Certificate Policy/Certification Practices Statement for AXERA PKI Services

Version: 1.00
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OID: 1.3.6.1.4.1.50977.1.0.2

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1 INTRODUCTION

1.1 OVERVIEW

eMudhra operates a globally trusted Public Key Infrastructure (PKI) under the brand name *emSign*, in accordance with WebTrust principles. AXERA is a regional partner of eMudhra, offering private PKI services supported by the *emSign* infrastructure. All certificate lifecycle operations are managed through *emSign*'s secure private PKI systems. For AXERA's private PKI services, certificates are issued under dedicate *emSign* root and issuing CA hierarchy. This CP/CPS governs AXERA's private certificate issuance, which may include stricter controls than those applicable under public trust requirements. The policies outlined herein are specific to AXERA's private PKI operations under the emSign.

This document is the emSign/AXERA Certificate Policy/Certification Practices Statement (CP/CPS) for emSign private PKI Services that outlines, in RFC 3647 format, the principles and practices related to emSign's certification of PRIVATE PKI primarily non-publicly trusted X.509 digital certificates. For the purposes of this document, when the term "Private PKI service" is mentioned, it refers to the PRIVATE PKI.

This PRIVATE PKI CP/CPS also applies however to emSign's PRIVATE publicly trusted certificates where PRIVATE policies are more restrictive than those required by Public Trust. The Public Trust certificates are issued under a separate Certificate Policy and Practice Statement that is dedicated to all (browser and operating system) Public Trust certificate issuance, and this PRIVATE CP/CPS complements that Public Trust CP/CPS in order to facilitate PRIVATE publicly trusted certificates to participate in both programs. Applicable Public Trust CP/CPS or guidelines are published on the emSign repository.

This CP/CPS is only one of several documents that control emSign's certification services. Other important documents include both private and public documents, such as emSign's agreements with its customers, External Program CPs, relying party agreements, Registration Authority Agreements, any applicable Registration Authority Practices Statement (RPS), and AXERA's privacy policy. AXERA may provide additional certificate policies or certification practice statements. These supplemental policies and statements are available to applicable users or relying parties.

1.2 DOCUMENT NAME AND IDENTIFICATION

This document is the emSign Certificate Policy/Certification Practices Statement for PRIVATE PKI Services and has been approved for publication by the emSign Policy Authority (EPA) as of the date indicated on the cover page.

The Object Identifier (OID) representing this document is 1.3.6.1.4.1.50977.1.0.2

Object Identifier(s) (OID) for PRIVATE publicly trusted PKI artifacts are specified in their respective CP/CPSes (or guidelines) and used within the emSign PRIVATE PKI hierarchy when issuing Certificates for those programs.

The Object Identifier (OID) representing the Public Trust CP/CPS for emSign purposes is 1.3.6.1.4.1.50977.1.0.1.1

1.2.1 Type of certificate

The OIDs utilized for the emSign PRIVATE PKI are iso (1) identified-organization (3) dod (6) internet (1) private (4) enterprise (1) eMudhra Technologies Limited (50977) emSign PKI (1) identifiers.
eMudhra organizes its emSign OID arcs for the various applicable PRIVATE Certificates described in the applicable CP/CPSes as follows:

Named Object	Policy Identifier
Electronic signatures	1.3.6.1.4.1.50977.1.3.1

This CP/CPS applies to any entity asserting one or more of the emSign PRIVATE OIDs identified above. When a CA issues a Certificate containing one of the above-specified policy identifiers, it asserts that the Certificate was issued and is managed in accordance with the requirements applicable to that respective policy.

Subsequent revisions to this CP/CPS may be amended with new Certificate and Object Types with corresponding new OIDs.

1.3 PKI PARTICIPANTS

1.3.1 emSign Policy Management Authority and Certification Authorities

emSign is a certification authority (CA) that issues digital certificates. As a CA, emSign performs functions associated with both Private PKI Services e.g. emSign PRIVATE PKI and public key operations, including receiving applicable certificate requests, issuing, revoking and renewing a digital certificate, and maintaining, issuing, and publishing CRLs and OCSP responses. General information about emSign's products and services are available at https://repository.emsign.com.

emSign Root Certificate Authorities and Intermediate CAs under the control of emSign are managed by the emSign Policy Authority (EPA) which is composed of members of emSign management appointed by emSign's executive management. The EPA is responsible for this CP/CPS as well as overseeing the review and conformance of CA practices with respective External Program CPs with their own respective Policy Management Authorities and legal agreements e.g. PRIVATE PMAs and guidelines – see Section 1.3.6.

1.3.2 Registration Authorities and Other Delegated Third Parties

emSign may delegate the performance of certain functions to Registration Authorities (RA) and other third parties to request certificates and/or perform identification and authentication for end-user certificates. The specific role of an RA or delegated third party varies greatly between entities, ranging from simple translation services to actual assistance in gathering and verifying Applicant information. Some RAs operate identity management systems and may manage the certificate lifecycle for end-users.

Specific roles of each RA under a Private PKI depend highly on the Private PKI party and External Program if applicable. RAs and other Delegated Third Parties for Private PKI External Programs are defined within their respective CP documents, guidelines, and within the legal agreements between the parties. Parties identified in those documents functioning in these roles are required to abide by those definitions as enforced in the additional supportive documentation including technical specifications.

NOTE: For the purposes of this document, the emSign PRIVATE PKI is defined as a Private PKI External Program.

1.3.3 Subscribers

Subscribers use emSign's services and PKI to support transactions and communications. Subscribers are not always the party identified in a certificate, such as when certificates are issued to an organization's employees. The Subject of a certificate is the party named in the certificate. A Subscriber, as used herein, refers to both the Subject of the certificate and the entity that contracted with emSign for the certificate's issuance.

Subscribers for Private PKI External Programs are defined within their respective CP documents, guidelines, and within the legal agreements between the associated parties. Parties identified in those documents as functioning in these roles are required to abide by those definitions as enforced in the additional supportive documentation including the technical specifications.

1.3.4 Relying Parties

Relying parties are entities that act in reliance on a certificate and/or digital signature issued by emSign . Relying parties are defined by the community supported by the Private PKI infrastructure and by contract with emSign.

1.3.5 Other Participants

Other Participants are defined in their respective CPs, guidelines, and by contract with emSign/AXERA.

1.3.6 Accrediting Authorities

emSign/AXERA may seek accreditation from various industry groups and trust federations. Specific accreditation controls may be detailed further beneath the relevant accrediting bodies included below.

1.3.6.1 CA and Browser Forum

emSign Public Trust PKIs conform to the current version of the guidelines adopted by the Certification Authority/Browser Forum ("CAB Forum") when issuing publicly trusted certificates, including the Baseline Requirements for the Issuance and Management of Publicly-Trusted Certificates ("Baseline Requirements") are published at https://www.cabforum.org. With regard to SSL/TLS Server Certificates or Code Signing Certificates, if any inconsistency exists between emSign 's Public Trust CP/CPS and the Baseline Requirements or the EV Guidelines, then the Baseline Requirements take precedence for publicly trusted SSL certificates.

The EPA reviews changes to published CAB Forum guidelines at least annually and more frequently when updated guidelines are published to ensure new requirements are incorporated into CP and CPS that emSign uses in conjunction with any publicly trusted CA operations, in a timely manner.

1.4 CERTIFICATE USAGE

A digital certificate (or certificate) is formatted data that cryptographically binds an identified subscriber with a Public Key. A digital certificate allows an entity taking part in an electronic transaction to prove its identity to other participants in such transaction.

This or the respective Private PKI CP/CPS set forth policies governing the use of emSign Private PKI Certificates by Subscribers and Relying Parties in the associated program.

1.4.1 Appropriate Certificate Uses

Certificates issued pursuant to this CP/CPS may be used for all legal authentication, encryption, access control, and digital signature purposes, as designated by the key usage and extended key usage fields found within the certificate. However, the sensitivity of the information processed or protected by a certificate varies greatly, and each relying party must evaluate the application environment and associated risks before deciding on whether to use a certificate issued under this CP/CPS. The exact use of each Certificate is left to the discretion of the community for which the PKI is operated.

1.4.2 Prohibited Certificate Uses

emSign certificates are not for use (and entities or subscribers may not use emSign certificates) in circumstances where:

1. Usage of certificate is inconsistent with the certificate extensions in key usage and extended key usage
2. Usage of certificate is above the designated reliance limits indicated in the emSign/AXERA Warranty Policy
3. Usage of certificate is for any equipment operated in hazardous conditions or under fail proof conditions (e.g. nuclear facilities, aircraft navigation, medical devices, direct life support devices, other systems where any failure could lead to injury, death or environmental damage etc.)
4. Usage of certificates is in connection with fraud, pornography, obscenity, hate, defamation, harassment and other activity that is contrary to public policy.

Certificates do not guarantee that the Subject is trustworthy, honest, reputable in its business dealings, compliant with any laws, or safe to do business with. A certificate only establishes that the information in the certificate was verified as reasonably correct when the certificate issued.

1.5 POLICY ADMINISTRATION

1.5.1 Organization Administering the Document

This CP/CPS and the documents referenced herein are maintained by the EPA, which can be contacted at:

emSign PKI Policy Authority
eMudhra Limited
eMudhra Digital Campus, No 12-P1-A & 12-P1-B, Hi-Tech Defense and Aerospace Park (IT sector), Jala Hobli, B.K. Palya, Bengaluru - 562149, Karnataka, India
Phone: +91 80 48484090
Email: info@emsign.com
Website: www.emsign.com

1.5.2 Contact Person

Attn: Policy Director
emSign PKI Policy Authority
eMudhra Digital Campus, No 12-P1-A & 12-P1-B, Hi-Tech Defense and Aerospace Park (IT sector), Jala Hobli, B.K. Palya, Bengaluru - 562149, Karnataka, India
Phone: +91 80 48484090
Email:
Email: info@emsign.com
Website: www.emsign.com

1.5.3 Person Determining CP/CPS Suitability for the Policy

The EPA determines the suitability and applicability of this CP/CPS based on the contract with the customer for which the PKI is operated and any relevant audits. The EPA is responsible for the PKI's compliance with this CP/CPS.

emSign PKIs are also evaluated by the relevant emSign Policy Management Authority for compliance with emSign community guidelines and policies. Inclusion of the PKI's trust anchors in the official emSign distribution is recognition of emSign accreditation.

1.5.4 CP/CPS Approval Procedures

The EPA approves the CP/CPS and any amendments. Amendments are made after the EPA has reviewed the amendments' consistency with relevant contracts. The EPA determines whether an amendment to this CP/CPS is consistent with a contract, requires notice, or requires an OID change. External PMAs managing a CP (or requirements document) that this CP/CPS conforms to by contract, approve this CP/CPS for each CA that issues certificates under their respective CPs (or requirements document). That process is described in the applicable CPs and other supporting documents specified in the legal agreements.

1.6 DEFINITIONS AND ACRONYMS

1.6.1 Definitions

"Applicant" means an entity applying for a certificate.

"External Program" means a community e.g. emSign, relying on or contracting with emSign 's PRIVATE certificate hierarchy and Certificates which may or may not maintain its own CP or guidelines document with which this CP/CPS is compliant. May also be described in this document as "External Private PKI Program."

"Key Pair" means a Private Key and associated Public Key.

"OCSP Responder" means an online software application operated under the authority of emSign and connected to its repository for processing certificate status requests.

"Private Key" means the key of a key pair that is kept secret by the holder of the key pair, and that is used to create digital signatures and/or to decrypt electronic records or files that were encrypted with the corresponding Public Key.

"Public Key" means the key of a key pair that may be publicly disclosed by the holder of the corresponding Private Key and that is used by a Relying Party to verify digital signatures created with the holder's corresponding Private Key and/or to encrypt messages so that they can be decrypted only with the holder's corresponding Private Key.

