Security Communication RootCA Certification Practice Statement Version 5.15

November 30, 2021

SECOM Trust Systems Co., Ltd.

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| Version History | | | | | |
|-------------------|------------|--|--|--|--|
| Version Number | Date | Description | | | |
| V1.00 | 2003/09/29 | Publication of the first version | | | |
| V2.00 | 2004/11/08 | Major version upgrade | | | |
| | | Separation of the Security Communication RootCA1 | | | |
| | | Certificate Policy (CP)/Certification Practice Statement | | | |
| | | (CPS) document into the independent CP and CPS | | | |
| | | documents, with new publication of the Security | | | |
| | | Communication RootCA1 CPS | | | |
| | | Revision of the descriptions | | | |
| V3.00 | 2006/05/22 | "SECOM TrustNet" was renamed to "SECOM Trust | | | |
| | | Systems" after the merger. | | | |
| | | "SECOM TrustNet Security Policy Committee " was | | | |
| | | renamed as "Certification Services Improvement | | | |
| | | Committee." | | | |
| V4.00 | 2009/05/29 | Major version upgrade | | | |
| | | Renaming of "Security Communication RootCA1 CPS" to | | | |
| | | "Security Communication RootCA CPS" and addition of the | | | |
| | | CA Private Key "Security Communication RootCA2" | | | |
| V4.10 | 2012/02/15 | "5.6 Key Changeover" | | | |
| | | - Addition of Certificate Renewal | | | |
| V4.20 | 2012/11/09 | Amendment associated with commencement of the OCSP | | | |
| | | server operations | | | |
| V5.00 | 2016/06/01 | Major version upgrade | | | |
| | | Addition of the CA Private Key "Security Communication | | | |
| | | RootCA3" | | | |
| | | Addition of the CA Private Key "Security Communication | | | |
| | | ECC RootCA1" | | | |
| V5.10 | 2017/05/23 | Overall revision of the descriptions and styles | | | |
| V5.11 | 2018/11/28 | Overall revision of the descriptions and styles | | | |
| V5.12 | 2019/05/24 | Overall revision of the descriptions and styles | | | |
| V5.13 | 2020/03/30 | Revised chapters and added some "No Stipulation" content | | | |
| V5.14 | 2021/03/30 | Update of the date and version | | | |
| V5.15 | 2021/11/30 | Overall revision of the descriptions and styles | | | |

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1. Introduction

1.1 Overview

Security Communication RootCA Certification Practice Statement (hereinafter, "this CPS") is a document that defines operational policies for Security Communication RootCA1, Security Communication RootCA2, Security Communication RootCA3 as well as Security Communication ECC RootCA1 (hereinafter collectively, "the CAs") that are all operated by SECOM Trust Systems Co., Ltd. (hereinafter, "SECOM"), including the issuance/revocation (hereinafter, "the Services") of the digital certificates (hereinafter, "Certificates") to the subscribers, the administration of the CA Keys, the operation and maintenance procedures for the Public Key Infrastructure (hereinafter, "PKI") based on the Certificates.

The Certificates issued by the CAs prove and certify the unique correspondence between the subjects of the issuance and their public keys. The qualifications (identification and authentication), registrations, and issuance procedures of the CA Certificates are defined in each Certificate Policy (hereinafter, "CP") for each type of the Certificates used by the subscribers.

The CAs conform to the Baseline Requirements defined by CA/Browser Forum provisions disclosed at https://www.cabforum.org/.

Any provisions in the CP inconsistent with this CPS shall prevail and any provisions in a separate agreement or the like between the subscribers and SECOM inconsistent with this CPS or the relevant CP shall prevail.

This CPS shall be revised as necessary in order to reflect any technical or service developments or improvements pertaining to the CA operations.

This CPS conforms to the RFC3647 "Internet X.509 Public Key Infrastructure Certificate Policy and Certification Practices Framework" advocated by the IETF as a CA practice framework.

This CPS shows the root CA certificate of this CA in Table "1.1-1 Root CA Certificate". Table 1.1-1 Root CA Certificate

| Distinguished Name (DN) | SHA256 Fingerprint |
|-------------------------------------|----------------------------------|
| C = JP., | E75E72ED9F560EEC6EB4800073A43FC |
| O = SECOM Trust.net, | 3AD19195A392282017895974A99026B6 |
| OU = Security Communication RootCA1 | С |

| C = JP, | 513B2CECB810D4CDE5DD85391ADFC | |
|--|--|--|
| O = "SECOM Trust Systems CO.,LTD.", | 6C2DD60D87BB736D2B521484AA47A0 | |
| OU = Security Communication RootCA2 | EBEF6 | |
| C = JP, | 24A55C2AB051442D0617766541239A4A | |
| O = "SECOM Trust Systems CO.,LTD.", | D032D7C55175AA34FFDE2FBC4F5C52 | |
| CN = Security Communication RootCA3 | 94 | |
| C = JP, O = "SECOM Trust Systems CO.,LTD.", CN = Security Communication ECC RootCA1 | E74FBDA55BD564C473A36B441AA799 C8A68E077440E8288B9FA1E50E4BBAC A11 | |

1.2 Document Name and Identification

The official name of this CPS is "Security Communication RootCA Certification Practice Statement". SECOM, which is the provider and operational body of the Services, uses the Object IDentifier (hereinafter, "OID") assigned by ISO, given in the Table "1.2-1 OID (SECOM)" below.

Table 1.2-1 OID (SECOM)

| Name of organization | OID |
|-------------------------------|----------------|
| SECOM Trust Systems Co., Ltd. | 1.2.392.200091 |

This CPS is identified with the Object IDentifier (hereinafter, "OID") given in "Table 1.2-2 OID (This CPS)".

| Table 1 | .2-2 OID | (This | CPS) |
|---------|----------|-------|------|
|---------|----------|-------|------|

| CPS | OID | |
|--|--------------------------|--|
| Security Communication RootCA Certification Practice | 1 9 909 900001 100 001 9 | |
| Statement | 1.2.392.200091.100.901.3 | |

This CPS is applied to the CPs indicated in the "Table 1.2-3 OID (CPs)".

Table 1.2-3 OID (CPs)

| СР | OID |
|-----------------------------------|--------------------------------------|
| | 1.2.392.200091.100.901.1 |
| | (Security Communication RootCA1) |
| | 1.2.392.200091.100.901.4 |
| Security Communication RootCA | (Security Communication RootCA2) |
| Subordinate CA Certificate Policy | 1.2.392.200091.100.901.6 |
| | (Security Communication RootCA3) |
| | 1.2.392.200091.100.902.1 |
| | (Security Communication ECC RootCA1) |
| Security Communication RootCA | 1.2.392.200091.100.901.2 |

| Time-Stamp Service Certificate Policy | (Security Communication RootCA1) |
|---------------------------------------|--------------------------------------|
| | 1.2.392.200091.100.901.5 |
| | (Security Communication RootCA2) |
| | 1.2.392.200091.100.901.7 |
| | (Security Communication RootCA3) |
| | 1.2.392.200091.100.902.2 |
| | (Security Communication ECC RootCA1) |

The Services may add a new CP in the future, which shall accompany addition of the correspondence between the new CP and the OID in this CPS.

1.3 PKI Participants

1.3.1 Certification Authorities

A CA mainly issues or revokes Certificates, publishes CRLs (Certificate Revocation Lists), and stores and provides information on Certificate status using the OCSP server.

CA is defined in "1.6 Definitions and Acronyms".

1.3.2 Registration Authorities

An RA mainly performs identification, authentication, as well as assessment of the operation rules of the Certificate applicant organizations or institutions when such a Certificate application as issuance or revocation is submitted.

1.3.3 Subscribers

Subscribers are organizations or institutions that generate Key Pairs in their own rights, to which Certificates are issued by the CAs. They are qualified as Subscribers upon accepting the issued Certificates after submitting the Certificate applications to the CAs.

1.3.4 Relying Parties

Relying Parties are the entities that authenticate the validity of Certificates issued by the CAs. Relying Parts are assumed to be performing the authentication and placing trust upon assessing the contents of this CPS and the relevant CP in light of the Relying Parties' own purposes of use.

