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TrustFactory Client Root CA Certification Practice Statement

Date:31 March 2020
Version: 1.6

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References and Acknowledgements

1. CA / Browser Forum Network and Certificate System Security Requirements; http://www.cabforum.org
2. CA/Browser Forum Baseline Requirements for the Issuance and Management of Publicly-Trusted Certificates; http://www.cabforum.org

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1.0 Introduction

This Certification Practice Statement (CPS) applies to the products and services of TrustFactory Client Root Certification Authority (CA). The latest version may be found on the TrustFactory company repository at https://www.trustfactory.net/repository.

A CPS highlights the *"procedures under which a Certificate is issued to a particular community and/or class of application with common security requirements"*. This CPS aims to adhere to the content and structure guidance provided in Internet Engineering Task Force (IETF) RFC 3647, dated November 2003. Where certain sections or topics of the RFC 3647 do not apply or requirements are not defined then the term 'No stipulation' is used.

TrustFactory CAs are governed by the TrustFactory Certificate Policy (CP) together with a Certification Practice Statement (CPS) applicable to the specific CA.

TrustFactory Client Root CA conforms to the current version of the Baseline Requirements for the Issuance and management of Publicly-Trusted Certificates published at http://www.cabforum.org. In the event of any inconsistency between this document and the Baseline Requirements, the Baseline Requirements take precedence over this document.

This CPS should be read together with the TrustFactory Certificate Policy. Certain practices, controls, compliance, business and legal matters that are common across all TrustFactory CAs are documented in the TrustFactory CP. This CPS addresses the specific technical and procedural practices of the TrustFactory Client Root CA, within the TrustFactory PKI System, which issue Certificates to Issuing CAs.

1.1 Overview

This CPS applies to the following Certification Authorities managed by TrustFactory:

- **TrustFactory Client Root CA**

The purpose of this CPS is to present the TrustFactory Client Root CA practices and procedures in managing Root CA Certificates and to demonstrate compliance with requirements pertaining to the issuance of Certificates according to TrustFactory Certificate Policy (CP).

The Certificate subject names addressed in this CPS are the following:

- CN = TrustFactory Client Root Certificate Authority
  - OU = TrustFactory PKI Operations
  - O = TrustFactory(Pty)Ltd
  - L = Johannesburg
  - S = Gauteng
  - C = ZA

1.2 Document Name and Identification

This document is the TrustFactory Client Root CA Certification Practice Statement (TrustFactory Client Root CA CPS).

The OID for TrustFactory is: {iso(1) identified-organization(3) dod(6) internet(1) private(4) enterprise(1) trustfactory(50318)}

TrustFactory organizes its OID arcs for its CP and CPS documents as follows:

1.3.6.1.4.1.50318.1	TrustFactory CA CP
1.3.6.1.4.1. 50318.2.2	TrustFactory Client Root CA Certificates Practice Statement
1.3.6.1.4.1. 50318.2.4	TrustFactory Client Issuing CA Certificates Practice Statement

All TrustFactory CP and CPS documents are published in the Repository at https://www.trustfactory.net/repository.

1.2.1 Document Revisions

Version	Description	Date
1.0	Initial for review	6 October 2017
1.1	Error corrections Added certificate serial numbers and	7 December 2017

	certificate profiles.	
1.2	Updates to Section 9.1 Fees Other minor corrections	15 December 2017
1.3	Key changes as follows: • PA must approve revocation: 4.9.3 • SAAA notification for significant CPS amendments: 9.12 Other minor corrections to improve clarity and understanding	8 August 2018
1.4	Updates to incorporate latest CAB Forum changes on revocation requirements, and other minor corrections and clarifications.	21 November 2018
1.5	Corrected and clarified the procedure for re-key/reissue: 3.4, 4.7 Minor corrections and changes to wording to be consistent with the CP	26 March 2019
1.6	Updated to incorporate details as required by Mozilla Root Store Policy. Removed use of “no stipulation”. Aligned subsection heading to RFC3647 / CAB Forum Baseline Requirements	

1.3 PKI Participants

1.3.1 TrustFactory Root Certification Authorities

TrustFactory Client Root Certification Authority is the root CA of a trust hierarchy that incorporates a TrustFactory Client Issuing CA which offers end-entity client certificates with the following hierarchy:

- TrustFactory Client Root Certificate Authority
  - TrustFactory Client Issuing Certificate Authority
    - PersonalPass Certificates
    - PersonalPass Premium Certificates
    - EmailPass Certificates

The TrustFactory Client Root CA may:

• Accept the Certificate Signing Requests (“CSR”) with the public keys of a TrustFactory Client Issuing CA which has been approved by the TrustFactory Policy Authority and whose identity and verified information to be contained in the TrustFactory Client Issuing CA Certificate have been established through a formal key ceremony;

• Create the TrustFactory Client Issuing CA Certificate containing the signed public key, once the CSR is verified by the TrustFactory Client Root CA.

