consider attending by Zoom if you or others in your family are in a high risk category.

Genealogy SIG: **No meeting** (3rd Saturday).

HELP CLINICS

May 7, 9am - noon at John Ruehle center
May 18, 9am - noon at John Ruehle center
Members may request Remote Help on our website at https://bvcomputerclub.org at menu path Member Benefits ►Remote Help .

MEMBERSHIP

Single membership is $25; $10 for each additional family member in the same household.

Join on our website at https://bvcomputerclub.org at menu path Get Involved ►Join/Renew, by mailing an application (from the web site) with check, or complete an application and pay in person at any meeting.

CLASSES

(At BVCC Training Center)

Wednesday May 25, 4pm-6pm, "Computer Security for Regular People, Part 2", with Justin Sell.

Advance sign up required for each listed class: For reservations: email to edu@bvcomputerclub.org, or sign up at the General Meeting. Classes are **free to Computer Club members.**

Check the monthly calendar and announcements for any last minute schedule changes at https://bvcomputerclub.org .

NEW OR RETURNING BVCC MEMBERS

We are pleased to welcome the following new members or members returning to BVCC after an absence since last month's newsletter:

JoAnn Culp Deborah Woehr Joe & Judy Jackson

David & Pamela Graham

A CAUTIONARY TALE OF CLOUD-BASED APPS

By Joel Ewing, President Bella Vista Computer Club
Bits & Bytes, May 2022
president(at)bvcomputerclub.org

Insteon Home Automation

Around 2014 I started using Insteon home automation devices to control some plug-in electrical devices around my house. Insteon produced a number of different modules using a proprietary peer-to-peer communication protocol to communicate with an Insteon hub in your house, which in turn used an Ethernet connection to your router and your house LAN to connect to Insteon-owned cloud servers on the Internet.

The insteon devices and hub use a unique combination of wireless RF (not WiFi) and power-line signaling, with each device module acting as a repeater to insure that all modules can communicate with the hub. There was a smartphone/smartpad Insteon app that in concert with the Insteon cloud service allowed you to schedule state changes (turn-on, turn-off, dim) for the individual Insteon modules, manually change the module state remotely, or just monitor the state of modules in the case of sensor modules.

The smartphone Insteon app allowed you to monitor the state of the various modules even while away from your house as long as you had Internet access on your smart device. Manual remote control of lights from outside the house was not that useful to me, but could I suppose be used to add some randomness to simulate people in an empty house, or turn off a light unintentionally left on. Being able to remotely control lights or other plug-in devices while in your house from the comfort of an easy chair or bed was very convenient, as was the scheduling of lights that should always go on and off at regular times.

The peer-to-peer communication between the modules and hub made the system very reliable. Over the years I've only had one module fail -- after one of our cats marked it as his territory in usual cat fashion. I've also had two hubs die on me in four years. After the 2nd one failed I did some research and found that I shouldn't have plugged the hub into a UPS, as some of the high-frequency components of the AC output of a typical home UPS unit running on the battery tends to stress the hub power supply and cause early failure. Since then I've plugged the hub into an outlet with only surge protection and have had no further hardware failures.

The modules I found most useful were those that would plug into a regular outlet and provide a module-controlled outlet for the controlled light or other device. The most useful aspect of these modules was that they could be easily moved and re-deployed to a different use. Over the years we acquired three different varieties: an un-

grounded dimmer (could be used as a switch), an un-grounded switch, and a grounded switch rated for outdoor use. We also acquired a water-leak sensor, which was deployed in a storage area under the house near the water heater.

Over the years we have gotten good use of the Insteon system. We have used insteon to control a number of table lamps in several rooms, to control indoor and outdoor Christmas lights, and to control heating devices in the cats' outdoor houses. Until April 13 of this year we had never (outside of testing) gotten a warning from the water-leak sensor, but it proved its worth when torrential rain and a drainage problem outside resulted in water under the house. The leak sensor did its job and made it possible to resolve the issue before damage could be done.