Relying parties and Application Software Suppliers are defined in "1.6 Definitions and Acronyms".

1.3.5 Other Participants

Other Parties include auditors, and companies or organizations that have service contracts with SECOM Trust Systems, and companies that perform system integration.

1.4 Certificate Usage

1.4.1 Appropriate Certificate Uses

The CAs are the Root CAs functioning as top of the subordinate CAs and issue Certificates conforming to the CPs described in "1.2 Document Name and Identification" hereof. Relying Parties may authenticate the reliability of such Certificates using the CA Certificates.

1.4.2 Prohibited Certificate Uses Stipulated in the relevant CP.

1.5 Policy Administration

1.5.1 Organization Administering the Document This CPS is maintained and administered by SECOM.

1.5.2 Contact Information

Inquiries concerning this CPS should be directed to:

| | CA Support Center, SECOM Trust Systems Co., Ltd. |
|-----------------|--|
| Address: | 8-10-16 Shimorenjaku, Mitaka-shi, Tokyo 181-8528 |
| E-mail Address: | ca-support@secom.co.jp |
| Website: | https://www.secomtrust.net/ |

1.5.3 Person Determining CP Suitability for the Policy

Suitability of this CPS as the CAs' practice policy is determined by SECOM's Certification Services Improvement Committee. This CPS will be reviewed and revised at least annually.

1.5.4 Approval Procedure

This CPS shall be published in the repository as developed and revised under approval of the SECOM Certification Services Improvement Committee.

1.6 Definitions and Acronyms

Application Software Supplier

A supplier of Internet browser software or other relying party application software that displays or uses a certificate and incorporates a root CA certificate.

Attestation Letter

A letter attesting that Subject Information is correct written by an accountant, lawyer,

government official, or other reliable third party customarily relied upon for such information.

<u>Audit Log</u>

Behavioral, access and other histories pertaining to the CA systems which are recorded for inspection of access to and unauthorized operation of the CA systems.

\underline{CA}

CA stands for Certification Authority, an entity that mainly issues, renews and revokes Certificates, generates and protects CA Private Keys, and registers Subscribers.

CA/Browser Forum

An NPO organized by CAs and Internet browser vendors that works to define and standardize the Certificate issuance requirements.

Certificate

The word "Certificate" is simply used to indicate a digital certificate in this CPS, which is the electronic data certifying that a Public Key is owned by the party specified therein. The validity of a Certificate is certified by the digital signature of the relevant CA affixed thereto.

\underline{CP}

CP stands for Certificate Policy, a document that sets forth the policy regarding the Certificates.

\underline{CPS}

CPS stands for Certification Practice Statement, which sets forth provisions to be followed in providing and subscribing to the Services, including Certificate applications, application reviews, and issuance/revocation/storage/publication of Certificates by the CAs.

CRL

CRL stands for Certificate Revocation List, which records the list of Certificates revoked by the CAs.

$\underline{\text{CSR}}$

CSR stands for Certificate Signing Request, a data file on which the Certificate issuance is based. A CSR contains the public key of the entity requesting the Certificate signing, to which the issuer's digital signature is affixed upon the issuance thereof.

Digital Signature/Signing

A digital data to prove that a specific individual is the author of a specific digital documentation. It is a signature representing that the reliability of the information contained in such documentation is certified by the author.

Escrow

Escrow means the placement (entrustment) of an asset in the control of an independent third party.

HSM (Hardware Security Module)

The hardware that works as a protecting safe to store private keys used for encryption and digital signing. An HSM computes encryption and digital signing as well as generates private keys and random digits.

<u>Key Pair</u>

A Key Pair consists of a private key and a public key in the public key cryptosystem.

Major Version Number

A number to be given to a CPS revision (e.g., the underlined digit [1] of Version 1.02) whose magnitude of the amendment(s) is considered to have an obvious impact on the use of the Certificates and the CRLs by Subscribers and Relying Parties.

Minor Version Number

A number to be given to a CPS revision (e.g., the underlined digit [02] of Version 1.02) whose magnitude of the amendment(s) is considered to have no or less impact on the use of the Certificates and the CRLs by Subscribers and Relying Parties.

<u>OCSP</u>

OCSP stands for Online Certificate Status Protocol, the protocol used to provide the real-time Certificates status.

OID

OID stands for Object IDentifier. OIDs are registered in the registration institutions (ISO and ITU) as globally unique IDs. The IDs registered as OIDs are used for such parameters as algorithms used in the PKI, types (attributes like [Country name]) of the names (subjects) to be included in the Certificates.

PKI (Public Key Infrastructure)

An infrastructure for use of the encryption technology known as the public key

cryptosystem to realize such security technologies as digital signature, encryption and certification.

Private Key

A key comprising a Key Pair used in the public key cryptosystem, which corresponds to a public key and is possessed only by the relevant Subscriber.

Public Key

A key of a Key Pair used in the Public Key cryptosystem. A Public Key corresponds to the Private Key and is published.

RA

RA stands for Registration Authority, an entity that conducts qualifications (identification and authentication) among the CA operations in the Services.

<u>Relying Party</u>

Any natural person or Legal Entity that relies on a Valid Certificate. An Application Software Supplier is not considered a Relying Party when software distributed by such Supplier merely displays information relating to a Certificate.

Repository

The storage for such data as Certificates issued by the CAs. The Repository is a mechanism to allow access by the users or applications to the Certificates from any point in the network. CRLs as well as this CPS are also stored in the Repository.

RFC3647 (Request for Comments 3647)

A document defining the framework for CP and CPS published by the IETF (The Internet Engineering Task Force), an industry group which establishes technical standards for the Internet.

Root CA

The Security Communication RootCA described in this CPS is an institute owned and run by SECOM as a Root CA that issues the subordinate CA Certificates and functions as top of the subordinate CAs.

<u>RSA</u>

One of the most standard encryption technologies widely used in the Public Key cryptosystem.

SHA-1 (Secure Hash Algorithm 1)

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A hash function used in digital signing. A hash function is a computation technique for generating a fixed-length string from a given text. The hash length is 160 bits. The algorithm works to detect any alterations in the original message during the transmission by comparing the hash values transmitted and received.

<u>SHA-2</u>

A Secure Hash Algorithm family function used in digital signing and the improved version of SHA-1. The size of the SHA-256 and SHA-384 described in this CPS are respectively 256 and 384 bits. The algorithm works to detect any alterations in the original message during the transmission by comparing the hash values transmitted and received.

Subordinate CA

A CA trusted and signed by the CAs.

Time-Stamp

Information containing digital data and the clock time information that may be used as the instrument of proof or the information leading to the evidence that the data existed before that time (proof of existence) and that the data have not been modified or falsified between the stamped time and the authenticated time (proof of authenticity).

In the Services, Certificates are issued to TSA (Time-Stamping Authority), and to TA (Time Authority) that conducts delivery of standard time and time audits to TSA.

WebTrust for CA

Standards of internal control and a certification framework based thereon established by the American Institute of Certified Public Accountants (AICPA) and the Canadian Institute of Chartered Accountants (CICA) regarding the reliability of CAs, the security of electronic commerce transactions, and other relevant matters.

<u>X.500</u>

X.500 is a series of directory standards that was developed by ITU-T in order to provide a range of services from the name and address lookup to the query by attribute value. The X.500 Distinguished Names (DN) will be used for the names of the X.509 Issuers and Subjects.

<u>X.509</u>

The Certificate and CRL formats set forth by X.509 ITU-T. With [X.509 v3 (Version 3)], extension fields were additionally defined for storage of optional data.

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2. Publication and Repository Responsibilities

2.1 Repository

The CAs maintain and administer the Repository to allow access by the Subscribers and Relying Parties to the CRL information. The CAs also maintain and administer the OCSP server to allow 24x7 online access by the Subscribers and Relying Parties to the Certificates status. The protocol employed for the Repository access shall be HTTP (HyperText Transfer Protocol) and HTTPS (HTTP + SSL/TLS data encryption function). Information in the repository may be accessed via any commonly used Web interface.