1.3.2 Registration Authorities

TrustFactory Client Root CA will act as its own Registration Authority responsible for:

- Accepting, evaluating, approving or rejecting the registration of a TrustFactory Client Issuing CA Certificate application;
- Issuance of a Certificate in accordance with the provisions of the TrustFactory Client Root CA CPS; and
- Initiating the process to revoke a TrustFactory Client Issuing CA Certificate.

1.3.3 Subscribers

Subscribers are TrustFactory Client Issuing CAs that have been issued a TrustFactory Client Issuing CA Certificate.

1.3.4 Relying Parties

A Relying Party is a subordinate CA, person, entity, or organization that relies on or uses the TrustFactory Client Issuing CA Certificate and/or any other information provided in the TrustFactory repository to verify the identity and public key of a Subscriber.

1.3.5 Other Participants

The CAs and RAs operating under the TrustFactory CP may require the services of other security, community, and application authorities.

1.4 Certificate Usage

1.4.1 Appropriate certificate usage

TrustFactory Client Issuing CA Certificates may be used for the following purposes:

- Validating Certificates issued by the TrustFactory Client Issuing CA
- Validating Certificate Revocation Lists (CRL) issued by the TrustFactory Client Issuing CA
- Validating OCSP responder certificates signed by the TrustFactory Client Issuing CA

Key Usage and extended key usage parameters are defined as per the profiles in Annexure A.

1.4.2 Prohibited Certificate usage

Certificate use is restricted by using Certificate extensions on key usage and extended key usage.

Any usage not defined in the certificate profiles, as per Annexure A, above shall be deemed prohibited usage.

Any usage of the Certificate inconsistent with these extensions is not authorized. Certificates are not authorized for use for any transactions above the designated reliance limits that have been indicated in the TrustFactory Warranty Policy.

Certificates issued under this CPS may not be used:

- for any application requiring fail safe performance such as:
  - the operation of nuclear power facilities,
  - air traffic control systems,
  - aircraft navigation systems,
  - weapons control systems, and
  - any other system whose failure could lead to injury, death or environmental damage; or
- where prohibited by law.

1.5 Policy Administration

1.5.1 Organization Administering the Document

Any enquiry associated with this CPS should be addressed to:

TrustFactory Policy Authority
c/o iSolv Technologies
Firestation Rosebank, 6th Floor
16 Baker St, Rosebank,
Johannesburg, 2196
South Africa
Tel: +27-11-880 6103
Fax: +27-11-880 5443
Email: info@trustfactory.net

1.5.2 Contact Person

TrustFactory General Manager
c/o iSolv Technologies
Firestation Rosebank, 6th Floor
16 Baker St, Rosebank,
Johannesburg, 2196
South Africa
Tel: +27-11-880 6103
Fax: +27-11-880 5443
Email: info@trustfactory.net

Subscribers, Relying Parties, Application Software Suppliers, and other third parties can report suspected Private Key Compromise, Certificate misuse, or other types of fraud, compromise, misuse, inappropriate conduct, or any other matter related to Certificates, through the “Report Abuse” link on the TrustFactory website at www.trustfactory.net. This opens an email client that sends an email to abuse@trustfactory.net

1.5.3 Person Determining CPS Suitability for the Policy

The TrustFactory Policy Authority determines the suitability and applicability of this CPS and the conformance of this CPS to the TrustFactory CP based on the results and recommendations received from a Qualified Auditor.

1.5.4 CPS Approval Procedures

The TrustFactory Policy Authority reviews and approves any changes to this CPS. The updated CPS is reviewed against the CP in order to check for consistency. CP changes are also added on as needed basis. Upon approval of a CPS update by the Policy Authority, the new CPS is published in the TrustFactory Client Root CA Repository at https://www.trustfactory.net/repository.