"Relying Party" means an entity that relies upon either the information contained within a certificate or a time- stamp token.

"Subscriber" means either the entity identified as the subject in the certificate or the entity that is receiving emSign's time-stamping services.

"Trademark Office" An intellectual property office recognized by the World Intellectual Property Organization for registration of trademarks (see: names of intellectual property offices as listed in the column "Office" at https://www.wipo.int/directory/en/urls.jsp).

"Word Mark" means a mark consisting exclusively of text expressed without regard to the font, style, size or color.

1.6.2 Acronyms

CA	Certificate Authority or Certification Authority
CP	Certificate Policy
CPS	Certification Practice Statement
CRL	Certificate Revocation List
CSR	Certificate Signing Request
EKU	Extended Key Usage

EPA	emSign Policy Authority
FIPS	(US Government) Federal Information Processing Standard
HSM	Hardware Security Module
ITU	International Telecommunication Union
ITU-T	ITU Telecommunication Standardization Sector
OCSP	Online Certificate Status Protocol
OCF	Open Connectivity Foundation
OID	Object Identifier
PKI	Public Key Infrastructure
PKCS	Public Key Cryptography Standard
PMA	Policy Management Authority
RA	Registration Authority
RPS	Registration Authority Practices Statement
SHA	Secure Hashing Algorithm
SSL	Secure Sockets Layer
TLS	Transport Layer Security
URL	Uniform Resource Locator
X.509	The ITU-T standard for Certificates and their corresponding authentication framework

1.6.3 References

No stipulation for this CP/CPS. References for the External Programs are included in their respective CPs, guidelines, relevant legal agreements, requirements, and technical guidance documents.

2 PUBLICATION AND REPOSITORY RESPONSIBILITIES

2.1 REPOSITORIES

CRLs and OCSP responses are available through online resources 24 hours a day, 7 days a week with systems described in Section 5 to minimize downtime.

2.2 PUBLICATION OF CERTIFICATION INFORMATION

The emSign certificate services and the repository are accessible through several means of communication:

1. On the web via URIs included in the certificates themselves
2. By email to contacto@axeraglobal.com or info@emsign.com

emSign protects information not intended for public dissemination through the request process listed above.

2.3 TIME OR FREQUENCY OF PUBLICATION

emSign shall publish CA certificates and revocation data as soon as possible after issuance.

New or modified versions of this CP/CPS, Subscriber Agreements, or Relying Party Warranties are typically published within seven days after their approval. The CP/CPS is subjected to minimum of one annual review, even if there are no external factors influencing the changes in CP/CPS. Such review shall amend

the version and date of publication of CP/CPS, as approved by Policy Authority.

2.4 ACCESS CONTROLS ON REPOSITORIES

Read-only access to the repository is unrestricted. Logical and physical controls internal to emSign prevent unauthorized write access to repositories.

3 IDENTIFICATION AND AUTHENTICATION

3.1 NAMING

3.1.1 Types of Names

Certificates are issued with a subject Distinguished Name (DN) that complies with ITU X.500 standards. Policies on certificate field and extension information are specified in respective Private PKI program, its document and its specifications.

3.1.2 Need for Names to be Meaningful

emSign uses distinguished names to identify the subject (i.e. person, organization, device, or object) or issuer of the certificate.

Where required by the applicable CP or guidelines, Subscriber certificates will contain meaningful names with commonly understood semantics permitting the determination of the identity of the organization that is the Subject of the certificate by emSign and by designated RAs. RAs will describe this process in their associated RA documents.

The subject name in CA Certificates match the issuer name in certificates issued by such emSign CAs, as required by [RFC 5280].

3.1.3 Anonymity or Pseudonymity of Subscribers

Except where required otherwise by the applicable CP or guidelines, emSign may issue pseudonymous end-entity certificates provided that they are not prohibited by policy and that any applicable name space uniqueness requirements are met.

3.1.4 Rules for Interpreting Various Name Forms

Distinguished Names in certificates are interpreted using X.500 standards and ASN.1 syntax. See RFC 2253 and RFC 2616 for further information on how X.500 distinguished names in certificates are interpreted as Uniform Resource Identifiers and HTTP references.

3.1.5 Uniqueness of Names

The uniqueness of each subject name in a certificate depends on the contract with the customer. Typically, uniqueness is maintained through the domain name in the certificate, email address in the certificate, or combination of the certificate's Subject information. RAs are required to enforce name uniqueness in communities where they participate.

For device certificates, an FQDN is included in the DN fields. For other certificates, emSign may append a unique ID to the name listed in the CN field if necessary.

3.1.6 Recognition, Authentication, and Role of Trademarks

Subscribers may not request certificates with content that infringes on the intellectual property rights of another entity. Unless otherwise specifically stated in an agreement with a customer, emSign does not verify an Applicant's right to use a trademark and does not resolve trademark disputes. emSign may reject any application or require revocation of any certificate that is part of a trademark dispute.

emSign will not issue a certificate knowing that it infringes the trademark of another. Certificate Applicants cannot use names in their Certificate Applications that infringe upon the Intellectual Property Rights of others. emSign is not required to determine whether a Certificate Applicant has Intellectual Property Rights in the name appearing in a Certificate Application or is in good standing with a Trademark Office.

emSign is not required to arbitrate, mediate, or otherwise resolve any dispute concerning the ownership of any intellectual property rights, including, without limitation, rights in a domain name, trade name, trademark, or service mark. RAs operating under this program must specify how they meet the requirements of the applicable CP or guidelines in their respective documents.

3.2 INITIAL IDENTITY VALIDATION

Issuing CAs will perform an uniqueness check to determine if the serial number in the CSR received is an unique request.

3.2.1 Method to Prove Possession of Private Key

emSign establishes that the Applicant holds or controls the Private Key corresponding to the Public Key by performing signature verification or decryption on data purported to have been digitally signed or encrypted with the Private Key by using the Public Key associated with the certificate request.

Certificates generated by emSign require proof that the Subscriber possesses the private key. Typically, the RA verifies this by verifying the subscriber's digital signature on the PKCS #10 Certificate Signing Request (CSR) with the public key in the CSR. If emSign generates the key pair on behalf of the subscriber, proof of possession by the subscriber is not required.

The process of proving possession of the private key for end-entity certificates by RAs will be described in their respective documents.

3.2.2 Authentication of Organization Identity

Not Applicable.

3.2.2.1 Authentication of Self Signed Root CA Certificates

emSign issues a self-signed root CA Certificate when participating in a Private PKI program upon approval and fulfillment of the CP requirements from that program.

3.2.2.2 Authentication of Sub-CA Certificates

emSign issues a sub-CA Certificate when participating in a Private PKI program upon approval and fulfillment of the CP requirements from that program.

3.2.3 Authentication of Individual Identity

Issuing CAs will perform an uniqueness check to determine if the serial number in the CSR received is an unique request.

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3.2.3.1 Authentication for Group Client Certificates

Not applicable

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3.2.3.2 Authentication of Devices

If applicable, the RA must validate the applicant's information in accordance with an RPS (or similar document) applicable to the EPA.

3.2.4 Non-verified Subscriber Information

No Stipulation.

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3.2.5 Validation of Authority

Not Applicable.

3.2.6 Criteria for interoperation

Interoperation is permitted pursuant to the CP/CPS.

3.3 IDENTIFICATION AND AUTHENTICATION FOR RE-KEY REQUESTS

3.3.1 Identification and Authentication for Routine Re-key

Subscribers may request re-key of a certificate prior to a certificate's expiration. After receiving a request for re-key, emSign creates a new certificate with the same certificate contents except for a new Public Key and, optionally, an extended validity period. If the certificate has an extended validity period.

3.3.2 Identification and Authentication for Re-Key after Revocation

In the event of certificate revocation (for reasons other than as the result of a routine certificate renewal,

update, or modification action), issuance of a new certificate shall always require that the party go through the initial registration process per Section 3.2.

3.4 IDENTIFICATION AND AUTHENTICATION FOR REVOCATION REQUEST

emSign or an RA authenticates all revocation requests per the CP and relevant legal agreements. emSign may authenticate revocation requests by referencing the use of the Private Key corresponding to the certificate's Public Key, regardless of whether the associated Private Key is compromised.

If an RA performs validation for a revocation, they will specify the practices to meet the requirements of the contractual agreements, the CP, this CP/CPS, and the associated technical requirement documents in their documents.

Issuing CAs may also perform revocation on behalf of Subscribers in accordance with the requirements of the applicable Subscriber Agreement, or based on any instruction received from a competent authority.

4 CERTIFICATE LIFE-CYCLE OPERATIONAL REQUIREMENTS

4.1 CERTIFICATE APPLICATION

4.1.1 Who Can Submit a Certificate Application

Either the Applicant or an individual authorized to request certificates on behalf of the Applicant may submit certificate requests. Applicants are responsible for any data that the Applicant or an agent of the Applicant supplies to emSign or an RA.

4.1.2 Enrollment Process and Responsibilities

In no particular order, the enrollment process may include:

- Submitting a certificate application including the required documentation from the associated program,
- Generating a key pair,
- Delivering the public key of the key pair to emSign,
- Agreeing to the applicable Subscriber Agreement, and
- Paying any applicable fees.

4.2 CERTIFICATE APPLICATION PROCESSING

4.2.1 Performing Identification and Authentication Functions

After receiving a certificate application, emSign or an RA verifies the application information and other information in accordance with Section 3.2. If an RA assists in the verification, the RA must create and maintain records sufficient to establish that it has performed its required verification tasks and communicate the completion of such performance to emSign in accordance with sections 5.4 and 5.5. After verification is complete, emSign or the RA evaluates the corpus of information and decides whether or not to issue the certificate. emSign considers a source's availability, purpose, and reputation when determining whether a third-party source is reasonably reliable.

Identification and Authentication requirements for each certificate checked with any Digital Certificate profile is given in Section 3.2.3.

Future identification of repeat Applicants and subsequent authentication checks may be addressed using a passphrase or any kind of shared secret or any other form of subscriber authentication mechanism.

However, use of the documents and data provided to verify certificate information in accordance with Section 3.2.3 shall be valid for a period no more than a specific period, prior to issuing the Certificate. This specific period shall not be more than the maximum validity period of the digital certificates limited under section 6.3.2 of this CP/CPS. Any issuance exceeding such period, shall undergo the requirements specified under Section 3.2 of this CP/CPS.

4.2.2 Approval or Rejection of Certificate Applications

emSign may reject a certificate application if emSign believes that issuing the certificate could damage or diminish emSign's reputation or business or it does not fulfill the requirements of the associated legal agreements or CP. RAs may only approve a Certificate Application after verifying the applicant meets all requirements listed in the applicable CP or guidelines.

4.2.3 Time to Process Certificate Applications

As specified in the relevant customer agreement. If the timeframe is not specified, emSign will usually complete the validation process and issue or reject a certificate application within two working days after receiving all of the necessary details and documentation from the Applicant, although events outside of the control of emSign can delay the issuance process.

4.3 CERTIFICATE ISSUANCE

4.3.1 CA Actions during Certificate Issuance

Issuance is completed using the appropriate CA Certificate after fulfilling the requirements of the associated legal agreements and CP. After issuance is complete, the certificate is stored in a database and sent to the Subscriber.

4.3.1.1 emSign Private Root Certification Authority

The Root Certification Authority Certificate applicable to the emSign PRIVATE PKI has been self-generated and self-signed. All root certifying authorities are operated offline.

emSign publishes all Root CA Certificates along with its subordinates in its repository available at http://repository.emsign.com

4.3.1.2 emSign Issuing Certification Authority Certificates

emSign PRIVATE PKI creates and operates its own Issuing CAs under this CP/CPS. Issuing Certifying Authorities are issued out of offline root certificates.

emSign publishes all Issuing CA Certificates along with its Hierarchy to its Root CA, in its repository available at http://repository.emsign.com

4.3.1.3 emSign PRIVATE PKI Registration Authority Appointment

Any Issuing CA can appoint external Registration Authorities, who must accept the terms and conditions of emSign PRIVATE PKI Registration Authority Agreement. Upon final approval of the application by Issuing CA, the Registration Authority becomes duly appointed. Upon appointment, they shall be appropriately trained and qualified staff members of the Registration Authority are eligible for Registration Authority Officer Digital Certificates.