2.2 Publication of Certificate Information

The CAs store the following contents in the Repository to allow online access by the Subscribers and Relying Parties:

- CRLs that contain all revocation records based on this CPS and the relevant CP.
- The self-signed Certificate of the CAs
- The latest version of this CPS and the relevant CP
- Other information pertaining to Certificates issued by the CAs

• The CA SHALL host test Web pages that allow Application Software Suppliers to test their software with Subscriber Certificates that chain up to each publicly trusted Root Certificate. At a minimum, the CA SHALL host separate Web pages using Subscriber Certificates that are

i. valid,

ii. revoked, and

iii. expired.

SECOM will make the Certificates status available online to Subscribers and Relying Parties for browsing on the OCSP server.

2.3 Time or Frequency of Publication

This CPS and the relevant CP are published in the Repository as revised. A CRL containing all information of revocation processed conforming to this CPS and the relevant CP is published in the Repository as issued.

2.4 Access Controls on Repositories

Subscribers and Relying Parties may browse the Repository anytime. However, the Repository may not be available temporarily at times due to maintenance or for any other reason. 3. Identification and Authentication

3.1 Naming

3.1.1 Types of Names Stipulated in the relevant CP.

3.1.2 Need for Names to Be Meaningful Stipulated in the relevant CP.

3.1.3 Anonymity or Pseudonymity of Subscribers Stipulated in the relevant CP.

3.1.4 Rules for Interpreting Various Name Forms Stipulated in the relevant CP.

3.1.5 Uniqueness of Names Stipulated in the relevant CP.

3.1.6 Recognition, Authentication, and Roles of Trademarks Stipulated in the relevant CP.

3.2 Initial Identity Validation

3.2.1 Method to Prove Possession of Private Key Stipulated in the relevant CP.

3.2.2 Authentication of Organization Identity Stipulated in the relevant CP.

3.2.2.1 Identity Stipulated in the relevant CP.

3.2.2.2 DBA/Tradename Stipulated in the relevant CP.

3.2.2.3 Verification of Country Stipulated in the relevant CP.

3.2.3 Authentication of Individual Identity Stipulated in the relevant CP.

3.2.4 Non-Verified Subscriber Information Stipulated in the relevant CP.

3.2.5 Validation of Authority Stipulated in the relevant CP.

3.2.6 Criteria for Interoperation Stipulated in the relevant CP.

3.3 Identification and Authentication for Re-Key Requests

3.3.1 Identification and Authentication for routine Re-Key Requests Stipulated in the relevant CP.

3.3.2 Identification and Authentication for Re-Key after Revocation Stipulated in the relevant CP.

3.4 Identification and Authentication for Revocation Requests Stipulated in the relevant CP.

4. Certificate Life-Cycle Operational Requirements

4.1 Certificate Application

4.1.1 Who May Submit a Certificate Application Stipulated in the relevant CP.

4.1.2 Enrollment Process and Responsibilities Stipulated in the relevant CP.

4.2 Certificate Application Processing

4.2.1 Performing Identification and Authentication Functions Stipulated in the relevant CP.

4.2.2 Approval or Rejection of Certificate Applications Stipulated in the relevant CP.

4.2.3 Time to Process Certificate Applications Stipulated in the relevant CP.

4.3 Certificate Issuance

4.3.1 CA Actions during Certificate Issuance Stipulated in the relevant CP.

4.3.2 Notifications to Subscriber of Certificate Issuance Stipulated in the relevant CP.

4.4 Certificate Acceptance

4.4.1 Conduct Constituting Certificate Acceptance Stipulated in the relevant CP.

4.4.2 Publication of the Certificate by the CA Stipulated in the relevant CP.

4.4.3 Notification of Certificate Issuance by the CA to Other Entities Stipulated in the relevant CP. 4.5 Key Pair and Certificate Usage

4.5.1 Subscriber Private Key and Certificate Usage Stipulated in the relevant CP.

4.5.2 Relying Party Public Key and Certificate Usage Stipulated in the relevant CP.

4.6 Certificate Renewal

4.6.1 Circumstances for Certificate Renewal Stipulated in the relevant CP.

4.6.2 Who May Request Renewal Stipulated in the relevant CP.

4.6.3 Processing Certificate Renewal Requests Stipulated in the relevant CP.

4.6.4 Notification of New Certificate Issuance to Subscriber Stipulated in the relevant CP.

4.6.5 Conduct Constituting Acceptance of a Renewal Certificate Stipulated in the relevant CP.

4.6.6 Publication of the Renewal Certificates by the CA Stipulated in the relevant CP.

4.6.7 Notification of Certificate Issuance by the CA to Other Entities Stipulated in the relevant CP.

4.7 Certificate Re-Key

4.7.1 Circumstances for Certificate Renewal Stipulated in the relevant CP.

4.7.2 Who May Request Renewal Stipulated in the relevant CP.

4.7.3 Processing Certificate Renewal Requests Stipulated in the relevant CP.

4.7.4 Notification of New Certificate Issuance to Subscriber Stipulated in the relevant CP.

4.7.5 Conduct Constituting Acceptance of a Renewal key Stipulated in the relevant CP.

4.7.6 Publication of the Re-Keyed Certificate by the CA Stipulated in the relevant CP.

4.7.7 Notification of Certificate Issuance by the CA to Other Entities Stipulated in the relevant CP.

4.8 Certificate Modification

4.8.1 Circumstances for Certificate Modification Stipulated in the relevant CP.

4.8.2 Who May Request Certificate Modification Stipulated in the relevant CP.

4.8.3 Processing Certificate Modification Requests Stipulated in the relevant CP.

4.8.4 Notification of New Certificate Issuance to Subscriber Stipulated in the relevant CP.

4.8.5 Conduct Constituting Acceptance of Modified Certificate Stipulated in the relevant CP.

4.8.6 Publication of the Modified Certificates by the CA Stipulated in the relevant CP.

4.8.7 Notification of Certificate Issuance by the CA to Other Entities Stipulated in the relevant CP.

4.9 Certificate Revocation and Suspension

4.9.1 Reason for Certificate Revocation Stipulated in the relevant CP.

4.9.2 Who Can Request Revocation Stipulated in the relevant CP.

4.9.3 Procedure for Revocation Request Stipulated in the relevant CP.

4.9.4 Revocation Request Grace Period Stipulated in the relevant CP.

4.9.5 Time within Which CA Shall Process the Revocation Request Stipulated in the relevant CP.

4.9.6 Revocation Checking Requirements for Relying Parties Stipulated in the relevant CP.

4.9.7 CRL Issuance Frequency Stipulated in the relevant CP.

4.9.8 Maximum Latency for CRLs Stipulated in the relevant CP.

4.9.9 On-Line Revocation/Status Checking Availability Stipulated in the relevant CP.

4.9.10 On-Line Revocation/Status Checking Requirements Stipulated in the relevant CP.

4.9.11 Other Forms of Revocation Advertisements Available Stipulated in the relevant CP.

4.9.12 Special Requirements Regarding Key Compromise Stipulated in the relevant CP.

4.9.13 Circumstances for Suspension Stipulated in the relevant CP.

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4.9.14 Who Can Request Suspension Stipulated in the relevant CP.

4.9.15 Procedure for Suspension Request Stipulated in the relevant CP.

4.9.16 Limits on Suspension Period Stipulated in the relevant CP.

4.10 Certificate Status Services

4.10.1 Operational Characteristics Stipulated in the relevant CP.

4.10.2 Service Availability Stipulated in the relevant CP.

4.10.3 Optional Features Stipulated in the relevant CP.

4.11 End of Subscription (Registry) Stipulated in the relevant CP.

4.12 Key Escrow and Recovery

4.12.1 Key Escrow and Recovery Policy and Practices Stipulated in the relevant CP.

4.12.2 Session Key Encapsulation and Recovery Policy and Practices Stipulated in the relevant CP.

5. Facility, Management, and Operational Controls

The CA/Browser Forum's "Network and Certificate System Security Requirement" is fully incorporated into this document by reference.

The CA SHALL develop, implement, and maintain a comprehensive security program designed to:

- 1. Protect the confidentiality, integrity, and availability of Certificate Data and Certificate Management Processes;
- 2. Protect against anticipated threats or hazards to the confidentiality, integrity, and availability of the Certificate Data and Certificate Management Processes;
- 3. Protect against unauthorized or unlawful access, use, disclosure, alteration, or destruction of any Certificate Data or Certificate Management Processes;
- 4. Protect against accidental loss or destruction of, or damage to, any Certificate Data or Certificate Management Processes; and
- 5. Comply with all other security requirements applicable to the CA by law.