The updated version is binding upon all Subscribers, for all Certificates that have been issued or are to be issued, including the Subscribers and parties relying on Certificates that have been issued under a previous version of the CPS.

1.6 Definitions and acronyms

Any terms used but not defined herein shall have the meaning ascribed to them in the Baseline Requirements.

Adobe Approved Trust List (AATL): A document signing certificate authority trust store created by the Adobe Root CA policy authority implemented from Adobe PDF Reader version 9.0

Advanced Electronic Signature: A specific digital signature that complies to the requirements of the Electronic Communications & Transactions Act in South Africa, and can be relied on for evidence in a court of law.

Affiliate: A corporation, partnership, joint venture or other entity controlling, controlled by, or under common control with another entity, or an agency, department, political subdivision, or any entity operating under the direct control of a Government Entity.

Applicant: The natural person or Legal Entity that applies for (or seeks renewal of) a Certificate. Once the Certificate issues, the Legal Entity is referred to as the Subscriber. For Certificates issued to devices, the Applicant is the entity that controls or operates the device named in the Certificate, even if the device is sending the actual Certificate Request.

Applicant Representative: A natural person or human sponsor who is either the Applicant, employed by the Applicant, or an authorized agent who has express authority to represent the Applicant: (i) who signs and submits, or approves a certificate request on behalf of the Applicant, and/or (ii) who signs and submits a Subscriber Agreement on behalf of the Applicant, and/or (iii) who acknowledges the Terms of Use on behalf of the Applicant when the Applicant is an Affiliate of the CA or is the CA.

Application Software Supplier: A supplier of Internet browser software or other Relying Party application software that displays or uses Certificates and incorporates Root Certificates.

Attestation Letter: A letter attesting that Subject Identity Information is correct.

Business Entity: Any entity that is not a Private Organization, Government Entity, or non-commercial entity as defined in the EV Guidelines. Examples include, but are not limited to, general partnerships, unincorporated associations, sole proprietorships, etc.

CDS (Certified Document Services): A document signing architecture created by the Adobe Root CA policy authority implemented from Adobe PDF Reader version 6.0.

Certificate: An electronic document that uses a Digital Signature to bind a Public Key and an identity.

Certificate Beneficiaries: The Subscriber that is a party to the Subscriber Agreement or Terms of Use for the Certificate, all Application Software Suppliers with whom TrustFactory Client Root CA has entered into a contract for inclusion of its Root Certificate in software distributed by such Application Software Supplier, and all Relying Parties who reasonably rely on a Valid Certificate.

Certificate Data: Certificate Requests and data related thereto (whether obtained from the Applicant or otherwise) in the CA's possession or control or to which the CA has access.

Certificate Management Process: Processes, practices, and procedures associated with the use of keys, software, and hardware, by which the CA verifies Certificate Data, issues Certificates, maintains a Repository, and revokes Certificates.

Certificate Policy: A set of rules that indicates the applicability of a named Certificate to a particular community and/or PKI implementation with common security requirements.

Certificate Problem Report: A complaint of suspected Key Compromise, Certificate misuse, or other types of fraud, compromise, misuse, or inappropriate conduct related to Certificates.

Certificate Request: Communications described in Section 10 of the Baseline Requirements requesting the issuance of a Certificate.

Certificate Revocation List: A regularly updated timestamped list of revoked Certificates that is created and digitally signed by the CA that issued the Certificates.

Certification Authority: An organization that is responsible for the creation, issuance, revocation, and management of Certificates. The term applies equally to both Roots CAs and Subordinate CAs.

Certification Practice Statement: One of several documents forming the governance framework in which Certificates are created, issued, managed, and used.

Compromise: A violation of a security policy that results in loss of control over sensitive information.

Country: Either a member of the United Nations OR a geographic region recognized as a sovereign nation by at least two UN member nations.

Cross Certificate: A Certificate that is used to establish a trust relationship between two Root CAs.

Digital Signature: To encode a message by using an asymmetric cryptosystem and a hash function such that a person having the initial message and the signer's Public Key can accurately determine whether the transformation was created using the Private Key that corresponds to the signer's Public Key and whether the initial message has been altered since the transformation was made.

Domain Name: The label assigned to a node in the Domain Name System.

Domain Name System: An Internet service that translates Domain Names into IP addresses.

Domain Namespace: The set of all possible Domain Names that are subordinate to a single node in the Domain Name System.