4.3.1.4 emSign PRIVATE PKI Registration Authority Certificates

As part of the application process, Registration Authorities are required to nominate one or more persons within their Organisation to take responsibility for the operation of their Registration Authority functions. Those nominated persons will each be issued a Registration Authority Officer's Digital Certificate.

4.3.1.5 Certificate Holder Certificates

Upon the Applicant's acceptance of the terms and conditions of the Certificate Holder Agreement or other relevant agreement, the successful completion of the application process and final approval of the application by the Issuing CA, the Issuing CA issues the Digital Certificate to the Applicant or Device.

emSign deploys multi-factor authentication for all accounts capable of directly causing certificate issuance.

4.3.2 Notification to Subscriber by the CA of Issuance of Certificate

emSign may deliver certificates in any secure manner within a reasonable time after issuance allowed by the associated legal agreements, CP, and technical requirements. Generally, emSign delivers certificates by providing the Subscriber a hypertext link to a user id/password-protected location where the subscriber may log in and download the certificate or via email to the email address designated by the Subscriber during the application process.

4.4 CERTIFICATE ACCEPTANCE

Acceptance criteria is specified in the applicable CP or guidelines. At a minimum, a legal agreement specifying the limits on use and trust on the certificate is required. In the case of the automated issuance of end entity certificates the Subscriber is the end entity.

By accepting a certificate, the Subscriber:

- Agrees to be bound by the continuing responsibilities, obligations and duties imposed by this CP/CPS,
- Agrees to be bound by the Subscriber Agreement, and
- Represents and warrants that to its knowledge no unauthorized person has had access to the private key associated with the certificate, and
- Represents and warrants that the certificate information it has supplied during the registration process is truthful and has been accurately and fully published within the certificate.

- ASSUMES A DUTY TO RETAIN CONTROL OF THE PRIVATE KEY CORRESPONDING TO THE PUBLIC KEY CONTAINED IN THE CERTIFICATE, TO USE A TRUSTWORTHY SYSTEM AND TO TAKE REASONABLE PRECAUTIONS TO PREVENT THE PRIVATE KEY'S LOSS, EXCLUSION, MODIFICATION, OR UNAUTHORISED USE.

Until a Digital Certificate is accepted, it is not published in any Repository or otherwise made publicly available. Without limitation to the generality of the foregoing, the use of a Digital Certificate or the reliance upon a Digital Certificate signifies acceptance by that person, of the terms and conditions of this emSign PRIVATE PKI CP/CPS and Subscriber Agreement (as the same may, from time to time, be amended or supplemented) by which they irrevocably agree to be bound.

4.4.1 Conduct Constituting Certificate Acceptance

Subscribers are solely responsible for installing the issued certificate in the Subscriber's environment. Certificates are considered accepted 30 days after the certificate's issuance, or earlier upon use of the certificate when evidence exists that the Subscriber used the certificate.

4.4.2 Publication of the Certificate by the CA

emSign publishes end-entity certificates by delivering them to the Subscriber and through the methods described in section 2.1.

4.4.3 Notification of Certificate Issuance by the CA to Other Entities

RAs may receive notification of a certificate's issuance if the RA was involved in the issuance process. The applicable community is notified when a CA Certificate is issued for that community.

4.5 KEY PAIR AND CERTIFICATE USAGE

4.5.1 Subscriber Private Key and Certificate Usage

Subscribers are obligated to protect their Private Keys from unauthorized use or disclosure, discontinue using a Private Key after expiration or revocation of the associated certificate, and use certificates in accordance with their intended purpose as specified in the applicable legal agreement, this CP/CPS, the associated CP, and/or the KeyUsage field extensions in the certificate.

4.5.2 Relying Party Public Key and Certificate Usage

emSign does not warrant that any third-party software will support or enforce the controls and requirements found herein. A Relying Party should use discretion when relying on a certificate and should consider the totality of the circumstances and risk of loss prior to relying on a certificate. If the circumstances indicate that additional assurances are required, the Relying Party must obtain such assurances before using the certificate.

4.6 CERTIFICATE RENEWAL

Certificate renewal means the issuance of a new certificate without changing the Public Key or other information in the certificate.

4.6.1 Circumstance for Certificate Renewal

emSign may renew a certificate if:

- the associated Public Key has not reached the end of its validity period,
- the Subscriber and attributes are consistent,
- the associated Private Key remains uncompromised, and
- No new or additional validation is required.

emSign may also renew a certificate if a CA Certificate is re-keyed or as otherwise necessary to provide services to a customer. emSign may notify Subscribers prior to a certificate's expiration date. Certificate renewal requires payment of additional fees. In all cases, any renewal requirements are specified by the applicable CP or guidelines.

4.6.2 Who May Request Renewal

Certificate Renewal means the issuance of a new Certificate without changing the Public Key or any other information in the Certificate, except the validity period.

Only the certificate subject or an authorized representative of the certificate subject may request renewal of the Subscriber's certificates.

4.6.3 Processing Certificate Renewal Requests

Renewal application requirements and procedures are generally the same as those used during the certificate's original issuance as specified by the program CP. emSign may refuse to renew a certificate if it cannot verify any rechecked information. If an individual is renewing a client certificate and the relevant information has not changed, then emSign does not require any additional identity vetting. If the Private Key and domain information has not changed, the Subscriber may renew Host certificate using a previously issued certificate or provided CSR.

RAs must confirm the identity of the Subscriber in accordance with the requirements in the relevant CP. These practices will be described in the RA's RPS.

4.6.4 Notification of New Certificate Issuance to Subscriber

emSign may deliver the certificate in any secure fashion as required by the relevant CP, typically by email or by providing the Subscriber a hypertext link to a user id/password-protected location where the Subscriber may log in and download the certificate and in accordance with section 2.1.

4.6.5 Conduct Constituting Acceptance of a Renewal Certificate

Renewed certificates are considered accepted 30 days after the certificate's renewal, or earlier upon use of the certificate when evidence exists that the Subscriber used the certificate.

4.6.6 Publication of the Renewal Certificate by the CA

emSign publishes a renewed certificate by delivering it to the Subscriber in the method prescribed in the relevant CP and in accordance with section 2.1.

4.6.7 Notification of Certificate Issuance by the CA to Other Entities

RAs may receive notification of a certificate's renewal if the RA was involved in the issuance process. The applicable community is notified when a CA Certificate is issued for that community.

4.7 CERTIFICATE RE-KEY

4.7.1 Circumstance for Certificate Re-key

Re-keying a certificate consists of creating a new certificate with a new Public Key and serial number while keeping the subject information the same. The new certificate may have a different validity date, key identifiers, CRL and OCSP distribution points, and signing key. CA keys may be re-keyed by a CA during recovery from key compromise. A CA Certificate may be re-keyed after expiration. The original CA Certificate may be revoked, but cannot be further re-keyed, renewed, or modified.

4.7.2 Who May Request Certificate Re-key

emSign will only accept re-key requests from the subject of the certificate or the PKI sponsor. emSign may initiate a certificate re-key at the request of the certificate subject or in emSign 's own discretion.

4.7.3 Processing Certificate Re-key Requests

emSign may re-use existing verification information unless re-verification and authentication is required by contract or if emSign believes that the information has become inaccurate. emSign or the RA will confirm the identity of the Subscriber in accordance with the requirements specified in the CP and contracts for the authentication of an original Certificate Application. The RAs will describe this practice in their respective RPS.

CA Certificate re-key requests will be approved according to the requirements in the associated contract, guidelines, requirements, and CP.

4.7.4 Notification of Certificate Re-key to Subscriber

emSign notifies the Subscriber within a reasonable time after the certificate issues or per the requirements within the legal agreements and External Program CP.

4.7.5 Conduct Constituting Acceptance of a Re-keyed Certificate

Issued certificates are considered accepted 30 days after the certificate is re-keyed, or earlier upon use of the certificate when evidence exists that the Subscriber used the certificate.

4.7.6 Publication of the Issued Certificate by the CA

emSign publishes re-keyed certificates by delivering them to Subscribers or per the requirements within the legal agreements and program CP.

4.7.7 Notification of Certificate Issuance by the CA to Other Entities

RAs may receive notification of a certificate's re-key if the RA was involved in the issuance process. The applicable community is notified when a CA Certificate is issued for that community.

4.8 CERTIFICATE MODIFICATION

4.8.1 Circumstances for Certificate Modification

Modifying a certificate means creating a new certificate for the same subject with information that differs slightly from the old certificate (e.g., changes to email address or non-essential parts of names or attributes) provided that the modification otherwise complies with the relevant CP and this CP/CPS. The new certificate may have the same or a different subject public key.

emSign or an RA may modify certificates in the following circumstances:

- For a Subscriber organization name change or other Subscriber characteristic change
- To extend the validity period to maintain continuity of certificate usage in certain programs based on circumstances allowed in the CP; or
- To correct subject name attributes or extension settings.

The original certificate may be revoked, but cannot be further re-keyed, renewed, or modified.

4.8.2 Who May Request Certificate Modification

emSign or an RA modifies certificates at the request of certain certificate subjects or in its own discretion or according to the relevant CP. emSign does not make certificate modification services available to all Subscribers.

RAs that modify certificates will specify the compliant practice in their RPS according to this CP/CPS and the CP for the certificate type and subject.

4.8.3 Processing Certificate Modification Requests

After receiving a request for modification, emSign or an RA verifies any changed information in accordance with section 3.2 of this CP/CPS and the applicable CP or guidelines.

RAs that modify certificates will specify the compliant practice in their RPS according to this CP/CPS and the CP for the certificate type and subject.

4.8.4 Notification of Certificate Modification to Subscriber

emSign notifies the Subscriber within a reasonable time after the certificate issues or by the timeframe specified in the applicable CP or guidelines. RAs will specify the timeframe in their RPS based on compliant

practices with this CP/CPS and the applicable CP or guidelines.

4.8.5 Conduct Constituting Acceptance of a Modified Certificate

Modified certificates are considered accepted 30 days after the certificate is modified, or earlier upon use of the certificate when evidence exists that the Subscriber used the certificate.

4.8.6 Publication of the Modified Certificate by the CA

emSign publishes modified certificates by delivering them to Subscribers based on section 2.1.

4.8.7 Notification of Certificate Modification by the CA to Other Entities

RAs may receive notification of a certificate's modification if the RA was involved in the issuance process. The applicable community is notified when a CA Certificate is issued for that community.

4.9 CERTIFICATE REVOCATION AND SUSPENSION

4.9.1 Circumstances for Revocation

Revocation of a certificate permanently ends the operational period of the certificate prior to the certificate reaching the end of its stated validity period. Prior to revoking a certificate, emSign verifies the identity and authority of the entity requesting revocation. emSign may revoke any certificate in its sole discretion, including if emSign believes that:

1. The Subscriber requested revocation of its certificate;
2. The Subscriber did not authorize the original certificate request and did not retroactively grant authorization;
3. Either the Private Key associated with the certificate, or the Private Key used to sign the certificate was compromised or misused;
4. The Subscriber breached a material obligation under the CP/CPS or the relevant agreement;
5. Either the Subscriber's or emSign 's obligations under the CP/CPS are delayed or prevented by circumstances beyond the party's reasonable control, including computer or communication failure, and, as a result, another entity's information is materially threatened or compromised;
6. The Subscriber, sponsor, or other entity that was issued the certificate has lost its rights to a name, trademark, device, IP address, domain name, or other attribute that was associated with the certificate;
7. The certificate was not issued in accordance with the CP/CPS or applicable industry standards;
8. emSign received a lawful and binding order from a government or regulatory body to revoke the certificate;
9. emSign ceased operations and did not arrange for another certificate authority to provide revocation support for the certificates;
10. emSign 's right to manage certificates under applicable industry standards was terminated (unless arrangements have been made to continue revocation services and maintain the CRL/OCSP Repository);
11. Any information appearing in the certificate was or became inaccurate or misleading;
12. The technical content or format of the certificate presents an unacceptable risk; or

13. The Subscriber was added as a denied party or prohibited person to a blacklist or is operating from a destination prohibited under the laws of the United States.

emSign processes revocation requests in accordance with instructions from the RA and Subscribers. Generally, emSign revokes certificates in a reasonable timeframe after receiving an approved revocation request – generally within 24 hours.