The Certificate Management Process MUST include:

- 1. physical security and environmental controls;
- 2. system integrity controls, including configuration management, integrity maintenance of trusted code, and malware detection/prevention;
- 3. network security and firewall management, including port restrictions and IP address filtering;
- 4. user management, separate trusted-role assignments, education, awareness, and training; and
- 5. logical access controls, activity logging, and inactivity time-outs to provide individual accountability.

The CA's security program must include the following annual risk assessments:

- 1. Identifies foreseeable internal and external threats that could result in unauthorized access, disclosure, misuse, alteration, or destruction of any Certificate Data or Certificate Management Processes;
- 2. Assesses the likelihood and potential damage of these threats, taking into consideration the sensitivity of the Certificate Data and Certificate Management Processes; and
- 3. Assesses the sufficiency of the policies, procedures, information systems, technology, and other arrangements that the CA has in place to counter such threats.

Based on the Risk Assessment, the CA SHALL develop, implement, and maintain a security plan consisting of security procedures, measures, and products designed to achieve the objectives set forth above and to manage and control the risks identified during the Risk Assessment, commensurate with the sensitivity of the Certificate Data and Certificate Management Processes. The security plan MUST include administrative, organizational, technical, and physical safeguards appropriate to the sensitivity of the

Certificate Data and Certificate Management Processes. The security plan MUST also take into account then-available technology and the cost of implementing the specific measures, and SHALL implement a reasonable level of security appropriate to the harm that might result from a breach of security and the nature of the data to be protected.

5.1 Physical Controls

5.1.1 Site Location and Construction

The systems of the CAs (hereinafter, "CA Systems") are located where they will not be easily damaged by water exposures, earthquakes, fires or any other disasters, and structural measures have been implemented to prevent and protect against such disasters. In addition, the equipment and instruments used in the facility shall be installed in secure locations implementing the anti-disaster/hacking/breaking & entering measures.

5.1.2 Physical Access

The hardware and software used by the CAs employ an appropriate security control combining physical and electronic access controls. Access to the hardware and the software providing the CA Services are continuously monitored and requires permission by the Service Operation Manager(s).

5.1.3 Power and Air Conditioning

The installation room for the CA Systems secure the power source with sufficient capacity to operate the CA Systems and is protected through the power supply from the backup generators during long-lasting power outages. Further, the CA Systems are installed in an air conditioned environment where optimum temperature and humidity can be maintained constantly using air conditioners.

5.1.4 Water Exposures

The installation room for the CA Systems implement the protection against the water exposures, including deployment of the leakage sensors.

5.1.5 Fire Prevention and Protection

The installation rooms for CA Systems are in a fireproof compartment partitioned off by firewalls and equipped with fire alarms as well as fire extinguishing equipment.

5.1.6 Media Storage

Critical storage media containing the archive or backup data are stored in secure locations.

5.1.7 Waste Disposal

Disposal of Private Keys of the CAs (hereinafter, "CA Private Keys") and paper and electronic media containing confidential information shall be conducted with CA Private Keys and the backup media completely initialized or physically destroyed, and with the paper-based media as documents shredded, incinerated, or dissolved.

5.1.8 Off-Site Backup

Measures for remote storage and retrieval of the data, equipment, and any other items required to operate the Services shall be implemented

5.1.9 Earthquake

The installation room for the CA Systems shall implement anti-seismic measures for protection against tumbling and falling of the machines and fixtures.

5.2 Procedural Controls

5.2.1 Trusted Roles

Individuals involved in the registration, issuance, and revocation practices are acting in the capacity of a trusted role conforming to this CPS and the relevant CP. The CAs do not centrally assign operational roles to a specific individual, but allocate authorities to multiple personnel. The roles in the CAs are listed in "Table 5.2-1 Trusted Roles".

| Name of role | Primary responsibilities | | |
|------------------------|--|--|--|
| Certification Services | - Approves development/amendment/termination of this | | |
| Improvement Committee | CPS and the relevant CP. | | |
| | - Directs actions taken as a result of audit deficiency. | | |
| Person Responsible for | - Supervises the CA management organization. | | |
| Services | - Approves CA Systems/operational procedure changes | | |
| Service Operation | - Gives work instructions to person(s) in charge of | | |
| Manager | operation and observes the operations. | | |
| | - Observes CA Systems and CA Private Key operations | | |
| | on site. | | |
| | - Generally manages other service operations. | | |
| CAAdministrator | - Registers and issues Certificates | | |
| | - Issues CRLs | | |
| Person in Charge of RA | - Accepts Certificate applications | | |
| | - Qualifies (identifies and authenticates) Subscribers | | |
| Log Examiner (Log | - Checks room access, system and other logs. | | |

| Ch | eck | er) |
|----|-----|-----|
| On | CUN | CT/ |

5.2.2 Number of Persons Required per Task

The CA Systems are designed to physically refuse single-person accesses, which requires operations by at least two persons.

The CA Private Key SHALL be backed up, stored, and recovered only by personnel in trusted roles using, at least, dual control in a physically secured environment.

5.2.3 Identification and Authentication for Each Role

The biometric identification control is deployed for entry to the CA Systems installation room, while multiple-person control is deployed for access to CA Private Keys.

5.2.4 Roles Requiring Separation of Duties

The CAs intend to prevent such unwanted actions as misconducts, which can happen through the single-person operations made possible by authority centralization, through decentralization of the authority by not granting authorities/permissions to a specific person. Authorities for system operations, acts of approving, and audits are separated.

5.3 Personnel Controls

Personnel who perform the Trusted Roles bear responsibility for operations and administration of the Services. In providing the Services, personnel management that assures reliability and suitability of these roles as well as the reasonable skills to perform these roles shall be conducted, by which the security is established.

5.3.1 Qualifications, Experience, and Clearance Requirements

Prior to the engagement of any person in the Certificate Management Process, whether as an employee, agent, or an independent contractor of the CA, the CA SHALL verify the identity and trustworthiness of such person.

5.3.2 Background Check Procedures

Reliability and suitability of the individuals responsible for the Trusted Roles are assessed at the appointment and periodically, conforming to the provisions in this CPS and the relevant CP.

5.3.3 Training Requirements

Individuals responsible for the Trusted Roles have to be properly trained for the jobs upon appointment, and retrained as necessary from then on.

The CA SHALL provide all personnel performing information verification duties with skills-training that covers basic Public Key Infrastructure knowledge, authentication and vetting policies and procedures (including the CA's Certificate Policy and/or

Certification Practice Statement), common threats to the information verification process (including phishing and other social engineering tactics), and these Requirements.

The CA SHALL maintain records of such training and ensure that personnel entrusted with Validation Specialist duties maintain a skill level that enables them to perform such duties satisfactorily.

The CA SHALL document that each Validation Specialist possesses the skills required by a task before allowing the Validation Specialist to perform that task.

The CA SHALL require all Validation Specialists to pass an examination provided by the CA on the information verification requirements outlined in these Requirements.

5.3.4 Retraining Frequency and Requirements

SECOM provides the individuals performing the roles listed in "5.2.1 Trusted Roles" hereof with refresher training as needed.

All personnel in Trusted Roles SHALL maintain skill levels consistent with the CA's training and performance programs.

5.3.5 Job Rotation Frequency and Sequence

The CAs conduct job rotations of the personnel for the purpose of securing service quality consistency and improvement as well as prevention of misconducts.

5.3.6 Sanctions for Unauthorized Actions

The provisions concerning penalties in SECOM's Rules of Employment apply.

5.3.7 Independent Contractor Requirements

When the CAs may employ independent contractors for operations of the CA systems in whole or in part, appropriate performance of the operational duties by the contractors shall be ensured through the agreements therewith.

The CA SHALL verify that the Delegated Third Party's personnel involved in the issuance of a Certificate meet the training and skills requirements of this CPS "5.3.3 Training Requirements" and this CPS "5.4.1 Types of Events Recorded".

5.3.8 Documentation Supplied to Personnel

The CAs permit the personnel's access only to the documents necessary for the performance of relevant duties.