Domain Name Registrant: Sometimes referred to as the "owner" of a Domain Name, but more properly the person(s) or entity(ies) registered with a Domain Name Registrar as having the right to control how a Domain Name is used, such as the natural person or Legal Entity that is listed as the "Registrant" by WHOIS or the Domain Name Registrar.

Domain Name Registrar: A person or entity that registers Domain Names under the auspices of or by agreement with: (i) the Internet Corporation for Assigned Names and Numbers (ICANN), (ii) a national Domain Name authority/registry, or (iii) a Network Information Center (including their affiliates, contractors, delegates, successors, or assigns).

Enterprise RA: An employee or agent of an organization unaffiliated with the CA who authorizes issuance of Certificates to that organization or its subsidiaries. An Enterprise RA may also authorize issuance of client authentication Certificates to partners, customers, or affiliates wishing to interact with that organization.

Expiry Date: The "Not After" date in a Certificate that defines the end of a Certificate's Validity Period.

Fully-Qualified Domain Name: A Domain Name that includes the labels of all superior nodes in the Internet Domain Name System.

Government Entity: A government-operated legal entity, agency, department, ministry, branch, or similar element of the government of a Country, or political subdivision within such Country (such as a state, province, city, county, etc.).

Hash (e.g. SHA1 or SHA256): An algorithm that maps or translates one set of bits into another (generally smaller) set in such a way that:

- A message yields the same result every time the algorithm is executed using the same message as input.
- It is computationally infeasible for a message to be derived or reconstituted from the result produced by the algorithm.
- It is computationally infeasible to find two different messages that produce the same hash result using the same algorithm.

Hardware Security Module (HSM): An HSM is type of secure crypto processor targeted at managing digital keys, accelerating crypto processes in terms of digital signings/second and for providing strong authentication to access critical keys for server applications.

Incorporate by Reference: To make one document a part of another by identifying the document to be incorporated, with information that allows the recipient to access and obtain the incorporated message in its entirety, and by expressing the intention that it be part of the incorporating message. Such an incorporated message shall have the same effect as if it had been fully stated in the message.

Incorporating Agency: In the context of a Private Organization, the government agency in the Jurisdiction of Incorporation under whose authority the legal existence of the entity is registered (e.g., the government agency that issues certificates of formation or incorporation). In the context of a Government Entity, the entity that enacts law, regulations, or decrees establishing the legal existence of Government Entities.

Individual: A natural person.

Issuing CA: In relation to a particular Certificate, the CA that issued the Certificate. This could be either a Root CA or a Subordinate CA.

Jurisdiction of Incorporation: In the context of a Private Organization, the country and (where applicable) the state or province or locality where the organization's legal existence was established by a filing with (or an act of) an

appropriate government agency or entity (e.g., where it was incorporated). In the context of a Government Entity, the country and (where applicable) the state or province where the Entity's legal existence was created by law.

Key Compromise: A Private Key is said to be Compromised if its value has been disclosed to an unauthorized person, an unauthorized person has had access to it.

Key Pair: The Private Key and its associated Public Key.

Legal Entity: An association, corporation, partnership, proprietorship, trust, government entity or other entity with legal standing in a Country's legal system.

Object Identifier (OID): A unique alphanumeric or numeric identifier registered under the International Organization for Standardization's applicable standard for a specific object or object class.

OCSP Responder: An online server operated under the authority of the CA and connected to its Repository for processing Certificate status requests. See also, Online Certificate Status Protocol.

Online Certificate Status Protocol: An online Certificate-checking protocol that enables Relying Party application software to determine the status of an identified Certificate. See also OCSP Responder.

Place of Business: The location of any facility (such as a factory, retail store, warehouse, etc.) where the Applicant's business is conducted.

Private Key: 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.

Private Organization: A non-governmental legal entity (whether ownership interests are privately held or publicly traded) whose existence was created by a filing with (or an act of) the Incorporating Agency or equivalent in its Jurisdiction of Incorporation.

Public Key: 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.

Public Key Infrastructure (PKI): A set of hardware, software, people, procedures, rules, policies, and obligations used to facilitate the trustworthy creation, issuance, management, and use of Certificates and keys based on Public Key cryptography.

Publicly-Trusted Certificate: A Certificate that is trusted by virtue of the fact that its corresponding Root Certificate is distributed as a trust anchor in widely-available application software.

Qualified Auditor: A natural person or Legal Entity that meets the requirements of Section 8.2 (Identity/ Qualifications of Assessor).