If emSign or the RA makes the decision to revoke, the associated certificate will be revoked and distributed via OCSP or CRL (as applicable). Revocation information for certificates is included on all new publications of the certificate status information until the certificates expire.

4.9.2 Who Can Request Revocation

Any appropriately authorized party as defined in the relevant legal contract or CP, such as a recognized representative of a subscriber or cross-signed partner, may request revocation of a certificate. emSign may revoke a certificate without receiving a request and without reason. Third parties may request certificate revocation for problems related to fraud, misuse, or compromise. Certificate revocation requests must identify the entity requesting revocation and specify the reason for revocation.

4.9.3 Procedure for Revocation Request

For certificates handled by emSign, the process for a revocation request generally flows as follows (additional steps may be followed to meet community expectations):

1. emSign logs the identity of entity making the request or problem report and the reason for requesting revocation. emSign may also include its own reasons for revocation in the log.
2. emSign may request confirmation of the revocation from the Subscriber or a known administrator, where applicable, via out-of-band communication (e.g., telephone, fax, etc.).
3. If the request is authenticated as originating from the Subscriber, emSign revokes the certificate.
4. For requests from third parties, emSign personnel begin investigating the request and decide whether revocation is appropriate based on the following criteria:
    a. the nature of the alleged problem,
    b. the number of reports received about a particular certificate,
    c. the identity of the complainants (for example, complaints from a law enforcement official that a web site is engaged in illegal activities have more weight than a complaint from a consumer alleging they never received the goods they ordered), and
    d. relevant legislation.
5. If emSign determines that revocation is appropriate, emSign personnel revoke the certificate and update the CRL.

emSign maintains a continuous ability to internally respond to any high priority revocation requests. If appropriate, emSign forwards complaints to law enforcement.

Revocation requests may originate from subscribers, external authorities operating the program applicable to the certificates, RAs, and resellers. emSign may require an entity requesting revocation to authenticate

itself prior to processing the revocation.

Upon revocation of a certificate, emSign publishes the revocation information using OCSP or CRLs, depending on the contents of the issued certificate.

4.9.4 Revocation Request Grace Period

There are no revocation grace periods for the emSign PRIVATE PKI CAs. Subscribers are required to request revocation as soon as practically possible after detecting the loss or compromise of the Private Key.

4.9.5 Time within which CA Must Process the Revocation Request

emSign will revoke a CA Certificate within a reasonable time after receiving clear instructions from the EPA. Other certificates are revoked as quickly as practical after validating the revocation request.

emSign begins the investigation of a certificate revocation request promptly after receipt. RAs that accept revocation requests should promptly provide the request to emSign via their system or through email. There is no stipulation about when certificate revocation requests are completed. Such timing depends largely on the availability of information supporting authorization of the certificate revocation request and the expected impact of revocation.

4.9.6 Revocation Checking Requirement for Relying Parties

Relying Parties must check the status of certificates on which they wish to rely on by checking the certificate status using CRLs or OCSP responses, as applicable.

4.9.7 CRL Issuance Frequency

Where applicable, CRLs for end entity certificates are generally published at least every 24 hours.

emSign may issue CRLs periodically, even if there are no changes to be made, to ensure timeliness of information. Certificate status information may be issued more frequently than the issuance frequency described below. External CAs under this program may be required to update and reissue CRLs at a more frequent rate as specified by the relevant agreements, contracts, technical specification documentation, and CP.

4.9.8 Maximum Latency for CRLs

CRLs for certificates issued to end entity subscribers are posted automatically to the online repository within a commercially reasonable time after generation or per requirements in legal agreements and CP, usually within minutes of generation. Regularly scheduled CRLs are posted prior to the nextUpdate field in the previously issued CRL of the same scope.

4.9.9 On-line Revocation/Status Checking Availability

If specified in the certificate, emSign provides OCSP response information for issued certificates.

4.9.10 On-line Revocation Checking Requirements

A Relying Party for emSign Private PKI Certificates must check the status of a certificate on which they wish to rely on with methods as specified in this section.

4.9.11 Other Forms of Revocation Advertisements Available

No stipulation.

4.9.12 Special Requirements Related to Key Compromise

Revocation information for CA Certificates is published after creation of the appropriate CRL and OCSP information, as applicable. Typically, revocation information for CA Certificates is published within 24 hours of notification based on the requirements of the contracts and relevant CP.

Subscribers must notify the CA immediately upon discovery of a private key compromise, request revocation of the corresponding certificate, and make every effort to notify any impacted Relying Parties. Steps for requesting revocation of a certificate with a compromised key are detailed in Section 4.9.1 above.

4.9.13 Circumstances for Suspension

Not applicable.

4.9.14 Who Can Request Suspension

Not applicable.

4.9.15 Procedure for Suspension Request

Not applicable.

4.9.16 Limits on Suspension Period

Not applicable.

4.10 CERTIFICATE STATUS SERVICES

4.10.1 Operational Characteristics

Certificate status information may be available via CRL and OCSP responder. The Repository is available via HTTP or another accessible transfer protocol as specified in section 2.1. The serial number of a revoked certificate remains on the CRL until one additional CRL is published after the end of the certificate's validity period.

4.10.2 Service Availability

Certificate status services are available on a continuous basis.

4.10.3 Optional Features

OCSP Responders may not be available for all certificate types. For those that are required, they will be configured per the profile requirements of the associated CP section 7.

4.11 END OF SUBSCRIPTION

A Subscriber's subscription service ends if its certificate expires or is revoked or if the applicable Subscriber Agreement expires without renewal.

4.12 KEY ESCROW AND RECOVERY

4.12.1 Key Escrow and Recovery Policy Practices

No stipulation.

4.12.2 Session Key Encapsulation and Recovery Policy and Practices

No stipulation.

5 FACILITY, MANAGEMENT, AND OPERATIONAL CONTROLS

5.1 PHYSICAL CONTROLS

5.1.1 Site Location and Construction

emSign performs its CA operations from secure and diverse data centers. The data centers are equipped with logical and physical controls that make emSign's CA operations inaccessible to non-trusted personnel as described in section 5.1.2. emSign operates under a security policy designed to detect, deter, and prevent unauthorized access to emSign 's operations.

5.1.2 Physical Access

emSign protects its equipment from unauthorized access and implements physical controls to reduce the risk of equipment tampering. The secure parts of emSign CA hosting facilities are protected using physical access controls making them accessible only to appropriately authorized individuals in layers of security as described here. Access to secure areas of the buildings requires the use of an "access" or "pass" card. The buildings are equipped with motion detecting sensors, and the exterior and internal passageways of the buildings are under constant video surveillance in each subsequent area. emSign securely stores all removable media and paper containing sensitive plain-text information related to its CA operations in secure containers in accordance with its Data Classification Policy.

Access to the data centers housing the CA platforms requires two-factor authentication—the individual must have an authorized access card and pass biometric access control authenticators. These biometric authentication access systems log each use of the access card that specify which layers of security they have access to based on their trusted role status and designated responsibilities described in section 5.2.1.

emSign deactivates and securely stores its CA equipment when not in use. Activation data must either be memorized or recorded and stored in a manner commensurate with the security afforded the

cryptographic module. Activation data is never stored with the cryptographic module or removable hardware associated with equipment used to administer emSign 's private keys. Cryptographic hardware includes a mechanism to lock the hardware after a certain number of failed login attempts.

emSign personnel perform periodic security checks of the data center to verify that:

1. emSign 's equipment is in a state appropriate to the current mode of operation,
2. Any security containers are properly secured,
3. Physical security systems (e.g., door locks) are functioning properly, and
4. The area is secured against unauthorized access.

emSign administrators are responsible for making these checks and must sign off that all necessary physical protection mechanisms are in place and activated. The identity of the individual making the check is logged.

5.1.3 Power and Air Conditioning

Data centers have primary and secondary power supplies that ensure continuous and uninterrupted access to electric power. Uninterrupted power supplies (UPS) and diesel generators provide redundant backup power. emSign monitors capacity demands and makes projections about future capacity requirements to ensure that adequate processing power and storage are available. emSign data center facilities use multiple load- balanced HVAC systems for heating, cooling, and air ventilation through perforated-tile raised flooring to prevent overheating and to maintain a suitable humidity level for sensitive computer systems.

5.1.4 Water Exposures

The cabinets housing emSign CA systems are located on raised flooring, and the data centers are equipped with monitoring systems to detect excess moisture.

5.1.5 Fire Prevention and Protection

The data centers are equipped with fire suppression mechanisms.

5.1.6 Media Storage

emSign protects its media from accidental damage and unauthorized physical access. Backup files are created on a regular basis. emSign 's backup files are maintained at locations separate from emSign 's primary data operations facility.

5.1.7 Waste Disposal

CA media and documentation that are no longer needed for operations are destroyed in a secure manner. All unnecessary copies of printed sensitive information are shredded on-site before disposal.

5.1.8 Off-site Backup

emSign maintains at least one full backup and makes regular backup copies of any information necessary to

recover from a system failure. Backup copies of CA Private Keys and activation data are stored for disaster recovery purposes off-site in safe deposit boxes that are accessible only by trusted personnel.

5.2 PROCEDURAL CONTROLS

5.2.1 Trusted Roles

Trusted roles are created in the emSign PKI system in order to ensure that one person acting alone cannot circumvent security safeguards implemented in the CA system. To ensure this the responsibilities are shared by multiple roles and individuals. This is accomplished by creating separate roles and accounts on various components of the CA system, and each role has a limited amount of capability. This method allows a system of "checks and balances" to occur among the various roles.

The trusted roles within the emSign PKI system defined includes various roles like Admin Officer, Audit Officer, Registration Officer, Security Officer, Systems Officer, etc. These are defined in detail along with their responsibilities as part of internal policy documents, and may be confidential in nature.

RAs may have different requirements for appointing trusted roles. The process used by RAs for appointing and governing Trusted Roles is specified in the applicable RPS.

5.2.2 Number of Persons Required per Task

emSign requires that at least two people acting in a trusted role (one the CA Administrator and the other not an Internal Auditor) take action requiring a trusted role, such as activating emSign's Private Keys, generating a CA key pair, or backing up an emSign private key. The Internal Auditor may serve to fulfill the requirement of multiparty control for physical access to the CA system but not logical access.

5.2.3 Identification and Authentication for each Role

All personnel are required to authenticate themselves to CA and RA systems before they are allowed access to systems necessary to perform their trusted roles. External RA system access and control by trusted roles are specified in the respective RPS.

5.2.4 Roles Requiring Separation of Duties

Roles requiring a separation of duties include:

1. Those performing authorization functions such as the verification of information in certificate applications and approvals of certificate applications and revocation requests,
2. Those performing backups, recording, and record keeping functions;
3. Those performing audit, review, oversight, or reconciliation functions; and
4. Those performing duties related to CA key management or CA administration.

For RAs, the separation of duties for trusted roles are addressed in their respective RPS.