5.4 Audit Logging Procedures

5.4.1. Types of Events Recorded

The CAs manually or automatically retrieve audit trails and event logs of the CA

Systems, Repository system, and the network devices related to the CAs.

The CA shall record at least the following events:

- 1. CA certificate and key lifecycle events, including:
 - 1. Key generation, backup, storage, recovery, archival, and destruction;
 - 2. Certificate requests, renewal, and re-key requests, and revocation;
 - 3. Approval and rejection of certificate requests;
 - 4. Cryptographic device lifecycle management events;
 - 5. Generation of Certificate Revocation Lists and OCSP entries;
 - 6. Introduction of new Certificate Profiles and retirement of existing Certificate Profiles.
- 2. Subscriber Certificate lifecycle management events, including:
 - 1. Certificate requests, renewal, and re-key requests, and revocation;
 - 2. All verification activities stipulated in these Requirements and the CA's Certification Practice Statement;
 - 3. Approval and rejection of certificate requests;
 - 4. Issuance of Certificates; and
 - 5. Generation of Certificate Revocation Lists and OCSP entries.
- 3. Security events, including:
 - 1. Successful and unsuccessful PKI system access attempts;
 - 2. PKI and security system actions performed;
 - 3. Security profile changes;
 - 4. Installation, update and removal of software on a Certificate System;
 - 5. System crashes, hardware failures, and other anomalies;
 - 6. Firewall and router activities; and
 - 7. Entries to and exits from the CA facility.

Log records MUST include the following elements:

- 1. Date and time of record;
- 2. Identity of the person making the journal record; and
- 3. Description of the record.

5.4.2 Frequency of Processing Audit Log

The CAs probe the Audit Log on a regular basis.

5.4.3 Retention Period for Audit Log

Audit Logs are retained for at least ten (10) years.

- However, if related to Baseline Requirements, the CA shall retain the following for at least two years:
- 1. The CA certificate and key lifecycle management event record (described in this CPS "5.4.1 Types of Events Recorded") shall be retained after any of the following

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have occurred:

- 1. the destruction of the CA Private Key; or
- 2. the revocation or expiration of the final CA Certificate in that set of Certificates that have an X.509v3 basicConstraints extension with the cA field set to true and which share a common Public Key corresponding to the CA Private Key;
- Subscriber Certificate lifecycle management event records (described in this CPS "5.4.1 Types of Events Recorded") after the revocation or expiration of the Subscriber Certificate;
- 3. Any security event records (described in this CPS "5.4.1 Types of Events Recorded") after the event occurred.

5.4.4 Protection of Audit Log

The CAs implement appropriate controls on Audit Log access to secure sole access by the authorized personnel and to keep the log from the eyes of those unauthorized.

5.4.5 Audit Log Backup Procedure

Audit Logs are backed up onto offline recording media, which are stored in a secure location.

5.4.6 Audit Log Collection System

The Audit Log collection system is included as a function of the CA Systems, collecting Audit Log automatically or manually.

5.4.7 Notification to Event-Causing Subject

The CAs collect Audit Log without notifying the person, system or application that has caused the corresponding event.

5.4.8 Vulnerability Assessments

The CAs conduct assessment addressing the security vulnerabilities in the operational and system behavior aspects as well as review and revision of the security measures as needed, including introduction of the latest security technologies available for implementation.

Additionally, the CA's security program MUST include an annual Risk Assessment that:

- 1. Identifies foreseeable internal and external threats that could result in unauthorized access, disclosure, misuse, alteration, or destruction of any Certificate Data or Certificate Management Processes;
- 2. Assesses the likelihood and potential damage of these threats, taking into consideration the sensitivity of the Certificate Data and Certificate Management

Processes; and

- 3. Assesses the sufficiency of the policies, procedures, information systems, technology, and other arrangements that the CA has in place to counter such threats.
- 5.5 Records Archival
- 5.5.1 Types of Records Archived
 - The archive of the CAs includes the following records:
 - Certificate issuance and revocation histories
 - Processing history relating to CRL issuance
 - The self-signed Certificate of the CAs
 - Subscriber Certificates
 - CRL
 - OCSP server access log

5.5.2 Retention Period for Archive

Archived records are retained for at least ten (10) years.

However, the CA SHALL retain all documentation relating to certificate requests and the verification thereof, and all Certificates and revocation thereof, for at least seven years after any Certificate based on that documentation ceases to be valid.

5.5.3 Protection of Archive

The media containing the archived records are physically protected and are retained in a facility, to which access is restricted to the authorized personnel. Inspections of the archived records are conducted once a year to ensure no failure or loss of the data.

5.5.4 Archive Backup Procedures

The primary and secondary backup data are taken whenever a change is made in such critical data as may affect the CA operations, including issuance/revocation of Certificates or CRL issuance, while the secondary backup shall be stored in a remote location.

5.5.5 Requirements for Time-Stamping of Records

The CAs properly time synchronize the CA Systems and Time-Stamp the critical information recorded therein.

5.5.6 Archive Collection System

The Archive collection system is included as a function of the CA Systems.

5.5.7 Procedures to Obtain and Verify Archive Information

Storage condition of the archived records is periodically checked and the records shall be copied to fresh media as necessary.

5.6 Key Changeover

Re-Keying of the CAs' own Key Pairs or renewal of Certificates thereof shall be performed basically when their usage periods become shorter than the maximum validity periods of the Certificates issued to Subscribers. When the remaining validity periods of the CAs become shorter than the maximum validity periods of the Certificates issued to Subscribers, the validity periods of the renewed Certificates issued thereto shall be so changed to be within the validity period of the CAs.

5.7 Compromise and Disaster Recovery

5.7.1 Incident and Compromise Handling Procedures

Should it be determined that CA Private Keys have been or may be compromised or should a disaster or any other unexpected incidents result in a situation that may lead to interruptions or suspensions of the Services, the predetermined plans and procedures are followed to securely resume the Services.

The CA shall have an Incident Response Plan and a Disaster Recovery Plan.

The CA SHALL document a business continuity and disaster recovery procedures designed to notify and reasonably protect Application Software Suppliers, Subscribers, and Relying Parties in the event of a disaster, security compromise, or business failure. The CA is not required to publicly disclose its business continuity plans but SHALL make its business continuity plan and security plans available to the CA's auditors upon request. The CA SHALL annually test, review, and update these procedures.

The business continuity plan MUST include:

- 1. The conditions for activating the plan,
- 2. Emergency procedures,
- 3. Fallback procedures,
- 4. Resumption procedures,
- 5. A maintenance schedule for the plan;
- 6. Awareness and education requirements;
- 7. The responsibilities of the individuals;
- 8. Recovery time objective (RTO);
- 9. Regular testing of contingency plans.
- 10. The CA's plan to maintain or restore the CA's business operations in a timely manner following interruption to or failure of critical business processes.
- 11. A requirement to store critical cryptographic materials (i.e., secure cryptographic

device and activation materials) at an alternate location;

- 12. What constitutes an acceptable system outage and recovery time
- 13. How frequently backup copies of essential business information and software are taken;
- 14. The distance of recovery facilities to the CA's main site; and
- 15. Procedures for securing its facility to the extent possible during the period of time following a disaster and prior to restoring a secure environment either at the original or a remote site.

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

In the event of damage to any hardware, software or data, the CAs promptly engage in the system recovery efforts using the relevant hardware, software or data that are retained as backup.

5.7.3 Entity Private Key Compromise Procedures

Should a Subscriber determine that a Private Key has or could have been compromised, the Subscriber must promptly make a revocation request to the relevant CA. Following receipt of a revocation request, the relevant CA processes the revocation according to the procedure set forth in "4.9 Certificate Revocation and Suspension" hereof.

5.7.4 Business Continuity Capabilities after a Disaster

Based on SECOM's business continuity policy, the contingency plans to continue the Services by the CAs in the event of situations forcing suspension or significant reliability compromise of the Services have been developed and put in place. In addition, to minimize the suspension length, SECOM implements the contingency plan to procure resources required to recover the Services.

5.8 CA or RA Termination

In the event of termination of the Services by SECOM, the company shall so notify Subscribers and other affected participants three (3) months prior to the termination. All Certificates issued by the CAs are revoked prior to the termination thereof.