Registered Domain Name: A Domain Name that has been registered with a Domain Name Registrar.

Registration Authority (RA): Any Legal Entity that is responsible for identification and authentication of Subjects of Certificates, but is not a CA, and hence does not sign or issue Certificates. An RA may assist in the Certificate application process or revocation process or both. When "RA" is used as an adjective to describe a role or function, it does not necessarily imply a separate body, but can be part of the CA.

Relying Party: 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: An online database containing publicly-disclosed PKI governance documents (such as Certificate Policies and Certification Practice Statements) and Certificate status information, either in the form of a CRL or an OCSP response. For TrustFactory the Repository is at https://www.trustfactory.net/repository

Root CA: The top level Certification Authority whose Root Certificate is distributed by Application Software Suppliers and that issues Subordinate CA Certificates.

Root Certificate: The self-signed Certificate issued by the Root CA to identify itself and to facilitate verification of Certificates issued to its Subordinate CAs.

Subject: The natural person, device, system, unit, or Legal Entity identified in a Certificate as the Subject. The Subject is either the Subscriber or a device under the control and operation of the Subscriber.

Subject Identity Information: Information that identifies the Certificate Subject. Subject Identity Information does not include a Domain Name listed in the subjectAltName extension or the commonName field.

Subordinate CA: A Certification Authority whose Certificate is signed by the Root CA, or another Subordinate CA.

Subscriber: A natural person or Legal Entity to whom a Certificate is issued and who is legally bound by a Subscriber Agreement or Terms of Use.

Subscriber Agreement: An agreement between the CA and the Applicant/Subscriber that specifies the rights and responsibilities of the parties.

Technically Constrained Subordinate CA Certificate: A Subordinate CA certificate which uses a combination of Extended Key Usage settings and Name Constraint settings to limit the scope within which the Subordinate CA Certificate may issue Subscriber or additional Subordinate CA Certificates.

Terms of Use: Provisions regarding the safekeeping and acceptable uses of a Certificate issued in accordance with the Baseline Requirements when the Applicant/Subscriber is an Affiliate of the CA.

Trusted Platform Module (TPM): A hardware cryptographic device which is defined by the Trusted Computing Group. https://www.trustedcomputinggroup.org/specs/TPM.

Trustworthy System: Computer hardware, software, and procedures that are: reasonably secure from intrusion and misuse; provide a reasonable level of availability, reliability, and correct operation; are reasonably suited to performing their intended functions; and enforce the applicable security policy.

Unregistered Domain Name: A Domain Name that is not a Registered Domain Name.

Valid Certificate: A Certificate that passes the validation procedure specified in RFC 5280.

Validity Period: The period of time measured from the date when the Certificate is issued until the Expiry Date.

Vetting Agent: Someone who performs the information verification duties specified by the Baseline Requirements.

WebTrust Program for CAs: The then-current version of the AICPA/CICA WebTrust Program for Certification Authorities.

WebTrust Seal of Assurance: An affirmation of compliance resulting from the WebTrust Program for CAs.

Wildcard Certificate: A Certificate containing an asterisk (*) in the left-most position of any of the Subject Fully-Qualified Domain Names contained in the Certificate.

X.509: The standard of the ITU-T (International Telecommunications Union-T) for Certificates.

AATL	Adobe Approved Trust List
AES	Advanced Electronic Signature
AICPA	American Institute of Certified Public Accountants
API	Application Programming Interface
CA	Certification Authority
ccTLD	Country Code Top-Level Domain
CICA	Canadian Institute of Chartered Accountants
CP	Certificate Policy
CPS	Certification Practice Statement
CRL	Certificate Revocation List
DBA	Doing Business As
DNS	Domain Name System
EKU	Extended Key Usage
ETSI	European Telecommunications Standards Institute
EV	Extended Validation
FIPS	(US Government) Federal Information Processing Standard
FQDN	Fully Qualified Domain Name
IANA	Internet Assigned Numbers Authority
ICANN	Internet Corporation for Assigned Names and Numbers
ID	Identity document
IETF	Internet Engineering Task Force
ISO	International Organization for Standardization
ITU	International Telecommunications Union
NIST	(US Government) National Institute of Standards and Technology
OCSP	Online Certificate Status Protocol
OID	Object Identifier
PA	Policy Authority
PKI	Public Key Infrastructure
QGIS	Qualified Government Information Source
QGTIS	Qualified Government Tax Information Source
QIIS	Qualified Independent Information Source
RA	Registration Authority
RFC	Request for Comments
SAAA	South African Accreditation Authority