5.3 PERSONNEL CONTROLS

5.3.1 Qualifications, Experience, and Clearance Requirements

The EPA is responsible and accountable for emSign's PKI operations and ensures compliance with this CP/CPS. emSign 's personnel and management practices provide reasonable assurance of the trustworthiness and competence of its employees and of the satisfactory performance of their duties.

For Trusted Roles maintained by RAs external to emSign, these requirements will be addressed in their respective RPS.

5.3.2 Background Check Procedures

Background check procedures include but are not limited to checks and confirmation of:

- Previous employment
- Professional references
- Educational qualifications
- Identity Verification
- Other relevant government records (e.g. national identifiers, etc.)

Where the checks and confirmations cannot be obtained due to a prohibition or limitation of law or other circumstances, All Issuing CAs of emSign PKI will utilize available substitute investigation techniques that provide similar information, including background checks performed by applicable Government and/or Private agencies.

For Trusted Roles maintained by RAs external to emSign, these requirements will be addressed in their respective RPS.

5.3.3 Training Requirements

emSign provides skills training to all employees involved in emSign's PKI operations. The training relates to the person's job functions and covers:

1. basic Public Key Infrastructure (PKI) knowledge,
2. software versions used by emSign,
3. authentication and verification policies and procedures,
4. emSign security principals and mechanisms,
5. disaster recovery and business continuity procedures,
6. common threats to the validation process, including phishing and other social engineering tactics, and
7. applicable industry and government guidelines.

Training is provided via a mentoring process involving senior members of the team to which the employee belongs.

emSign maintains records of who received training and what level of training was completed. Registration Officers must have the minimum skills necessary to satisfactorily perform validation duties before being granted validation privileges. Where competence is demonstrated in lieu of training, emSign maintains supporting documentation.

5.3.4 Retraining Frequency and Requirements

Employees must maintain skill levels that are consistent with industry-relevant training and performance programs in order to continue acting in trusted roles. emSign makes all employees acting in trusted roles aware of any changes to emSign's operations. If emSign's operations change, emSign will provide documented training, in accordance with an executed training plan, to all employees acting in trusted roles.

5.3.5 Job Rotation Frequency and Sequence

No stipulation.

5.3.6 Sanctions for Unauthorized Actions

emSign employees and agents failing to comply with this CP/CPS, whether through negligence or malicious intent, are subject to administrative or disciplinary actions, including termination of employment or agency and criminal sanctions. If a person in a trusted role is cited by management for unauthorized or inappropriate actions, the person will be immediately removed from the trusted role pending management review. After management has reviewed and discussed the incident with the employee involved, management may reassign that employee to a non-trusted role or dismiss the individual from employment as appropriate.

5.3.7 Independent Contractor Requirements

Independent contractors who are assigned to perform trusted roles are subject to the duties and requirements specified for such roles in this Section 5.3 and are subject to sanctions stated above in Section 5.3.6. Otherwise, independent contractors and consultants are escorted and directly supervised by Trusted Persons when they are given access to emSign and any of its secure facilities.

5.3.8 Documentation Supplied to Personnel

Personnel in trusted roles are provided with the documentation necessary to perform their duties. Personnel are also given access to information on internal systems and security documentation, identity vetting policies and procedures, discipline-specific books, treatises and periodicals, and other information.

For Trusted Roles maintained by RAs external to emSign, these requirements will be addressed in their respective RPS and will include the relevant CP, this CP/CPS, and technical specification documents.

5.4 AUDIT LOGGING PROCEDURES

5.4.1 Types of Events Recorded

emSign's systems require identification and authentication at system logon with a unique user name and password. Important system actions are logged to establish the accountability of the operators who initiate such actions.

emSign enables all essential event auditing capabilities of its CA applications in order to record the events

listed below. If emSign's applications cannot automatically record an event, emSign or an RA implements manual procedures to satisfy the requirements. For each event, emSign records the relevant (i) date and time, (ii) type of event, (iii) success or failure, and (iv) user or system that caused the event or initiated the action. Event records are available to auditors as proof of emSign's or RA practices.

In generally, emSign audits all activities related to the CA, including security events, authentication to systems, data entry, key generation, private key storage, etc. The systems audited are dependent on platform as well as requirements specified by the community of interest. Anomalies in the system are investigated and tracked.

5.4.2 Frequency of Processing Log

When checking logs, the administrator may perform the checks using automated tools. During these checks, the administrator (1) checks whether anyone has tampered with the log, (2) scans for anomalies or specific conditions, including any evidence of malicious activity, and (3) prepares a written summary of the review. Any anomalies or irregularities found in the logs are investigated. The summaries include recommendations to emSign's operations management committee and are made available to emSign's auditors upon request. emSign documents any actions taken as a result of a review.

5.4.3 Retention Period for Audit Log

No stipulation.

5.4.4 Protection of Audit Log

CA audit log information is retained on equipment until after it is copied by a system administrator. emSign's CA systems are configured to ensure that (i) only authorized people have read access to logs, (ii) only authorized people may archive audit logs, and (iii) audit logs are not modified. Audit logs are protected from destruction prior to the end of the audit log retention period and are retained securely on-site until transferred to a backup site. emSign's off-site storage location is a safe and secure location that is separate from the location where the data was generated.

5.4.5 Audit Log Backup Procedures

No stipulation.

5.4.6 Audit Collection System

Automatic audit processes begin on system startup and end at system shutdown. If an automated audit system fails and the integrity of the system or confidentiality of the information protected by the system is at risk, emSign's Administrators, External Program PMAs, and the EPA shall be notified, and the EPA will consider suspending the CA's or RA's operations until the problem is remedied.

5.4.7 Notification to Event-causing Subject

No stipulation.

5.4.8 Vulnerability Assessments

emSign performs annual risk assessments that identify and assess reasonably foreseeable internal and external threats that could result in unauthorized access, disclosure, misuse, alteration, or destruction of any certificate data or certificate issuance process. emSign also routinely assesses the sufficiency of the policies, procedures, information systems, technology, and other arrangements that emSign has in place to control such risks. emSign's Internal Auditors review the security audit data checks for continuity. emSign audit log monitoring tools alert the appropriate personnel of any events, such as repeated failed actions, requests for privileged information, attempted access of system files, and unauthenticated responses.

5.5 RECORDS ARCHIVAL

emSign complies with all record retention policies that apply by law. emSign includes sufficient detail in all archived records to show that a certificate was issued in accordance with this CP/CPS.

5.5.1 Types of Records Archived

emSign retain the following information in its archives (as such information pertains to emSign's CA operations in the CP and legal agreements):

1. Accreditations of emSign,
2. CP and CPS versions,
3. Contractual obligations and other agreements concerning the operation of the CA,
4. System and equipment configurations, modifications, and updates,
5. Rejection or acceptance of a certificate request,
6. Certificate issuance, re-key, renewal, and revocation requests,
7. Sufficient identity authentication data to satisfy the identification requirements of Section 3.2, including information about telephone calls made for verification purposes,
8. Any documentation related to the receipt or acceptance of a certificate or token,
9. Subscriber Agreements,
10. Issued certificates,
11. A record of certificate re-keys,
12. CRL and OCSP entries,
13. Data or applications necessary to verify an archive's contents,
14. Compliance auditor reports,
15. Changes to emSign 's audit parameters,
16. Any attempt to delete or modify audit logs,
17. Key generation, destruction, storage, backup, and recovery,
18. Access to Private Keys for key recovery purposes,
19. Export of Private Keys,
20. Approval or rejection of a certificate status change request,
21. Appointment of an individual to a trusted role,
22. Destruction of a cryptographic module,
23. Certificate compromise notifications,

24. Remedial action taken as a result of violations of physical security, and
25. Violations of the CP/CPS.

5.5.2 Retention Period for Archive

Archive records are kept in accordance with the community requirements. This timeframe may range between 1 and 11 years.

For records maintained by external RAs, the materials will be maintained for availability upon request by appropriately identified parties and per the requirements of the associated legal agreements, CP, and this CP/CPS.

5.5.3 Protection of Archive

Archive records are stored at a secure off-site location and are maintained in a manner that prevents unauthorized modification, substitution, or destruction. Archives are not released except as allowed by the EPA or as required by law. emSign maintains any software application required to process the archive data until the data is either destroyed or transferred to a newer medium.

If emSign needs to transfer any media to a different archive site or equipment, emSign will maintain both archived locations and/or pieces of equipment until the transfer are complete. All transfers to new archives will occur in a secure manner.

5.5.4 Archive Backup Procedures

No stipulation.

5.5.5 Requirements for Time-stamping of Records

emSign automatically time-stamps archived records with system time (non-cryptographic method) as they are created. emSign synchronizes its system time at least every eight hours using a real time value distributed by a recognized UTC(k) laboratory or National Measurement Institute.

5.5.6 Archive Collection System (internal or external)

Archive information is collected internally by emSign. External information from RAs is not typically collected or controlled by emSign.

5.5.7 Procedures to Obtain and Verify Archive Information

Details concerning the creation and storage of archive information are found in section 5.5.4. After receiving a request made for a proper purpose by a customer, its agent, or a party involved in a dispute over a transaction involving the PKI, emSign may elect to retrieve the information from archival. emSign may elect to transmit the relevant information via a secure electronic method or courier, or it may also refuse to provide the information in its discretion and may require prior payment of all costs associated with the data.

5.6 KEY CHANGEOVER

Key changeover procedures enable the smooth transition from expiring CA Certificates to new CA Certificates. Towards the end of a CA Private Key's lifetime, emSign ceases using the expiring CA Private Key to sign certificates and uses the old Private Key only to sign CRLs, OCSP responses, and OCSP responder certificates. A new CA signing key pair is commissioned and all subsequently issued certificates and CRLs are signed with the new private signing key. Both the old and the new key pairs may be concurrently active. This key changeover process helps minimize any adverse effects from CA Certificate expiration.

A CA Certificate may be renewed if permitted by the applicable community. emSign renews CA Certificates pursuant to the instructions of the community's governing body and that community's CP.

5.7 COMPROMISE AND DISASTER RECOVERY

5.7.1 Incident and Compromise Handling Procedures

emSign maintains incident response procedures to guide personnel in response to security incidents, natural disasters, and similar events that may give rise to system compromise. emSign reviews, tests, and updates its incident response plans and procedures on at least an annual basis.

5.7.2 Computing Resources, Software, and/or Data Are Corrupted

emSign makes regular system backups on at least a weekly basis and maintains backup copies of its Private Keys, which are stored in a secure, off-site location. If emSign discovers that any of its computing resources, software, or data operations have been compromised, emSign assesses the threats and risks that the compromise presents to the integrity or security of its operations or those of affected parties. If emSign determines that a continued operation could pose a significant risk to Relying Parties or Subscribers, emSign suspends such operation until it determines that the risk is mitigated.

5.7.3 Entity Private Key Compromise Procedures

If emSign suspects that one of its Private Keys has been comprised or lost, then an emergency response team will convene and assess the situation to determine the degree and scope of the incident and take appropriate action. emSign may generate a new key pair and sign a new certificate. If a disaster physically damages emSign's equipment and destroys all copies of emSign's signature keys, then emSign will provide notice to affected parties at the earliest feasible time.

5.7.4 Business Continuity Capabilities after a Disaster

To maintain the integrity of its services, emSign implements data backup and recovery procedures as part of its Business Continuity Management Plan (BCMP). Stated goals of the BCMP are to ensure that certificate status services be only minimally affected by any disaster involving emSign's primary facility and that emSign be capable of maintaining other services or resuming them as quickly as possible following a disaster. emSign reviews, tests, and updates the BCMP and supporting procedures at least annually.

emSign 's systems are redundantly configured at its primary facility and are mirrored at a separate, geographically diverse location for failover in the event of a disaster. If a disaster causes emSign's primary CA operations to become inoperative, emSign will re-initiate its operations at its secondary location giving priority to the provision of certificate status information and time stamping capabilities, if affected.