6. Technical Security Controls

6.1 Key Pair Generation and Installation

6.1.1 Key Pair Generation

The following management is performed for the key pair of the root CA:

- 1. prepare and follow a Key Generation Script,
- 2. have a Qualified Auditor witness the CA Key Pair generation process or record a video of the entire CA Key Pair generation process, and
- 3. have a Qualified Auditor issue a report opining that the CA followed its key ceremony during its Key and Certificate generation process and the controls used to ensure the integrity and confidentiality of the Key Pair.

The following management is performed for the key pair of the subordinate CA.

- 1. prepare and follow a Key Generation Script and
- 2. have a Qualified Auditor witness the CA Key Pair generation process or record a video of the entire CA Key Pair generation process.

In all cases, the CA SHALL:

- 1. generate the CA Key Pair in a physically secured environment as described in the CA's Certificate Policy and/or Certification Practice Statement;
- 2. generate the CA Key Pair using personnel in trusted roles under the principles of multiple person control and split knowledge;
- 3. generate the CA Key Pair within cryptographic modules meeting the applicable technical and business requirements as disclosed in the CA's Certificate Policy and/or Certification Practice Statement; The key pair of this CA is generated on a hardware security module (hereinafter referred to as "HSM") that has acquired FIPS 140-1 Level 3 certification.
- 4. log its CA Key Pair generation activities; and
- 5. maintain effective controls to provide reasonable assurance that the Private Key was generated and protected in conformance with the procedures described in its Certificate Policy and/or Certification Practice Statement and (if applicable) its Key Generation Script.

For key pair generation of subscriber certificates for TLS server certificates, the subordinate CA must reject the certificate request if one or more of the following conditions are met: The subordinate CA shall perform the following:

1. The key pair does not meet the requirements described in this CPS "6.1.5 Key Sizes" or this CPS "6.1.6 Public Key Parameters Generation and Quality

Checking";

- 2. There is clear evidence that the specific method used to generate the Private Key was flawed;
- 3. The CA is aware of a demonstrated or proven method that exposes the Applicant's Private Key to compromise;
- 4. The subordinate CA has previously been made aware that the Applicant's Private Key has suffered a Key Compromise, such as through the provisions of the CP "4.9.1 Reason for Certificate Revocation".
- 5. The Subordinate CA is aware of a demonstrated or proven method to easily compute the Applicant's Private Key based on the Public Key (such as a Debian weak key, see <u>https://wiki.debian.org/SSLkeys</u>).

6.1.2 Private Key Delivery to Subscriber

The private key is owned only by the subscriber, and the private key will not be sent from this CA.

6.1.3 Public Key Delivery to Certificate Issuer

Subscriber Public Keys are verified according to the procedure set forth in the CP "3.2.1 Method to Prove Possession of Private Key" hereof, and are delivered online.

6.1.4 CA Public Key Delivery to Relying Parties

Relying Parties may obtain CA Public Keys by accessing the CA Repository or through a commonly used web browser.

6.1.5 Key Sizes

The Digital Signature scheme of the CA Key Pairs is described in "Table 6.1-1 Digital Signature Scheme".

| Public Key algorithm | Signature algorithm | CA Key |
|----------------------|---------------------|------------------------------------|
| 2048 bit RSA | SHA1 | Security Communication RootCA1 |
| 2048 bit RSA | SHA256 | Security Communication RootCA2 |
| 4096 bit RSA | SHA384 | Security Communication RootCA3 |
| 384 bit ECC | SHA384 | Security Communication ECC RootCA1 |

| Table | 6.1-1 | Digital | Signature | Scheme |
|-------|-------|----------|-----------|--------|
| | | <i>a</i> | | |

When issuing a TLS server certificate related to Baseline Requirements, the following confirmation need to be done:

For RSA key pairs the CA SHALL:

• Ensure that the modulus size, when encoded, is at least 2048 bits, and;

• Ensure that the modulus size, in bits, is evenly divisible by 8.

For ECDSA key pairs the CA SHALL:

• Ensure that the key represents a valid point on the NIST P-256 or NIST P-384 elliptic curve.

No other algorithms or key sizes are permitted.

6.1.6 Public Key Parameters Generation and Quality Checking

The HSM used in the CA systems has the capability to check the quality of the encryption function. Public Key parameters are generated using the encryption function qualified by the quality checking.

[RSA]

The CA SHALL confirm that the value of the public exponent is an odd number equal to 3 or more. Additionally, the public exponent SHOULD be in the range between 2^16+1 and 2^256 - 1. The modulus SHOULD also have the following characteristics: an odd number, not the power of a prime, and have no factors smaller than 752. [Source: Section 5.3.3, NIST SP 800-89].

[ECDSA]

The CA SHOULD confirm the validity of all keys using either the ECC Full Public Key Validation Routine or the ECC Partial Public Key Validation Routine. [Source: Sections 5.6.2.3.2 and 5.6.2.3.3, respectively, of NIST SP 800-56A: Revision 2].

6.1.7 Key Usage Purposes

Private Keys corresponding to Root Certificates MUST NOT be used to sign Certificates except in the following cases:

- 1. Self-signed Certificates to represent the Root CA itself;
- 2. Certificates for Subordinate CAs and Cross Certificates;
- 3. Certificates for infrastructure purposes (administrative role certificates, internal CA operational device certificates); and
- 4. Certificates for OCSP Response verification.

6.2 Private Key Protection and Cryptographic Module Engineering Controls

The CA SHALL implement physical and logical safeguards to prevent unauthorized certificate issuance. Protection of the CA Private Key outside the validated system or device specified above MUST consist of physical security, encryption, or a combination of both, implemented in a manner that prevents disclosure of the CA Private Key. The CA SHALL encrypt its Private Key with an algorithm and key-length that, according to the state of the art, are capable of withstanding cryptanalytic attacks for the residual life of the encrypted key or key part.

6.2.1 Cryptographic Module Standards and Controls

The generation, storage and signing operations of the CA Private Keys are performed using an HSM that has obtained the FIPS140-2 Level 3 conformance.

6.2.2 Private Key Multi-Person Control

Generation of CA Private Keys requires operation by the Service Operation Manager(s) and at least two authorized individuals, who are also required for the post-generation administration of the Private Keys including transfer and disposal of the cryptographic module.

6.2.3 Private Key Escrow The CAs do not Escrow CA Private Keys.

6.2.4 Private Key Backup

CA Private Keys are backed up onto an HSM that has obtained the FIPS140-2 Level 3 conformance. The same control scheme as in "6.2.2 Private Key Multi-Person Control" hereof applies to the backup operation. The backup files and media are securely controlled as well.

6.2.5 Private Key Archival The CAs do not archive CA Private Keys.

6.2.6 Private Key Transfer into or from a Cryptographic Module CA Private Keys of the CA are generated inside an HSM and will never be retrieved by other hardware or software.

6.2.7 Private Key Storage on Cryptographic Module

CA Private Keys are stored in an HSM that has obtained the FIPS140-2 Level 3 conformance.

6.2.8 Method of Activating Private Key

Activation of CA Private Keys is jointly performed by at least two authorized individuals as in "6.2.2 Private Key Multi-Person Control" hereof, in the CA rooms.

6.2.9 Method of Deactivating Private Key

CA Private Keys are automatically deactivated after completion of a successful access thereto.

6.2.10 Method of Destroying Private Key

In a situation that requires disposal of CA Private Keys, the HSM storing them are completely initialized or physically destroyed by at least two authorized individuals as in "6.2.2 Private Key Multi-Person Control" hereof, in the CA rooms, while the backup Private Keys are also disposed of, following the same procedure.

6.2.11 Cryptographic Module Rating

An HSM that has obtained the FIPS140-2 Level 3 conformance is used for control of CA Private Keys.

6.3 Other Aspects of Key Pair Management

6.3.1 Public Key Archival

Archival of CA Public Keys is covered by "5.5.1 Types of Archives" hereof.

6.3.2 Certificate Operational Periods and Key Pair Usage Periods

The validity period of the key pair and CA certificate of the CA is assumed to be 8 years or more and 25 years or less. The private key or subject name should not be reused.