S/MIME	Secure MIME (Multipurpose Internet Mail Extensions)
SSL	Secure Sockets Layer
TLD	Top-Level Domain
TLS	Transport Layer Security
VAT	Value Added Tax

2.0 Publication and Repository Responsibilities

2.1 Repositories

TrustFactory Client Root CA publishes all CA Certificates, revocation data for issued Certificates, CP, CPS, and Relying Party agreements and Subscriber Agreements in Repositories at https://www.trustfactory.net/repository

TrustFactory Client Root CA may publish submitted information on publicly accessible directories for the provision of Certificate status information.

TrustFactory Client Root CA does not make certain classified and confidential documentation including business controls, operating procedures, security policies, processes and standards, and business continuity and recovery plans available to the public. These documents are, however, made available to Qualified Auditors as required during any WebTrust or SAAA audit performed on TrustFactory Client Root CA.

2.2 Publication of Certificate Information

TrustFactory Client Root CA publishes its CA Certificates, CP, CPS, and agreements at https://www.trustfactory.net/repository.

CRLs are published in online repositories. The CRLs contain entries for all revoked unexpired Certificates with a validity period that depends on Certificate type and/or position of the Certificate within the Certificate chain.

The TrustFactory Client Root CA generates a Certificate Revocation List that is accessible through the web-interface at: http://www.trustfactory.net/crl/tf-client-issuing.crl

The TrustFactory Client Root CA ensures that revocation data for issued Certificates and its Root Certificate are available through a Repository 24 hours a day, 7 days a week.

2.3 Time or Frequency of Publication

The TrustFactory PA will annually review this CPS and may make revisions and updates to policies as required by changes in the Requirements, standards, laws and regulations or other circumstances. Any updates become binding for all Certificates that have been issued or are to be issued upon the date of the publication of the updated version of this CPS.

New or modified versions of the CP, this CPS, Subscriber Agreements, or Relying Party agreements are published within ten days after being approved and digitally signed by the TrustFactory PA.

2.4 Access controls on repositories

The repository is publicly accessible information with Read-only access for the public.

Access control policies are implemented to prevent unauthorized persons from adding, deleting, or modifying repository entries. TrustFactory ensures that the integrity and authenticity of its public documentation is maintained by digitally signing the Adobe PDF format of the documents.

3.0 Identification and Authentication

TrustFactory Client Root CA acts as its own RA for issuance of an Issuing CA Certificate

3.1 Naming

3.1.1 Types of Names

TrustFactory Client Root CA Certificates follow the X.500 distinguished names rules to identify the Subject. Common Names (CNs) respect name space uniqueness and are not misleading.

The common name is the name associated with TrustFactory Client Issuing CA Certificate to be issued.

3.1.2 Need for Names to be Meaningful

The value of the common name attribute used is the name associated with the specific TrustFactory Issuing CA and should represent its specific purpose (e.g. SSL or Client).

3.1.3 Anonymity or Pseudonymity of Subscribers

Pseudonyms (names other than a subscriber's true organizational name) will not be permitted, except for the purposes of issuing certificates for testing or demonstration purposes.

3.1.4 Rules for Interpreting Various Name Forms

Distinguished names in Certificates are interpreted using X.500 standards and ASN.1 syntax.

3.1.5 Uniqueness of Names

TrustFactory Client Root CA enforces the uniqueness of each Subject name in a Certificate Authority as follows:

- The combination of the Common Name and all the attributes of the Distinguished Name (DN), together with the certificate serial number provides a unique electronic identity for the Issuing CA.

3.1.6 Recognition, Authentication, and Role of Trademarks

TrustFactory Client Root CA may not use registered trademarks that infringe on the intellectual property rights of a third party, when assigning the distinguished names to Issuing CA's.

3.2 Initial Identity Validation

Not applicable since the same entity owns the TrustFactory Client Root CA and subsequent Client Issuing CAs. However the TrustFactory PA will validate that requests for Issuing CA Certificates are only submitted by the authorized TrustFactory management personnel.

3.2.1 Method to Prove Possession of Private Key

The Issuing CA should generate a Certificate Signing Request (CSR), in PKCS#10 format, signed with its Private Key and the TrustFactory Client Root CA will validate it with the Issuing CA's Public Key.