The Demise of Insteon

The day after the water-leak detector had saved the day (talk about fortunate timing), our Insteon automation stopped working. Trying to use the Insteon iPhone app to manually control the lights also failed with the app's inability to logon to Insteon. The Insteon hub's normal green LED was red. It was unclear whether there was some failure in our hub or what. After some research, found that some people had been concerned about long-term prospects of Insteon back in 2021, that others were now reporting similar failures like ours, and that the Insteon forum for discussing device problems also seemed to be down. One of the possibilities for a red hub light was an inability to communicate on the Internet, but Internet access was otherwise working. Power cycling the hub produced no change. The conclusion at the time was there was some problem with the Insteon Internet service, but no indication the problem was permanent.

After being down for a day, speculation continued to increase, but no official word. By April 16 the general consensus finally became that "Insteon is dead". The only semi-official notification received was an email finally sent to my Insteon account email on April 21 from SmartLabs Inc (the parent company of Insteon) revealing "Insteon Users: Important Notice to Creditors": a notice dated April 12, indicating that SmartLabs Inc had on March 22 assigned its assets for liquidation. A week after the initial April 14 failure the insteon.com website now has a general notice that "the company was assigned to a financial services firm in March to optimize the assets of the company", which I guess is legalese for "expect an end of all service on some arbitrary date after March 22". It's beyond me why they couldn't just spend the same amount of effort and have the website clearly state that all Insteon cloud services for support of Insteon hubs has been discontinued as of April 14, 2022 so people wouldn't have to guess what's going on.

I was a little ticked off that Insteon gave no heads-up on what was about to happen. Even notification as they pulled the plug would have been an improvement to avoid wasting time diagnosing a problem that couldn't be fixed. In retrospect Insteon's business model probably doomed them: they provided a free Internet service with an increasing number of users, and very little long term income from those users like myself once they had all the automation modules they needed. Add to that the reduced sales from financial and supply chain disruption during the pandemic...

Perhaps the lesson to be learned here is that products that require a free cloud service to function should be regarded as having planned obsolescence -- you just don't know what the plan is.

There are alternatives, but for most people that aren't technically savvy, or have access to someone that is, this means that their Insteon hub and device modules have become expensive doorstops.

Finding An Inexpensive Alternative

Having to replace all your Insteon modules and hub with a different system and hardware means throwing out hardware that may represent a sizable investment of hundreds of dollars. There don't appear to be any good commercially available solutions that can utilize the Insteon hardware.

It turns out there is a cheaper Open Source alternative that can restore the functionality of an Insteon hub and all the Insteon modules, but it requires some technical expertise to set up another machine on your home network with a specialized Operating System. That machine could be a RaspBerry Pi with 2 GiB RAM, or an older (but not too old) retired machine. If you have a system that runs 24x7 that can support running a Virtual Machine with a UEFI boot and that can be network "bridged" to appear on your local LAN subnet, then it is possible to use a Virtual machine with 1.5 GiB of RAM. on existing hardware.

The Open Source software that will do the job is HomeAssistant. The HomeAssistant server is available in image downloads of HomeAssistantOS (HAOS) for installation on an x86-64bit architecture or for Raspberry Pi architecture. There are corresponding HomeAssistant (HA) apps for smartphones that will allow you to configure and control HomeAssistant server, or it can be done using any browser and using the explicit LAN IP address and port for the HAOS server.

Conceivably you could run HomeAssistantOS on an older retired computer, but it would have to be recent enough hardware to support both 64-bit architecture and UEFI (non-secure) boot. If you use a virtual machine rather than actual hardware, setting up bridged networking so that the virtual machine gets is own address on your LAN is required. In the case of my Linux system and KVM virtual machines, the bridged networking was the most difficult part of the process. The HomeAssistantOS must be on your main home LAN subnet in order for the iPhone apps to find the HomeAssistant server and for the HomeAssistant server to detect your Insteon hub (and other IoT devices in your house that it can support). It would probably also be a good idea to configure your router to assign a fixed LAN IP address to the machine running the HomeAssistant server.