5.8 CA OR RA TERMINATION

Before terminating its CA activities, emSign will:

- Provide notice and information about the termination by sending notice by email to its customers; and
- Transfer all responsibilities to a qualified successor entity. If a qualified successor entity does not exist, emSign will:
  - transfer those functions capable of being transferred to a reliable third party and arrange to preserve all relevant records with a reliable third party or a government, regulatory, or legal body with appropriate authority;
  - revoke all certificates that are still un-revoked or un-expired on a date as specified in the notice and publish final CRLs;
  - destroy all Private Keys; and
  - make other necessary arrangements that are in accordance with this CP/CPS.

emSign has made arrangements to cover the costs associated with fulfilling these requirements in case emSign becomes bankrupt or is unable to cover the costs. Any requirements of this section that are varied by contract apply only the contracting parties.

6 TECHNICAL SECURITY CONTROLS

6.1 KEY PAIR GENERATION AND INSTALLATION

6.1.1 Key Pair Generation

CA key pairs are generated by trusted roles and using a cryptographic hardware device. Typically, the cryptographic hardware is evaluated to FIPS 140-1 Level 3 and EAL 4+. Community requirements may specify a lower version of control. emSign creates auditable evidence during the key generation process to prove that the CP/CPS was followed and role separation was enforced during the key generation process.

6.1.2 Private Key Delivery to Subscriber

Subscriber key pair generation is performed by the Subscriber, an external CA, an RA, or emSign. If the Subscribers themselves generate private keys, then private key delivery to a Subscriber is unnecessary.

When emSign or a CA generate key pairs on behalf of the Subscriber, the private key is delivered securely to the Subscriber based on the requirements of the associated legal agreements, CP, technical specification documents, and this CP/CPS.

6.1.3 Public Key Delivery to Certificate Issuer

Subscribers generate key pairs and submit the Public Key to emSign in a CSR as part of the certificate

request process. The Subscriber's signature on the request is authenticated prior to issuing the certificate.

6.1.4 CA Public Key Delivery to Relying Parties

No stipulation.

6.1.5 Key Sizes

Key sizes are specified in the applicable certificate profile document.

6.1.6 Public Key Parameters Generation and Quality Checking

emSign uses a cryptomodule that conforms to FIPS 186-2 and provides random number generation and on-board generation of up to 4096-bit RSA Public Keys and a wide range of ECC curves.

6.1.7 Key Usage Purposes (as per X.509 v3 key usage field)

emSign 's certificates may include key usage extension fields that specify the intended use of the certificate and technically limit the certificate's functionality in X.509v3 compliant software. The use of a specific key is determined by the key usage extension in the X.509 certificate and by the requirements specified by the relevant legal agreements, CP, and technical specification documents. Subscriber certificates assert key usages based on the intended application of the key pair. In particular certificates to be used for digital signatures (including authentication) set the digitalSignature and/or nonRepudiation bits. Certificates to be used for key or data encryption shall set the keyEncipherment and/or dataEncipherment bits. Certificates to be used for key agreement shall set the keyAgreement bit.

Key usage bits and extended key usages are specified in the certificate profile for each type of certificate as set forth in relevant profiled document.

6.2 PRIVATE KEY PROTECTION AND CRYPTOGRAPHIC MODULE ENGINEERING CONTROLS

6.2.1 Cryptographic Module Standards and Controls

CA Private keys and generally protected using FIPS 140-2 Level 3 systems. External Program communities may elect a different standard for key protection, in which case that standard prevails. Private key holders must take necessary precautions to prevent the loss, disclosure, modification, or unauthorized use of such Private Keys in accordance with the relevant CP and contractual obligations specified in the appropriate legal agreements.

RAs with cryptographic modules will protect the Private Keys at the level specified in the relevant CP, legal agreements, this CP/CPS, and technical specification documents. These practices will be stated in their respective RPS.

6.2.2 Private Key (n out of m) Multi-person Control

emSign's authentication mechanisms are protected securely when not in use and may only be accessed by actions of multiple trusted persons. Backups of CA Private Keys are securely stored off-site and require

two- person access. Re-activation of a backed-up CA Private Key (unwrapping) requires the same security and multi-person control as when performing other sensitive CA Private Key operations.

6.2.3 Private Key Escrow

No stipulation.

6.2.4 Private Key Backup

No stipulation.

6.2.5 Private Key Archival

No stipulation.

6.2.6 Private Key Transfer into or from a Cryptographic Module

CA private keys are transferred from one cryptographic module to another to perform CA key backup procedures in section 6.3.4.

All other keys are generated by and in a cryptographic module. In the event that a private key is to be transported from one cryptographic module to another, the private key is encrypted during transport; private keys never exist in plaintext form outside the cryptographic module boundary.

Private or symmetric keys used to encrypt other private keys for transport are protected from disclosure.

Entry of a private key into cryptographic modules use mechanisms to prevent loss, theft, modification, unauthorized disclosure, or unauthorized use of such private key.

When emSign generates CA or RA private keys on one hardware cryptographic module and transfers them into another device, emSign securely transfers such private keys into the second cryptographic module in a manner that prevents loss, theft, modification, unauthorized disclosure, or unauthorized use of such private keys. Such transfers shall be limited to making backup copies of the private keys on tokens.

If emSign pre-generates private keys and transfers them into a hardware token, emSign will securely transfer such private keys into the token in a manner that prevents the loss, theft, modification, unauthorized disclosure, or unauthorized use of such private keys.

6.2.7 Private Key Storage on Cryptographic Module

No stipulation beyond that specified in FIPS 140-2.

6.2.8 Method of Activating Private Keys

emSign 's Private Keys are activated according to the specifications of the cryptographic module manufacturer. Activation data entry is protected from disclosure.

emSign protects the activation data for their private keys against loss, theft, modification, disclosure, or unauthorized use.

CA administrators are authenticated to the cryptographic token before the activation of the associated private key(s). Entry of activation data is protected from disclosure (i.e., the data is not displayed while it is entered).

Subscribers are solely responsible for protecting their Private Keys. Subscribers should use a strong password or equivalent authentication method to prevent unauthorized access or use of the Subscriber's Private Key. At a minimum, Subscribers are required to authenticate themselves to the cryptographic module before activating their private keys.

6.2.9 Method of Deactivating Private Keys

emSign 's Private Keys are deactivated via logout procedures on the applicable HSM device when not in use. emSign never leaves its HSM devices in an active unlocked or unattended state. Subscribers should deactivate their Private Keys via logout and removal procedures when not in use.

6.2.10 Method of Destroying Private Keys

emSign /RA personnel, acting in trusted roles, destroy CA, RA, and status server Private Keys when no longer needed. Subscribers shall destroy their Private Keys when the corresponding certificate is revoked or expired or if the Private Key is no longer needed. emSign may destroy a Private Key by deleting it from all known storage partitions. emSign also zeroizes the HSM device and associated backup tokens according to the specifications of the hardware manufacturer. This reinitializes the device and overwrites the data with binary zeros.

CA keys associated with an External Program will be destroyed according to the requirements in the relevant legal agreements, CPs, technical specification documents, requirement(s), and this CP/CPS.

6.2.11 Cryptographic Module Rating

See Section 6.2.1.

6.3 OTHER ASPECTS OF KEY PAIR MANAGEMENT

6.3.1 Public Key Archival

emSign archives copies of Public Keys in accordance with Section 5.5 and per the associated CP requirements or other program documentation.

6.3.2 Certificate Operational Periods and Key Pair Usage Periods

The certificate validity period (i.e., certificate operational period and key pair usage period) are set to the time limits set forth in the relevant certificate profile.

6.4 ACTIVATION DATA

6.4.1 Activation Data Generation and Installation

emSign activates the cryptographic module containing its CA Private Keys according to the specifications of the hardware manufacturer. All emSign personnel and Subscribers are instructed to use strong passwords and to protect PINs and passwords. emSign employees are required to create non-dictionary, alphanumeric passwords with a minimum length. If emSign uses passwords as activation data for a signing key, emSign will change the activation data change upon re-key of the CA Certificate.

6.4.2 Activation Data Protection

emSign protects data used to unlock private keys from disclosure using a combination of cryptographic and physical access control mechanisms. Protection mechanisms include keeping activation mechanisms secure using role-based physical control. All emSign personnel are instructed to memorize and not to write down their password or share it with another individual. emSign locks accounts used to access secure CA processes if a certain number of failed password attempts occur. emSign protects the activation data for its private keys using methods that protect against the loss, theft, modification, unauthorized disclosure, or unauthorized use of such private keys. These details are maintained in the disaster recovery procedures. emSign maintains an audit trail of Secret Shares, and Shareholders participate in the maintenance of an audit trail.

6.4.3 Other Aspects of Activation Data

emSign will follow the requirements of the associated legal agreements, CPs, and technical specification documents. If RAs handle activation data, they will follow the requirements of their associated legal agreements, the CP, this CP/CPS, and the related technical specification documents and state those practices in their respective RPS.

6.5 COMPUTER SECURITY CONTROLS

6.5.1 Specific Computer Security Technical Requirements

Computer security controls are required to ensure CA operations are performed as specified in the relevant contract agreements, CPs, and technical specification documents.

emSign secures its CA systems and authenticates and protects communications between its systems and trusted roles. emSign 's CA servers and support-and-vetting workstations run on trustworthy systems that are configured and hardened using industry best practices.

6.5.2 Computer Security Rating

No stipulation.

6.6 LIFE CYCLE TECHNICAL CONTROLS

6.6.1 System Development Controls

emSign has mechanisms in place to control and monitor the acquisition and development of its CA systems.

Change requests require the approval of at least one administrator who is different from the person submitting the request. emSign only installs software on CA systems if the software is part of the CA's operation. CA hardware and software are dedicated to performing operations of the CA.

Vendors are selected based on their reputation in the market, ability to deliver quality product, and likelihood of remaining viable in the future. Management is involved in the vendor selection and purchase decision process. Non-PKI hardware and software is purchased without identifying the purpose for which the component will be used. All hardware and software are shipped under standard conditions to ensure delivery of the component directly to a trusted employee who ensures that the equipment is installed without opportunity for tampering.

Some of the PKI software components used by emSign are developed in-house or by consultants using standard software development methodologies. All such software is designed and developed in a controlled environment and subjected to quality assurance review. Other software is purchased commercial off-the- shelf (COTS). Quality assurance is maintained throughout the process through testing and documentation or by purchasing from trusted vendors as discussed above.

Updates of equipment and software are purchased or developed in the same manner as the original equipment or software and are installed and tested by trusted and trained personnel. All hardware and software essential to emSign's operations is scanned for malicious code on first use and periodically thereafter.

6.6.2 Security Management Controls

emSign has mechanisms in place to control and monitor the security-related configurations of its CA systems. When loading software onto a CA system, emSign verifies that the software is the correct version and is supplied by the vendor free of any modifications. emSign verifies the integrity of software used with its CA processes at least once a week.

6.6.3 Life Cycle Security Controls

No stipulation.

6.7 NETWORK SECURITY CONTROLS

emSign documents and controls the configuration of its systems, including any upgrades or modifications made. emSign 's CA system is connected to one internal network and is protected by firewalls and Network Address Translation for all internal IP addresses (e.g., 192.168.x.x). emSign 's customer support and vetting workstations are also protected by firewall(s) and only use internal IP addresses. Root Keys are kept offline and brought online only when necessary to sign certificate-issuing subordinate CAs, OCSP responses, OCSP Responder Certificates, or periodic CRLs. Firewalls and boundary control devices are configured to allow access only by the addresses, ports, protocols and commands required for the trustworthy provision of PKI services by such systems. emSign 's security policy is to block all ports and protocols and open only ports necessary to enable CA functions. All CA equipment is configured with a

minimum number of services and all unused network ports and services are disabled. emSign 's network configuration is available for review on- site by its auditors and consultants under an appropriate non-disclosure agreement.