This requirement does not apply where a key pair is generated by the Root CA on behalf of the Issuing CA.

3.2.2 Authentication of Organization Identity

3.2.2.1 Validation of Organization Identity

The TrustFactory PA will verify and validate all the information required in the TrustFactory Client Issuing CA certificate (since the Issuing CA is an Affiliate of the Root CA).

3.2.2.2 Use of Tradename or DBA name

If a DBA name is required, the TrustFactory PA will verify and validate all the information required in the TrustFactory Client Issuing CA certificate (since the Issuing CA is an Affiliate of the Root CA).

3.2.2.3. Verification of Country

The TrustFactory PA will verify and validate all the information required in the TrustFactory Client Issuing CA certificate (since the Issuing CA is an Affiliate of the Root CA).

3.2.2.4 Validation of Domain Authorization or Control

Not applicable to the Root CA.

Client Issuing CA certificates will not contain a Domain Name in the subject.

3.2.2.5. Authentication for an IP Address

TrustFactory does not permit listing IP Addresses in a Certificate

3.2.2.6. Wildcard Domain Validation

Not applicable to the Root CA

3.2.2.7 Data Source Accuracy

Prior to using any data source as a Reliable Data Source, the TrustFactory PA evaluates the source for its reliability, accuracy, and resistance to alteration or falsification.

3.2.2.8 CAA Records

Not applicable to the Root CA

3.2.3 Authentication of Individual identity

Not applicable since the TrustFactory Client Root CA will not accept requests for individual certificates.

3.2.4 Non Verified Subscriber Information

TrustFactory does not verify the Subject Organizational Unit (OU) field in a Certificate. For all other fields, information that is not verified will not be included in certificates.

3.2.5 Validation of Authority

The PA will validate that all requests related to Issuing CA Certificates, such as initial registration, renewal or revocation, are only submitted by the authorized TrustFactory management personnel.

3.2.6 Criteria for Interoperation

Not applicable. TrustFactory Client Root CA has not established any cross-certificates.

3.3 Identification and Authentication for Re-key Requests

TrustFactory Client Root CA only permits re-key requests for Client Issuing CAs if the requests have been specifically authorized by the PA..

3.3.1 Identification and Authentication for Routine Re-key

TrustFactory PA will validate that requests for re-key of Issuing CA Certificates are only submitted by the authorized TrustFactory management personnel.

The TrustFactory PA will verify and validate all the information required in the re-keyed/reissued TrustFactory Client Issuing CA certificate.

3.3.2 Identification and Authentication for Re-key after Revocation

Re-key after revocation is not supported. After a Certificate has been revoked, the Client Issuing CA is required to go through the initial registration process described in Section 4.1 to obtain a new Certificate.

3.3.3 Identification and Authentication for Renewal Requests

TrustFactory PA will validate that requests for renewal of Issuing CA Certificates are only submitted by the authorized TrustFactory management personnel.

The TrustFactory PA will verify and validate all the information required in the renewed TrustFactory Client Issuing CA certificate.

The certificate renewal is authenticated when the Client Issuing CA submits a Certificate Signing Request (CSR) signed with its Private Key and the TrustFactory Client Root CA will validate it with the Client Issuing CA's public key.

3.3.4 Re-verification and Revalidation of Identity When Certificate Information Changes

If at any point any Subject name information embodied in the Issuing CA Certificate is to be changed in any way, the TrustFactory PA will re-verify and re-validate all the information required in the TrustFactory Client Issuing CA certificate and approve the change, and then a new Certificate is issued with the validated information.

3.4 Identification and Authentication for Revocation Request

All revocation requests are authenticated by TrustFactory Client Root CA operations team. Revocation of an Issuing CA has to be approved by the TrustFactory General Manager or PA.

4.0 Certificate Lifecycle Operational Requirements

4.1 Certificate Application

4.1.1 Who Can Submit a Certificate Application

The TrustFactory General Manager will submit request to the PA for creation of a new Issuing CA

4.1.2 Enrollment Process and Responsibilities

The application process requires the following steps:

1. TrustFactory General Manager will complete an application for a Client Issuing CA and submit to the TrustFactory PA.
2. The TrustFactory PA will verify and validate all the information required in the Client Issuing CA certificate.
3. TrustFactory PA may approve or reject the request for a Client Issuing CA certificate.