When configuring HomeAssistant for your Insteon hub, you will probably need to supply the login name and password that is on the base label on the hub. Once it connects with the hub, it should go through device discovery and gradually locate all the powered-up Insteon modules, except perhaps for sensor modules. To get it to see my leak sensor module, I had to press the reset button on the module. The LED light on the hub will remain red -- apparently that only turns green if the hub can talk to the Insteon cloud server, and that no longer exists.

The discovered Insteon modules will initially only be identified in HomeAssistant by their Insteon hex ID value of the form hh.hh.hh and by the type of module. If you haven't saved documentation that maps the module IDs to their location, you may have to power modules On/Off from HomeAssistant one at a time so that you can associate meaningful names with the modules. Where I had only one module of that particular type, the module type was sufficient to know the associated module location.

The Insteon scheduling was in the Insteon cloud, so that is all lost and will have to be built again on HomeAssistant. The approach is different, but I found it more convenient than what Insteon used. In Insteon a schedule belonged to a device, or your had to define a "scene" of multiple devices if you wanted a schedule to affect multiple devices; and you couldn't have more than one schedule set to trigger at the same minute. In

HomeAssistant you have Automation Entities, which include one or more triggers that initiate the automation and one or more actions that should be performed when the automation is triggered. The actions can change the state of one or more device modules within the same automation definition. If an automation action is triggered while a previous action is still in progress, you can specify if and how you want them to interact. To me the HomeAssistant approach is more natural and more flexible.

If there are smartphones running the HomeAssistant app, one of the possible automation actions is to send a message to the HA app on that smart device. The connection between the server and the smart device app is by LAN IP address, so this can only work while your phone is on your home network. I don't know if a message to a phone not currently on the home LAN is queued to be sent when possible, or what. If it is an alert that you need to receive promptly no matter where you are, there is probably some way to do that (email?), just haven't the time to research that yet.

There are ways to make a HomeAssistant server running HAOS at your home accessible from the Internet, but to do this securely on your own is a non-trivial exercise. The native communication for the HA server on HAOS uses insecure http protocol on port 8123. You wouldn't want to just open that port to the HAOS system on your router, because your HA logon credentials would be sent over the Internet in the clear, potentially exposing your home automation to attack. I don't know how to do it yet, but know there are ways to create an https secure interface that could be used to either directly or indirectly access the HAOS system. That in turn requires that you own (at an annual charge) an Internet domain name that is defined to point to your external Internet IP for you home, and if you don't have a business IP account with a fixed Internet IP address, you also need some process to update the IP address of your domain name if your Internet IP address is changed by your Internet provider. I see this getting complicated in a hurry. If the only reason you want access to your HA server from the Internet is to receive notification alerts from HA on your iPhone when your are away from home, I'm thinking it may be less work to find solutions that just address the notification issue.

There is another secure and simple option if you must have access to all your HomeAssistant automation away from your home over the Internet, but it is not free. You can subscribe to Home Assistant Cloud service provided by Nabu Casa, Inc. at a cost of either $6.50 monthly or $65 annually. This service provides a secure Internet interface between your smart device and their service, which in turn uses a secure interface to the Home Assistant machine at your house. Since it is a charged subscription service, it is probably more likely to stay around than Insteon's free cloud service, but that does mean you can again become dependent on a third-party cloud application that is not under your control and become locked in to one more continuing payment for the indefinite future.

It took almost a week to get all the bugs out, mostly trying different ways to get a virtual machine properly bridged to my home LAN, but I finally got everything I need working: automation with HAOS running on its own [virtual] machine with remote control over my home WiFi and LAN from a web browser or from the HA app on iPhones, all controlling the Insteon hub and Insteon modules. I have found the HA interfaces and flexibility more convenient than what was originally provided by the Insteon apps and Insteon cloud servers. The best part is that all the pieces required to keep it working within my home are now under my direct control with no added cost on my part but time.