

What is EPIIC™?

EPIIC is a comprehensive software security application, combining commercial-grade authentication/encryption with automotive-grade mobile performance for IoT (Internet of Things) edge devices.

EPIIC is specifically designed for embedded devices with limited resources, yet provides highly-secure connectivity over transient peer-to-peer data connections.

EPIIC also complements existing MAC-layer security to form a two-factor security solution.

Typical EPIIC applications include:

- Secure, touchless device provisioning
- Smartphone V2X
- Two-factor security for headless devices

EPIIC is not hardware-specific and does not require an IP stack – making it easily compatible with most wireless network interfaces such as 802.11 and Bluetooth LE. Because EPIIC is an application, software upgrades to the latest EPIIC version are possible as new security protocols become available.

The EPIIC Solution

A typical EPIIC implementation consists of a software stack in the IoT device, along with an Android or iOS smartphone application to provide a rich user interface. However, M2M and other variations are certainly possible.

Best-In-Class Security

EPIIC is based on the IEEE 1609 specification for automotive safety applications. This specification has been reviewed and tested by leading safety agencies around the world to ensure maximum security and reliability.



Standards-Based Protocols

EPIIC implements the following authentication and encryption protocols:

- SHA-2 (256 bit digest) digital certificate signing
- ECDSA-256 digital certificate signing
- NIST P-256 digital certificate signing
- Brainpool P-256r1 digital certificate signing
- ECIES-256 key generation
- Implicit and Explicit Digital Certificate support
- AES-128 encryption

Fast Discovery

When used in conjunction with a supported wireless chipset and dB Performance proprietary discovery technology, EPIIC discovers and transmits data to nearby compatible IoT devices in milliseconds for high-performance V2X applications.

Device Provisioning

EPIIC makes secure “walk-up” provisioning and maintenance of headless or hard-to-reach devices a reality. EPIIC’s application-layer commercial grade security means no tedious prerequisite physical pairing, pre-shared key configuration, or web browser username/password access.

Enhanced Device Authentication

EPIIC can act as a watchdog for unauthorized wireless connections. If wireless MAC-layer or physical-layer authentication is compromised (e.g. Blueborne or KRACK vulnerabilities), EPIIC provides a second layer of authentication based on a different security credential. Therefore, EPIIC authentication will fail and the attacker will be disconnected. In addition, EPIIC does not require IP addressing, making it less susceptible to denial-of-service and remote attacks.

EPIIC Maximizes Security with Convenience

- Add the EPIIC library to the downloadable iOS/Android smartphone app and to the target device for a complete solution
- Ease-of-use increases customer satisfaction and decreases support issues
- Provides a second layer of authentication to prevent unauthorized connections due to wireless vulnerability hacks

Weave/ <u>Homekit</u>		OCF	
EPIIC™		<u>mBed</u> TLS	
Supplicant		Driver	
Hardware			



EPIIC™ Specifications

INDUSTRY STANDARDS

(with appropriate H/W driver)

- IEEE 802.11 a/b/g/n/ac compatible
- Bluetooth compatible
- IEEE 1609
- IEEE 1609.2
- IEEE 1609.3 (optional)
- IEEE 1609.4 (optional)
- IEEE 802.11p (optional)
- SHA-2 (256 bit digest)
- ECDSA-256
- NIST P-256
- Brainpool P-256r1
- ECIES-256
- Implicit/Explicit Certificate support
- AES-128

DEVELOPMENT FEATURES

- Extensive debug support
- Unit testing tools
- Control Interface

AVAILABLE OPERATING SYSTEMS

- Linux 2.6+
- Android 4.1+
- Apple iOS 8+ (for smartphone app)
- Others available on request

PORTABILITY FEATURES

- Written in thread-safe C
- Supports most hardware implementations
- Wide PHY/MAC topography support
- 90% of implementation is in user space
- Compatible with most network protocols
- Does not require an IP stack

DOCUMENTATION

- Release Notes
- Developer Guide
- API Reference Manual

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