6.8 TIME-STAMPING

When required by a legal contract, CP, and technical specification requirements documents Certificates, CRLs, and other revocation database entries contain time and date information. Such time information need not be cryptographic-based. Asserted times are accurate to within three minutes. Electronic or manual procedures may be used to maintain system time.

7 CERTIFICATE, CRL, AND OCSP PROFILES

emSign uses the ITU X.509, version 3 standard to construct digital certificates for use within the emSign PKI. Specific certificate profiles are specified in emSign's profile documentation, technical specification documents, and in the relevant community's CP or requirements document.

7.1 CERTIFICATE PROFILE

7.1.1 Version Number(s)

All certificates are X.509 version 3 certificates.

7.1.2 Certificate Extensions

As agreed to with the customer and as listed in the CP and technical specification documents or requirements document(s). emSign Certificates comply with the Grid Certificate Profile as defined by the Open Grid Forum GFD.225.

7.1.2.1 Key Usage

This permits the standard Key Usage values, and the criticality field of the KeyUsage extension is generally set to TRUE.

7.1.2.2 Certificate Policies Extension

An object identifier (OID) is a unique number that identifies an object or policy, unambiguously. The CertificatePolicies extension are populated with the OID for the policy identifiers defined in this CP/CPS. The criticality field of this extension shall be set to FALSE.

7.1.3 Algorithm Object Identifiers

Algorithm object identifiers are specified in the relevant certificate profile document or requirements document(s). emSign strongly recommends the following:

sha256WithRSAEncryption	[iso(1) member-body(2) us(840) rsadsi(113549) pkcs(1) pkcs-1(1) 11]

ecdsa-with-sha384	[iso(1) member-body(2) us(840) ansi-X9-62(10045) signatures (4) ecdsa-with-SHA2 (3) 3]

7.1.4 Name Forms

Name forms are specified in the relevant certificate profile document or requirements document(s).

7.1.5 Name Constraints

Certificates assert the name constraints specified in the relevant certificate profile document or requirements document(s).

7.1.6 Certificate Policy Object Identifier

Policy OIDs are identified in the relevant certificate profile document or requirements document(s).

7.1.7 Usage of Policy Constraints Extension

Policy constraints are specified in the relevant certificate profile document.

7.1.8 Policy Qualifiers Syntax and Semantics

Policy qualifiers are emSign may include brief statements in certificates about the limitations of liability and other terms associated with the use of a certificate in the Policy Qualifier field of the Certificates Policy extension.

7.1.9 Processing Semantics for the Critical Certificate Policies Extension

As agreed to with the customer and as listed in the CP and technical specification documents.

7.2 CRL PROFILE

7.2.1 Version number(s)

emSign issues version 2 CRLs that contain the following fields:

Field	Value
Issuer Signature Algorithm	sha-1WithRSAEncryption [1 2 840 113549 1 1 5] OR sha-256WithRSAEncryption [1 2 840 113549 1 1 11] OR ecdsa-with-sha384 [1 2 840 10045 4 3 3]
Issuer Distinguished Name	[As appropriate]
thisUpdate	CRL issue date in UTC format
nextUpdate	Date when the next CRL will issue in UTC format.
Revoked Certificates List	List of revoked certificates, including the serial number and revocation date
Issuer's Signature	[Signature]

7.2.2 CRL and CRL Entry Extensions

CRLs have the following extensions:

Extension	Value
CRL Number	Never repeated monotonically increasing integer
Authority Key Identifier	Same as the Authority Key Identifier listed in the certificate
Invalidity Date	Optional date in UTC format
Reason Code	Optional reason for revocation

7.3 OCSP PROFILE

7.3.1 Version Number(s)

emSign's OCSP responders conform to version 1 of RFC 2560.

7.3.2 OCSP Extensions

Extensions are set in accordance with RFC 2560.

8 COMPLIANCE AUDIT AND OTHER ASSESSMENTS

8.1 FREQUENCY OR CIRCUMSTANCES OF ASSESSMENT

Audits referencing this CP/CPS shall cover emSign's CA systems, Sub CAs, and OCSP Responders.

RAs must comply with the audit requirements as specified in the legal agreements, the CP, relevant technical specification requirements, and this CP/CPS. How those audit requirements are met will be stipulated in their RPS.

8.2 IDENTITY/QUALIFICATIONS OF ASSESSOR

As agreed to with the customer in the relevant legal agreements, CP, and technical specification documents. RAs must comply with the audit requirements as specified in the legal agreements, the CP, relevant technical specification requirements, and this CP/CPS. How those audit requirements are met will be stipulated in their RPS.

8.3 ASSESSOR'S RELATIONSHIP TO ASSESSED ENTITY

As agreed to with the customer in the relevant legal agreements, CP, requirement(s), and technical specification documents.

RAs must comply with the audit requirements as specified in the legal agreements, the CP, relevant technical specification requirements, and this CP/CPS. How those audit requirements are met will be stipulated in their RPS.

8.4 TOPICS COVERED BY ASSESSMENT

Any audit covers emSign's business practices disclosure, the integrity of emSign's PKI operations, and emSign's compliance with relevant standards.

RAs must comply with the audit requirements as specified in the legal agreements, the CP, relevant technical specification requirements, and this CP/CPS. How those audit requirements are met will be stipulated in their RPS.

8.5 ACTIONS TAKEN AS A RESULT OF DEFICIENCY

If an audit reports a material noncompliance with applicable law, this CP/CPS, or any other contractual obligations related to emSign's services, then (1) the auditor will document the discrepancy, (2) the auditor will promptly notify emSign, and (3) emSign will develop a plan to cure the noncompliance. emSign will submit the plan to the EPA and/or governing bodies established for the programs for approval and to any third party that emSign is legally obligated to satisfy. The EPA may require additional action if necessary to rectify any significant issues created by the non- compliance, including requiring revocation of affected certificates.

RAs must comply with the audit requirements as specified in the legal agreements, the CP, relevant technical specification requirements, and this CP/CPS. How those audit requirements are met will be stipulated in their RPS.

8.6 COMMUNICATION OF RESULTS

The results of each audit are reported to the EPA and to any third-party entities which are entitled by law, regulation, or agreement to receive a copy of the audit results. emSign may elect to share the audit report results with other entities in its sole discretion.

8.7 SELF-AUDITS

No stipulation.

9 OTHER BUSINESS AND LEGAL MATTERS

9.1 FEES

9.1.1 Certificate Issuance or Renewal Fees

emSign charges fees for certificate issuance and renewal. emSign may change its fees in accordance with the applicable customer agreement.

9.1.2 Certificate Access Fees

If not specified in the relevant legal agreements or CP of an associated third party, emSign may charge a reasonable fee for access to its certificate databases.

9.1.3 Revocation or Status Information Access Fees

emSign does not charge a certificate revocation fee or a fee for checking the validity status of an issued certificate using a CRL. emSign may charge a fee for providing certificate status information via OCSP.

9.1.4 Fees for Other Services

No stipulation.

9.1.5 Refund Policy

As set forth in the relevant customer agreement with emSign.

9.2 FINANCIAL RESPONSIBILITY

9.2.1 Insurance Coverage

emSign maintains Commercial General Liability insurance with a policy limit of at least $2 million in coverage and Professional Liability/Errors & Omissions insurance with a policy limit of at least $5 million in coverage. Insurance is carried through companies rated no less than A- as to Policy Holder's Rating in the current edition of Best's Insurance Guide (or with an association of companies, each of the members of which are so rated).

9.2.2 Other Assets

As set forth in the relevant legal agreements.

9.2.3 Insurance or Warranty Coverage for End-Entities

No stipulation.

9.2.4 Financial Records

emSign PKI shall maintain its financial records, including books of accounts, in a commercially reasonable manner.

9.2.5 No Partnership or Agency

No partnership or agency is implied in any subscriber or relying party agreement under this CP/CPS. Hence emSign is not the agent, fiduciary trustee or other representative of subscribers or the relying parties. Further the subscribers and relying parties shall not represent themselves as agent, partner, affiliate, employee or representative of emSign and shall have no authority to commit anything on behalf of emSign.

9.3 CONFIDENTIALITY OF BUSINESS INFORMATION

9.3.1 Scope of Confidential Information

The following information is considered confidential and protected against disclosure using a reasonable degree of care:

- Private Keys;
- Activation data used to access Private Keys or to gain access to the CA system;
- Business continuity, incident response, contingency, and disaster recovery plans;
- Other security practices used to protect the confidentiality, integrity, or availability of information;
- Information held by emSign as private information in accordance with Section 9.4;

- Audit logs and archive records; and
- Transaction records, financial audit records, and audit trail records and any audit reports (with the exception of an auditor's letter confirming the effectiveness of the controls set forth in this CP/CPS).

9.3.2 Information Not Within the Scope of Confidential Information

Any information not listed as confidential is considered public information. Published certificate and revocation data is considered public information.

9.3.3 Responsibility to Protect Confidential Information

emSign's employees, agents, and contractors are responsible for protecting confidential information and are contractually obligated to do so. Employees receive training on how to handle confidential information. RAs are contractually required to protect confidential information.

9.4 PRIVACY OF PERSONAL INFORMATION

9.4.1 Privacy Plan

emSign follows the privacy policy posted on its website when handling personal information. Personal information is only disclosed when the disclosure is required by law or when requested by the subject of the personal information.

9.4.2 Information Treated as Private

emSign treats all personal information about an individual that is not publicly available in the contents of a certificate or CRL as private information. emSign protects private information using appropriate safeguards and a reasonable degree of care. RAs may have a different standard of care as specified in their RPS.

9.4.3 Information Not Deemed Private

Private information does not include certificates, CRLs, or their contents.

9.4.4 Responsibility to Protect Private Information

emSign employees and contractors are expected to handle personal information in strict confidence and meet the requirements of applicable law concerning the protection of personal data. All sensitive information is securely stored and protected against accidental disclosure.

9.4.5 Notice and Consent to Use Private Information

Personal information obtained from an applicant during the application or identity verification process is considered private information if the information is not included in a certificate. emSign will only use private information after obtaining the subject's consent or as required by applicable law or regulation. All Subscribers must consent to the global transfer and publication of any personal data contained in a certificate.

9.4.6 Disclosure Pursuant to Judicial or Administrative Process

emSign may disclose private information, without notice, if emSign believes the disclosure is required by law or regulation.

9.4.7 Other Information Disclosure Circumstances

No stipulation.

9.5 INTELLECTUAL PROPERTY RIGHTS

emSign and/or its business partners own the intellectual property rights in emSign 's services, including the certificates, trademarks used in providing the services, and this CP/CPS. "emSign " is a registered trademark of emSign , Inc.

Certificate and revocation information are the property of emSign. emSign grants permission to reproduce and distribute certificates on a non-exclusive and royalty-free basis, provided that they are reproduced and distributed in full. emSign does not allow derivative works of its certificates or products without prior written permission. Private and Public Keys remain the property of the Subscribers who rightfully hold them. All secret shares (distributed elements) of the emSign Private Keys are the property of emSign.

All intellectual property of entities participating in the emSign Private PKI remains the property of its respective owners as per the relevant legal agreements.

9.6 REPRESENTATIONS AND WARRANTIES

9.6.1 CA Representations and Warranties

Except as expressly stated in this CP/CPS or in a separate agreement with a Subscriber, emSign does not make any representations regarding its products or services. emSign represents, to the extent specified in this CP/CPS, that:

emSign:

- emSign complies, in all material aspects, with this CP/CPS and all applicable laws and regulations,
- emSign publishes and updates CRLs and OCSP responses on a regular basis,
- Does not warrant the accuracy, authenticity, completeness, or fitness of any unverified information,
- Is not responsible for information contained in a certificate except as stated in this CP/CPS,
- Does not warrant the quality, function, or performance of any software or hardware device, and
- Is not responsible for failing to comply with this CP/CPS because of circumstances outside of emSign's control.