The validity period of the key pair of the subordinate CA is not specified, but the validity period of the certificate is assumed to be 20 years or less.

For the purpose of calculations, a day is measured as 86,400 seconds. Any amount of time greater than this, including fractional seconds and/or leap seconds, shall represent an additional day. For this reason, Subscriber Certificates SHOULD NOT be issued for the maximum permissible time by default, in order to account for such adjustments.

6.4 Activation Data

6.4.1 Activation Data Generation and Installation At least two digital keys are used for activation of CA Private Keys.

6.4.2 Activation Data Protection The keys required for activation are stored in different locations.

6.4.3 Other Aspects of Activation Data

Management of the generation and setting of the activation data of the private key of the CA is performed by the persons described in "5.2.1. Trusted Roles" of this CPS.

6.5 Computer Security Controls

6.5.1 Specific Computer Security Technical Requirements

Hardware used by the CAs is protected by the scheme described in "5.1 Physical Controls" hereof and the user authentication is required to log in thereto. Protections against different threats are implemented, including the anti-virus protection.

The CA SHALL enforce multi-factor authentication for all accounts capable of directly causing certificate issuance.

6.5.2 Computer Security Rating

The CAs conduct the preproduction system tests of all software and hardware to be employed by the CA Systems in an effort to secure the system reliability. In addition, the CAs constantly collect information on the security vulnerabilities and perform assessments to be able to promptly take proper actions should any vulnerability be detected.

6.6 Life-Cycle Technical Controls

For hardware and software used by the CAs, the latest security technologies are assessed at an appropriate cycle while reviews of this CPS and the relevant CP as well as security checks are conducted as required.

6.6.1 System Development Controls

The CA Systems are configured and maintained in a secure environment. Security is thoroughly assessed and verified when modifying the CA Systems. Further, security checks are performed in order to ensure the security by implementing the latest security technologies at an appropriate cycle.

6.6.2 Security Management Controls

The CAs ensure security by conducting such operational management as administration of the information asset, personnel and permissions, as well as timely updates of the security software such as anti-hacking and anti-virus applications.

6.6.3 Life-Cycle Security Controls

The CAs perform assessments as appropriate to ensure that the CA Systems are developed, operated and maintained properly, to make improvements as needed.

6.7 Network Security Controls

The CA Systems are not connected to any internal or external systems. The Repository system is protected against unauthorized accesses through such implementations as firewalls and unauthorized access detection systems.

6.8 Time-Stamping

Requirements concerning Time-Stamping shall be as stipulated in "5.5.5 Requirements for Time-stamping of Records" hereof.

7. Certificate, CRL, and OCSP Profiles

7.1 Certificate Profile

7.1.1 Version Number(s) Stipulated in the relevant CP.

7.1.2 Certificate Extension Stipulated in the relevant CP.

7.1.3 Algorithm Object Identifier Stipulated in the relevant CP.

7.1.4 Name Format Stipulated in the relevant CP.

7.1.5 Name Constraints Stipulated in the relevant CP.

7.1.6 Certificate Policy Object Identifier Stipulated in the relevant CP.

7.1.7 Use of Policy Constraint Extensions Stipulated in the relevant CP.

7.1.8 Policy Qualifier Syntax and Semantics Stipulated in the relevant CP.

7.1.9 How to interpret Critical Certificate Policy Extensions Stipulated in the relevant CP.

7.2 CRL Profile

7.2.1 Version Number(s) Stipulated in the relevant CP.

7.2.2 Certificate Revocation Lists and CRL Entry Extensions Stipulated in the relevant CP. 7.3 OCSP Profile

7.3.1 Version Number(s) Stipulated in the relevant CP.

7.3.2 OCSP Extensions Stipulated in the relevant CP.

- 8. Compliance Audit and Other Assessments
 - The CA SHALL at all times:
 - 1. Issue Certificates and operate its PKI in accordance with all law applicable to its business and the Certificates it issues in every jurisdiction in which it operates;
 - 2. Comply with these Requirements;
 - 3. Comply with the audit requirements specified in this CPS.; and
 - 4. Be licensed as a CA in each jurisdiction where it operates, if licensing is required by the law of such jurisdiction for the issuance of Certificates.

8.1 Frequency and Circumstances of Assessment

SECOM performs audits once a year or as auditors set forth in "8.2 Identity/Qualifications of Assessor" hereof determine to be necessary to verify whether or not the operation of the Services is in compliance with this CPS and the relevant CP.

Certificates that are capable of being used to issue new certificates MUST either be Technically Constrained in line with the CP "7.1.5 Name Constraints" and audited in line with this CPS "8.7 Self-Audit" only, or Unconstrained and fully audited in line with all remaining requirements from this section. A Certificate is deemed as capable of being used to issue new certificates if it contains an X.509v3 basicConstraints extension, with the cA boolean set to true and is therefore by definition a Root CA Certificate or a Subordinate CA Certificate.

The period during which the CA issues Certificates SHALL be divided into an unbroken sequence of audit periods. An audit period MUST NOT exceed one year in duration.

If the CA has a currently valid Audit Report indicating compliance with an audit scheme listed in this CPS "8.4 Topics Covered by Assessment", then no pre-issuance readiness assessment is necessary.

If the CA does not have a currently valid Audit Report indicating compliance with one of the audit schemes listed in this CPS, "8.4 Topics Covered by Assessment", then, before issuing Publicly-Trusted Certificates, the CA SHALL successfully complete a point-intime readiness assessment performed in accordance with applicable standards under one of the audit schemes listed in this CPS, "8.4 Topics Covered by Assessment". The pointin-time readiness assessment SHALL be completed no earlier than twelve (12) months prior to issuing Publicly-Trusted Certificates and SHALL be followed by a complete audit under such scheme within ninety (90) days of issuing the first Publicly-Trusted Certificate.

8.2 Identity/Qualifications of Assessor

The CA's audit SHALL be performed by a Qualified Auditor. A Qualified Auditor means a natural person, Legal Entity, or group of natural persons or Legal Entities that collectively possess the following qualifications and skills:

- 1. Independence from the subject of the audit;
- 2. The ability to conduct an audit that addresses the criteria specified in an Eligible Audit Scheme (see this CPS, "8.4 Topics Covered by Assessment");
- 3. Employs individuals who have proficiency in examining Public Key Infrastructure technology, information security tools and techniques, information technology and security auditing, and the third-party attestation function;
- (For audits conducted in accordance with any one of the ETSI standards) accredited in accordance with ISO 17065 applying the requirements specified in ETSI EN 319 403;
- 5. (For audits conducted in accordance with the WebTrust standard) licensed by WebTrust;
- 6. Bound by law, government regulation, or professional code of ethics; and
- 7. Except in the case of an Internal Government Auditing Agency, maintains Professional Liability/Errors & Omissions insurance with policy limits of at least one million US dollars in coverage.

8.3 Assessor's Relationship to Assessed Entity

Auditors shall be operationally and organizationally independent of the assessed entity, except for the audit-related aspects. In conducting the audits, the assessed entity shall provide appropriate support to the effort.

8.4 Topics Covered by Assessment

The CA SHALL undergo an audit in accordance with one of the following schemes:

- $\boldsymbol{\cdot}$ WebTrust for CAs
- \cdot WebTrust for CAs SSL Baseline with Network Security
- WebTrust Principles and Criteria for Certification Authorities Publicly Trusted Code Signing Certificates
- WebTrust Principles and Criteria for Certification Authorities Extended Validation SSL

It MUST incorporate periodic monitoring and/or accountability procedures to ensure that its audits continue to be conducted in accordance with the requirements of the scheme.

The audit MUST be conducted by a Qualified Auditor, as specified in this CPS "8.2 Identity/Qualifications of Assessor".

For Delegated Third Parties which are not Enterprise RAs,, then the CA SHALL obtain an audit report, issued under the auditing standards that underlie the accepted audit schemes found in this CPS, "8.4 Topics Covered by Assessment", that provides an opinion whether the Delegated Third Party's performance complies with either the Delegated Third Party's practice statement or the CA's Certificate Policy and/or Certification Practice Statement. If the opinion is that the Delegated Third Party does

not comply, then the CA SHALL not allow the Delegated Third Party to continue performing delegated functions.

