

## Benefits

- Most Robust Hardware Backup and Physical Security
- FIPS 140-2 Level 3 validation (under review)
- Suite B Algorithm Support
  - ECC Support
- Easy to Integrate
- Migrate from Luna CA<sup>3</sup> to CA<sup>4</sup>

# Luna CA<sup>4</sup>

## Root Key Management System



Luna<sup>®</sup> CA<sup>4</sup> Root Key Management System is a dedicated Hardware Security Module (HSM) designed to provide the highest levels of performance and protection for the cryptographic keys at the heart of today's Public Key Infrastructure (PKI) systems.

### Secure Hardware Key Management

Luna CA<sup>4</sup> features industry-leading hardware key management. All key materials used by Luna CA<sup>4</sup> are maintained exclusively within the confines of Luna CA<sup>4</sup>'s cryptographic hardware: from creation, to storage, to use, and destruction, sensitive cryptographic keys are never exposed outside of Luna CA<sup>4</sup>.

### Hardware Cryptographic Processing

Luna CA<sup>4</sup> features a dedicated processor to offload computationally intensive cryptographic algorithms from host applications, reducing the demand on application servers while accelerating overall system performance. Luna CA<sup>4</sup> offers 25 RSA 1024-bit digital signatures per second to meet the needs of all root key management applications.

### Two-Factor Administrator Authentication

The data contained within an HSM is extremely sensitive - should it fall into the wrong hands, the trust chain upon which a PKI relies is broken and the PKI collapses. To prevent unauthorized

administrative and application access, Luna CA<sup>4</sup> features dedicated two-factor authentication. To achieve true two-factor, Trusted Path authentication, Luna CA<sup>4</sup> includes the Luna PED (PIN Entry Device), a handheld authentication console, and role-splitting PED Keys (small, key-shaped digital identification tokens). Luna CA<sup>4</sup> also adds multi-person authentication, whereby multiple people, each possessing a PED Key, are required to authenticate before administration actions can be performed.

### FIPS 140-2, Level 3

Luna CA<sup>4</sup> is under review for FIPS 140-2, Level 3 validation for environments that require the highest levels of physical and operational security with tamper and intrusion resistance. Each Luna CA<sup>4</sup> token is sealed from physical tampering or modification, and shielded against electronic probing or data recovery techniques to prevent the extraction or compromise of data contained within the token. The Luna CA<sup>4</sup> is also RoHS compliant to meet the material component standards for electrical and electronic equipment established for the European Union market.



## Built for HSM Best Practices

HSM Best Practices are the result of collaboration between PKI vendors, auditors, and business process professionals to define reproducible operational standards that apply to PKI security. HSM Best Practices provide guidelines for the design and operation of HSM products to maintain the highest level of security and assurance. Luna CA<sup>4</sup> maintains security by addressing HSM Best Practices through all aspects of its hardware, software, and operational design.

## Full Cryptographic API Support for Easy Integration

Adding hardware security and performance to your applications is easy with Luna CA<sup>4</sup>. With support for PKCS#11, Microsoft CryptoAPI, Java JCA /JCE CSP, and Open SSL, Luna CA<sup>4</sup> supports all major Cryptographic APIs to simplify development and speed application deployment. A full SDK toolkit is available for custom development.

Cryptographic Functions include true hardware accelerated random number generation (RNG) per Annex C of ANSI X9.17, symmetric and asymmetric key pair generation, hardware-secured key management and storage, hardware-accelerated encryption and decryption, and hardware-accelerated digital signing.

## Integrated with All Major PKI Application Platforms

To provide simplified integration, SafeNet works closely with application partners and resellers to ensure seamless compatibility with all major PKI applications. As the world's most trusted HSM, Luna CA<sup>4</sup> supports applications from VeriSign, Entrust, Microsoft, Verizon, and more.

## Hardware Secured Backup

Storing private keys on traditional backup media like magnetic tape, floppy disks or optical media does not provide security - insecure media can be lost or copied without your knowledge. Luna CA<sup>4</sup>'s hardware key cloning maintains hardware-secured backups and verifiable audits through a direct hardware-to-hardware backup procedure. Luna Key Cloning copies the contents of one secure Luna CA<sup>4</sup> cryptographic token to another without exposing the keys outside of the HSM. To prevent unauthorized use of backup materials, backup tokens maintain the same access controls as the original token.

## Technical Specifications

### Cryptographic Performance

- 25 1024-bit RSA digital signatures per second

### Cryptographic Algorithms

#### Asymmetric Key Encryption and

#### Key Exchange

- RSA (512-4096 bit), PKCS #1 v1.5, OAEP PKCS#1 v2.0
- Diffie-Hellman (512-1024 bit)

#### Suite B Algorithm Support

#### ECC Support

- ECDSA

#### Digital Signing

- RSA (512-4096-bit), DSA (512-1024-bit), PKCS #1 v1.5

#### Symmetric Key Algorithms

- DES, 3DES (double & triple key lengths), RC2, RC4, RC5, AST, CAST-3, CAST-128, AES

#### Hash Digest Algorithms

- SHA-1, MD-2, MD-5, SHA256, SHA512

#### Message Authentication Codes (MAC)

- HMAC-MD5, HMAC-SHA-1, SSL3-MD5-MAC, SSL3-SHA-1-MAC

#### Object Limit

- 1280 object limit

### Physical Characteristics

#### Connectivity

- Luna CA<sup>4</sup> Token - Type II PC Card Interface, 5V (+/- 0.25V)
- Luna Dock Card Reader - LVDS External Interface via MDR-26 cable (supplied), 2 Type II PC Card Slots, 1 PED Port

#### Temperature

- Operating 0°C to 50°C (with Luna DOCK); 0°C to 35°C (for PED II)
- Storage -20°C to +65°C

#### Dimensions

- Luna CA<sup>4</sup> Token - Type II PC Card; 53.67 mm x 85.73 mm x 4.64 mm (3.38" x 2.12" x 0.18")
- Luna Dock - 230.53 mm x 147.57 mm x 72.64 mm (9.08" x 5.81" x 2.86")
- 1.7kg (3.82lb)
- PED II- 168.9 mm x 100.33 mm x 21.1 mm (6.65" x 3.95" x 0.83")

### Regulatory Standards

#### Certification

- U/L 1950 & CSA C22.2 safety compliant
- FCC Part 15 - Class B
- FIPS 140-1, Level 3 (in process)
- ISO - 9002 Certification
- RoHS compliant



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