

CyaSSL Encrypts INSTEON Hub for the Connected Home

INSTEON, creators of the world's premiere home automation and control technology, allows remote control and automation for devices, such as lighting, leakage detection, door and motion sensing, security systems, and various other smart home applications. INSTEON networks use both radio frequency signals, as well as the home's existing electrical wiring, allowing for a more reliable network.

The Hub is a product developed by INSTEON that has the ability to connect smart home devices even when the network is down. This network is the central location for utilizing any of INSTEON's devices. With the ability to access all INSTEON products connected to the Hub, a user can control and monitor their individual INSTEON network. The Hub is INSTEON's flagship product and is an updated version of the Hub that provides the same networking services as the Hub but with the additional security feature of the CyaSSL lightweight, embedded SSL library encrypting the network.

Key Requirements

INSTEON products are developed in an embedded environment and require a compact, speed-enhanced SSL library to provide encryption over the Hub network. The Hub then stores a user's home network configuration in the INSTEON cloud.

Since the Hub is developed on the Microchip PIC32 boards, INSTEON needed to build against an embedded SSL library that was compatible with these microprocessors. Creating an environment on the PIC32 that offered certificate revocation was also a high priority for designing the network. The original option, OpenSSL, did not provide this necessary opportunity to allow for maintaining access to servers in the Hub.

“The technical support team at wolfSSL provided the necessary feedback to add to our already good experience with CyaSSL.”

-INSTEON Development Team

“CyaSSL was the only SSL library designed for embedded systems that had a combination of being lightweight enough for our products while providing support for the Microchip PIC32 platform.”

-Matt Carter, INSTEON

Solution

After researching the best SSL library choices for the Hub, the INSTEON development team found that CyaSSL's portable and lightweight design, with a footprint size of 20-100kB and low runtime memory usage at 1-36kB, stood out as the best solution for INSTEON's Hub and cloud services. With these features, incorporating CyaSSL allowed INSTEON to maintain a fast, reliable and efficient network.

In addition to providing the Hub with lightweight SSL support, CyaSSL included documentation and support for the Microchip PIC32 microprocessor, the primary development device utilized by INSTEON developers. CyaSSL allowed for the necessary certificate revocation on the PIC32 platform that other SSL libraries, including OpenSSL, did not offer.

Results

Designing the Hub with the CyaSSL embedded library allowed INSTEON to effectively integrate secure communications into their connected home products with a network that safeguards communication between the Hub and cloud services. With the added support for the Microchip PIC32 board, the Hub development process was simplified and security implemented seamlessly. The support team at wolfSSL offered the necessary feedback to allow CyaSSL to be easily integrated without difficulty.

For More Information

www.wolfssl.com

info@wolfssl.com

www.insteon.com

customerservice@insteon.com

www.microchip.com

Solution Provided By:



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