The audit period for the Delegated Third Party SHALL NOT exceed one year (ideally aligned with the CA's audit).

8.5 Actions Taken as a Result of Deficiency

SECOM promptly implements corrective measures with respect to the deficiencies identified in the audit report.

8.6 Communication of Results

The audit results are communicated to SECOM by the auditors. If SECOM Trust Systems is required to disclose the audit results, the company will not externally disclose the audit results unless the requirement is in accordance with relevant laws or made by an associated party based on the agreement therewith, or the disclosure is approved by the Certification Services Improvement Committee.

The Audit Report SHALL state explicitly that it covers the relevant systems and processes used in the issuance of all Certificates that assert one or more of the policy identifiers listed in the CP, "7.1.6 Certificate Policy Object Identifier". The CA SHALL make the Audit Report publicly available. The CA MUST make its Audit Report publicly available no later than three months after the end of the audit period. In the event of a delay greater than three months, the CA SHALL provide an explanatory letter signed by the Qualified Auditor.

The Audit Report MUST contain at least the following clearly-labelled information:

- 1. name of the organization being audited;
- 2. name and address of the organization performing the audit;
- 3. the SHA-256 fingerprint of all Roots and Subordinate CA Certificates, including Cross Certificates, that were in-scope of the audit;
- 4. audit criteria, with version number(s), that were used to audit each of the certificates (and associated keys);
- 5. a list of the CA policy documents, with version numbers, referenced during the audit;
- 6. whether the audit assessed a period of time or a point in time;
- 7. the start date and end date of the Audit Period, for those that cover a period of time;
- 8. the point in time date, for those that are for a point in time;
- 9. the date the report was issued, which will necessarily be after the end date or point in time date.

An authoritative English language version of the publicly available audit information MUST be provided by the Qualified Auditor and the CA SHALL ensure it is publicly

available.

The Audit Report MUST be available as a PDF, and SHALL be text searchable for all information required. Each SHA-256 fingerprint within the Audit Report MUST be uppercase letters and MUST NOT contain colons, spaces, or line feeds.

8.7 Self-Audit

During the period in which the CA issues Certificates, the CA SHALL monitor adherence to its Certificate Policy, Certification Practice Statement and these Requirements and strictly control its service quality by performing self audits on at least a quarterly basis against a randomly selected sample of the greater of one certificate or at least three percent of the Certificates (six percent for EV TLS Server Certificate) issued by it during the period commencing immediately after the previous self-audit sample was taken. Except for Delegated Third Parties that undergo an annual audit that meets the criteria specified in Section 8.4 "Topics Covered by Assessment", the CA SHALL strictly control the service quality of Certificates issued or containing information verified by a Delegated Third Party by having a Validation Specialist employed by the CA perform ongoing quarterly audits against a randomly selected sample of at least the greater of one certificate or three percent of the Certificates (six percent for EV TLS Server Certificate) verified by the Delegated Third Party in the period beginning immediately after the last sample was taken. The CA SHALL review each Delegated Third Party's practices and procedures to ensure that the Delegated Third Party is in compliance with these Requirements and the relevant Certificate Policy and/or Certification Practice Statement.

The CA SHALL internally audit each Delegated Third Party's compliance with these Requirements on an annual basis.

During the period in which a Technically Constrained Subordinate CA issues Certificates, the CA which signed the Subordinate CA SHALL monitor adherence to the CA's Certificate Policy and the Subordinate CA's Certification Practice Statement. On at least a quarterly basis, against a randomly selected sample of the greater of one certificate or at least three percent of the Certificates (six percent for EV TLS Server Certificate) issued by the Subordinate CA, during the period commencing immediately after the previous audit sample was taken, the CA shall ensure all applicable CP are met. 9. Other Business and Legal Matters

 $9.1 \; \mathrm{Fees}$

9.1.1 Fees for Issuing or Renewing Certificates Stipulated in the relevant CP.

9.1.2 Certificate Access Fee Stipulated in the relevant CP.

9.1.3 Expiration or Access Fee for Status Information Stipulated in the relevant CP.

9.1.4 Fees for Other Services Stipulated in the relevant CP.

9.1.5 Refund Policy Stipulated in the relevant CP.

9.2 Financial Responsibility

9.2.1 Insurance Coverage Stipulated in the relevant CP.

9.2.2 Other Assets Stipulated in the relevant CP.

9.2.3 End entity Insurance or Warranty coverage Stipulated in the relevant CP.

9.3 Confidentiality of Business Information

9.3.1 Scope of Confidential Information Stipulated in the relevant CP.

9.3.2 Information outside the scope of confidential information Stipulated in the relevant CP.

9.3.3 Responsibility to Protect Confidential Information Stipulated in the relevant CP.

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9.4 Privacy of Personal Information

9.4.1 Personal Information Protection Plan Stipulated in the relevant CP.

9.4.2 Information Treated as Personal Information Stipulated in the relevant CP.

9.4.3 Information that is not considered Personal Information Stipulated in the relevant CP.

9.4.4 Responsibility for protecting Personal Information Stipulated in the relevant CP.

9.4.5 Notice and Consent regarding use of Personal Information Stipulated in the relevant CP.

9.4.6 Disclosure of Information with Judicial or Administrative Procedures Stipulated in the relevant CP.

9.4.7 Other Information Disclosure Conditions Stipulated in the relevant CP.

9.5 Intellectual Property Rights Stipulated in the relevant CP.

9.6 Representations and Warranties

9.6.1 CA Representation and Warranties Stipulated in the relevant CP.

9.6.2 RA Representations and Warranties Stipulated in the relevant CP.

9.6.3 Subscriber Representations and Warranties Stipulated in the relevant CP.

9.6.4 Relying Party Representations and Warranties Stipulated in the relevant CP.

9.6.5 Representations and Warranties of Other Participants Stipulated in the relevant CP.

9.7 Disclaimers of Warranties Stipulated in the relevant CP.

9.8 Limitations of Liability Stipulated in the relevant CP.

9.9 Indemnities Stipulated in the relevant CP.

9.10 Term and Termination

9.10.1 Term Stipulated in the relevant CP.

9.10.2 Termination Stipulated in the relevant CP.

9.10.3 Effect of Termination and Survival Stipulated in the relevant CP.

9.11 Individual Notices and Communications with Participants Stipulated in the relevant CP.

9.12 Amendments

9.12.1 Procedure for Amendment

(1) Critical revisions/amendments

SECOM notifies Subscribers and Relying Parties of amendments of this CPS if the amendments thereof are determined to have an obvious impact on the activities for use of Certificates or CRLs by the Subscribers and Relying Parties, by publishing the post-amendment version of this CPS (including the Version History/Description/Date) in the Repository, while refreshing the Major Version Number.

(2) Non-critical revisions/amendments

SECOM notifies Subscribers and Relying Parties of amendments of this CPS if the amendments thereof are determined to have no or less impact on the activities for use of

Certificates or CRLs by the Subscribers and Relying Parties, by publishing the postamendment version of this CPS (including the Version History/Description/Date) in the Repository, while refreshing the Minor Version Number.

9.12.2 Notification Mechanism and Period

If this CPS is revised/amended, the prompt publication of the post-amendment version of this CPS (including the Version History/Description/Date) in the Repository is deemed to be the notification thereof to Subscribers and Relying Parties. Subscribers may make claims within a week of such notification, while the post-amendment version of this CPS is deemed to be approved by the Subscribers unless any claim is made within the said period.

9.12.3 Circumstances under Which OID Must Be Changed Stipulated in the relevant CP.

9.13 Dispute Resolution Provisions Stipulated in the relevant CP.

9.14 Governing Law Stipulated in the relevant CP.

9.15 Compliance with Applicable Law Stipulated in the relevant CP.

9.16 Miscellaneous Provisions

9.16.1 Entire Agreement Stipulated in the relevant CP.

9.16.2 Assignment Stipulated in the relevant CP.

9.16.3 Severability Stipulated in the relevant CP.

9.16.4 Enforcement Stipulated in the relevant CP.

9.16.5 Irresistible Force Stipulated in the relevant CP.

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9.17 Other Provisions Stipulated in the relevant CP.