9.6.2 RA Representations and Warranties

RAs represent that:

- The RA's certificate issuance and management services conform to this CP/CPS,

- Information provided by the RA does not contain any false or misleading information,
- Translations performed by the RA are an accurate translation of the original information, and
- All certificates requested by the RA meet the requirements of this CP/CPS. emSign 's agreement with the RA may contain additional representations.

9.6.3 Subscriber Representations and Warranties

Subscribers are solely responsible for any misrepresentations they make to third parties and for all transactions that use the Subscriber's Private Key, regardless of whether such use was authorized. Subscribers are required to notify emSign and any applicable RA if a change occurs that could affect the status of the certificate. Subscribers represent to emSign, Application Software Vendors, and Relying Parties that, for each certificate, the Subscriber will:

1. Securely generate its Private Keys and protect its Private Keys
2. Provide accurate and complete information when communicating with emSign and RAs,
3. Confirm the accuracy of the certificate data prior to using the certificate,
4. Promptly cease using a certificate and notify emSign if (i) any information that was submitted to emSign /the RA or is included in a certificate change or becomes misleading or (ii) there is any actual or suspected misuse or compromise of the Private Key associated with the certificate,
5. Ensure that individuals using certificates on behalf of an organization have received security training appropriate to the certificate,
6. Use the certificate only for authorized and legal purposes, consistent with the certificate purpose, this CP/CPS, any applicable CP or guidelines, and the relevant Subscriber Agreement.
7. Promptly cease using the certificate and related Private Key after the certificate's expiration.

9.6.4 Relying Party Representations and Warranties

Each Relying Party represents that, prior to relying on an emSign certificate, it:

1. Obtained sufficient knowledge on the use of digital certificates and PKI,
2. Studied the applicable limitations on the usage of certificates and agrees to emSign's limitations on liability related to the use of certificates,
3. Has read, understands, and agrees to the emSign Relying Party Agreement and this CP/CPS,
4. Verified both the emSign certificate and the certificates in the certificate chain using the relevant CRL or OCSP,
5. Will not use an emSign certificate if the certificate has expired or been revoked, and
6. Will take all reasonable steps to minimize the risk associated with relying on a digital signature, including only relying on a emSign certificate after considering:
    a) applicable law and the legal requirements for identification of a party, protection of the confidentiality or privacy of information, and enforceability of the transaction,
    b) the intended use of the certificate as listed in the certificate or this CP/CPS,
    c) the data listed in the certificate,
    d) the economic value of the transaction or communication,
    e) the potential loss or damage that would be caused by an erroneous identification or a loss

of confidentiality or privacy of information in the application, transaction, or communication,

f) the Relying Party's previous course of dealing with the Subscriber,

g) the Relying Party's understanding of trade, including experience with computer-based methods of trade, and

h) any other indicia of reliability or unreliability pertaining to the Subscriber and/or the application, communication, or transaction.

Any unauthorized reliance on a certificate is at a party's own risk.

9.6.5 Representations and Warranties of Other Participants

No stipulation.

9.7 DISCLAIMERS OF WARRANTIES

EXCEPT AS EXPRESSLY STATED IN SECTION 9.6.1, ALL CERTIFICATES AND ANY RELATED SOFTWARE AND SERVICES ARE PROVIDED "AS IS" AND "AS AVAILABLE". TO THE MAXIMUM EXTENT PERMITTED BY LAW, emSign/AXERA DISCLAIMS ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. emSign/AXERA DOES NOT WARRANT THAT ANY SERVICE OR PRODUCT WILL MEET ANY EXPECTATIONS OR THAT ACCESS TO
CERTIFICIATES WILL BE TIMELY OR ERROR-FREE.

emSign does not guarantee the availability of any products or services and may modify or discontinue any product or service offering at any time. A fiduciary duty is not created simply because an entity uses emSign's services.

9.8 LIMITATIONS OF LIABILITY

NOTHING HEREIN LIMITS LIABILTY RELATED TO (I) DEATH OR PERSONAL INJURY RESULTING FROM emSign/AXERA'S NEGLIGENCE OR (II) FRAUD COMMITTED BY emSign/AXERA. EXCEPT AS STATED ABOVE, ANY ENTITY USING A emSign/AXERA CERTIFICATE OR SERVICE WAIVES ALL LIABILITY OF emSign/AXERA RELATED TO SUCH USE, PROVIDED THAT emSign/AXERA HAS MATERIALLY COMPLIED WITH THIS CP/CPS IN PROVIDING THE CERTIFICATE OR SERVICE.

Subscriber agreements and agreements with relying parties may contain different limitations on liability, in which case the agreement controls.

All liability is limited to actual and legally provable damages. emSign/AXERA is not liable for:

1. Any indirect, consequential, special, or punitive damages or any loss of profit, revenue, data, or opportunity, even if emSign/AXERA is aware of the possibility of such damages;
2. Liability related to fraud or willful misconduct of the Applicant;
3. Liability related to use of a certificate that exceeds the limitations on use, value, or transactions as

stated either in the certificate or this CP/CPS;

4. Liability related to the security, usability, or integrity of products not supplied by emSign/AXERA, including the Subscriber's and Relying Party's hardware; or
5. Liability related to the compromise of a Subscriber's Private Key.

The limitations in this section apply to the maximum extent permitted by law and apply regardless of (i) the reason for or nature of the liability, including tort claims, (ii) the number of claims of liability, (iii) the extent or nature of the damages, (iv) whether emSign/AXERA failed to follow any provision of this CP/CPS, or (v) whether any provision of this CP/CPS was proven ineffective.

The disclaimers and limitations on liabilities in this CP/CPS are fundamental terms to the use of emSign/AXERA's certificates and services.

9.9 INDEMNITIES

9.9.1 Indemnification by *emSign/*AXERA

As set forth in the relevant customer agreement.

9.9.2 Indemnification by Subscribers

To the extent permitted by law, each Subscriber shall indemnify emSign/AXERA, its partners, and any cross-signed entities, and their respective directors, officers, employees, agents, and contractors against any loss, damage, or expense, including reasonable attorney's fees, related to

(i) any misrepresentation or omission of material fact by Subscriber, regardless of whether the misrepresentation or omission was intentional or unintentional;

(ii) Subscriber's breach of the Subscriber Agreement, this CP/CPS, or applicable law;

(iii) the compromise or unauthorized use of a certificate or Private Key caused by the Subscriber's negligence or intentional acts; or

(iv) Subscriber's misuse of the certificate or Private Key.

9.9.3 Indemnification by Relying Parties

To the extent permitted by law, each Relying Party shall indemnify emSign/AXERA, its partners, and any cross- signed entities, and their respective directors, officers, employees, agents, and contractors against any loss, damage, or expense, including reasonable attorney's fees, related to the Relying Party's (i) breach of the Relying Party Agreement, an End-User License Agreement, this CP/CPS, or applicable law; (ii) unreasonable reliance on a certificate; or (iii) failure to check the certificate's status prior to use.

9.10 TERM AND TERMINATION

9.10.1 Term

This CP/CPS and any amendments to the CP/CPS are effective when adopted by the EPA and remain in effect until replaced with a newer version.

9.10.2 Termination

This CP/CPS and any amendments remain in effect until replaced by a newer version.

9.10.3 Effect of Termination and Survival

emSign will communicate the conditions and effect of this CP/CPS's termination via email or the emSign repository. The communication will specify which provisions survive termination. At a minimum, all responsibilities related to protecting confidential information will survive termination. All agreements remain effective until the certificate is revoked or expired, even if this CP/CPS terminates.

9.11 INDIVIDUAL NOTICES AND COMMUNICATIONS WITH PARTICIPANTS

emSign accepts notices related to this CP/CPS at the locations specified in Section 2.2. Notices are deemed effective after the sender receives a valid and digitally signed acknowledgment of receipt from emSign. If an acknowledgement of receipt is not received within five days, the sender must resend the notice in paper form to the street address specified in Section 2.2 using either a courier service that confirms delivery or via certified or registered mail with postage prepaid and return receipt requested. emSign may allow other forms of notice in the relevant customer agreement.

9.12 AMENDMENTS

9.12.1 Procedure for Amendment

This CP/CPS is periodically reviewed and updated by the EPA. Controls are in place to reasonably ensure that this CP/CPS is not amended and published without the prior authorization of the EPA.

9.12.2 Notification Mechanism and Period

emSign does not guarantee or set a notice-and-comment period and may make changes to this CP/CPS without notice and without changing the version number. Major changes affecting accredited certificates are announced and approved by the accrediting agency prior to becoming effective. The EPA is responsible for determining what constitutes a material change of the CP/CPS.

9.12.3 Circumstances under which OID Must Be Changed

The EPA is solely responsible for determining whether an amendment to the CP/CPS requires an OID change upon the notification from relevant PMAs.

9.13 DISPUTE RESOLUTION PROVISIONS

Parties are required to notify emSign and attempt to resolve disputes directly with emSign before resorting to any dispute resolution mechanism, including adjudication or any type of alternative dispute resolution.

9.14 GOVERNING LAW

This CP/CPS is governed by the laws of India except in circumstances where issuing CAs under emSign PKI have explicitly agreed with the subscriber / relying party / any other party to be governed by the laws of any other country. The construction and interpretation of this CPS will be in accordance with laws of India

or the laws of the agreed jurisdiction as indicated above. Venue with respect to any disputes will be in Bangalore, India or any venue explicitly agreed in the subscriber / relying party / any other party agreement for the certificate with reference to which the dispute arises.

9.15 COMPLIANCE WITH APPLICABLE LAW

The certificates issued under emSign PKI shall be used by the subscribers and relying parties only in accordance with the laws and regulations of the jurisdiction in which they are used or relied upon. Issuing CAs under emSign PKI may refuse to issue or may revoke Certificates if, in their opinion, issuance or the continued use of the emSign PKI Certificates would violate applicable laws or regulations.

9.16 MISCELLANEOUS PROVISIONS

9.16.1 Entire Agreement

emSign contractually obligates any entity operating under this CP/CPS to comply with this CP/CPS and applicable industry guidelines. emSign also requires each party using its products and services to enter into an agreement that delineates the terms associated with the product or service. If an agreement has provisions that differ from this CP/CPS, then the agreement with that party controls, but solely with respect to that party. Third parties may not rely on or bring action to enforce such agreement.

9.16.2 Assignment

Any entities operating under this CP/CPS may not assign their rights or obligations without the prior written consent of emSign. Unless specified otherwise in a contract with a party, emSign does not provide notice of assignment.

9.16.3 Severability

If any provision of this CP/CPS is held invalid or unenforceable by a competent court or tribunal, the remainder of the CP/CPS will remain valid and enforceable. Each provision of this CP/CPS that provides for a limitation of liability, disclaimer of a warranty, or an exclusion of damages is severable and independent of any other provision.

9.16.4 Enforcement (attorneys' fees and waiver of rights)

emSign/AXERA may seek indemnification and attorneys' fees from a party for damages, losses, and expenses related to that party's conduct. emSign/AXERA's failure to enforce a provision of this CP/CPS does not waive emSign/AXERA's right to enforce the same provision later or right to enforce any other provision of this CP/CPS. To be effective, waivers must be in writing and signed by emSign/AXERA.

9.16.5 Force Majeure

emSign/AXERA is not liable for any delay or failure to perform an obligation under this CP/CPS to the extent that the delay or failure is caused by an occurrence beyond emSign/AXERA's reasonable control. The operation of the Internet is beyond emSign/AXERA's reasonable control.

Clauses for force majeure will be added to the extent of applicable law for relevant parties and affiliates

within the associated legal agreements.

9.17 OTHER PROVISIONS

No stipulation unless otherwise specified in the relevant legal agreements.

10 Appendix A:

Change History This section contains the summary of changes made to the CP-CPS. Please check the archived document versions for detailed comparative differences.

Version 1.00: 17-JUL-2025

- Base Version