The enrolment process includes the following steps:

- TrustFactory operations schedules a key ceremony at the TrustFactory Client Root CA vault to establish the Issuing CA
- Conduct key generation for the new Issuing CA in the Issuing CA HSM
- During the key ceremony, submit a CSR from the Client Issuing CA to the TrustFactory Client Root CA
- The TrustFactory Client Root CA will validate and sign the Client Issuing CA CSR and issue the Issuing CA Certificate
- Install the Client Issuing CA Certificate on the Issuing CA system
- Clone new keys and certificate to backup HSM

4.2 Certificate Application Processing

4.2.1 Performing Identification and Authentication Functions

The TrustFactory PA will validate that requests for Issuing CA Certificates are only submitted by the authorized TrustFactory management personnel.

Refer to 3.2 above

4.2.2 Approval or Rejection of Certificate Applications

TrustFactory PA may approve the request for an Issuing CA certificate, assuming all verification of certificate information can be completed successfully. The TrustFactory PA may reject applications including for the following reasons:

- TrustFactory PA is unable to successfully verify or validate the information to be published on the Client Issuing CA certificate.
- TrustFactory PA may reject requests if there is a potential for negative consequences to TrustFactory's brand, reputation or operations in accepting the request.

TrustFactory PA is under no obligation to provide a reason for rejection of a Certificate Request.

4.2.3 Time to Process Certificate Applications

All reasonable methods are used in order to evaluate and process Certificate applications within one month from receipt of completed application.

4.3 Certificate Issuance

4.3.1 CA Actions during Certificate Issuance

TrustFactory Client Root CA can only accept certificate issuance requests for Client Issuing CAs approved by the TrustFactory PA. The PA will satisfy itself that the information provided to it by the Issuing CA is accurate and that the verification checks have been successfully completed.

After approval by the PA, the TrustFactory GM will arrange for the creation and operation of the new Issuing CA and submit a CSR from the Client Issuing CA to the TrustFactory Client Root CA. The TrustFactory Client Root CA may then generate and digitally sign the Issuing CA Certificate applied for.

The procedure for the TrustFactory Client Root CA to perform a certificate signing operation requires the presence of two trusted roles to perform the procedure.

4.3.2 Notifications to Subscriber by the CA of Issuance of Certificate

TrustFactory General Manager will provide written confirmation to the PA of issuance of the Issuing CA certificate.

4.4 Certificate Acceptance

4.4.1 Conduct Constituting Certificate Acceptance

After issuance of the Client Issuing CA certificate, the TrustFactory operations team will check that the certificate content is accurate. If there are any inaccuracies then the certificate will be revoked. The Certificate is deemed accepted when the Client Issuing CA starts using the Certificate.

4.4.2 Publication of the Certificate by the CA

TrustFactory Client Root CA publishes the Certificate by publishing it in a Repository at https://www.trustfactory.net/repository.

4.4.3 Notification of Certificate Issuance by the CA to Other Entities

The TrustFactory Policy Authority will be notified whenever an Issuing CA certificate is issued. Notification to other entities is not required.

4.5 Key Pair and Certificate Usage

4.5.1 Subscriber Private Key and Certificate Usage

The TrustFactory Client Issuing CA will use its private key and Certificate in strict compliance with this CPS. Private Keys will only be used as specified in the appropriate key usage and extended key usage fields as indicated in the corresponding Certificate.

Refer to certificate profiles in Annexure A.

4.5.2 Relying Party Public Key and Certificate Usage

Relying Parties must verify that the Issuing CA Certificate is valid by examining the CRL provided by TrustFactory Client Root CA before initiating a transaction involving such Certificate.

TrustFactory provides a Relying Party Agreement that Relying Parties should comply with. Relying Parties should check the status of the Client Issuing CA certificate before relying on the certificate and perform a risk assessment to ensure that their reliance is appropriate according to the defined key usage.

4.6 Certificate Renewal

4.6.1 Circumstances for Certificate Renewal

TrustFactory Client Root CA may renew a Certificate under the following criteria:

- The original Certificate to be renewed has not been revoked;
- The Public Key from the original Certificate has not been blacklisted for any reason; and
- All details within the Certificate remain accurate and no new or additional validation is required.

The original Certificate will be revoked after renewal is complete.

4.6.2 Who May Request Renewal

The TrustFactory General Manager should submit a request to the PA for approval of the renewal of the Issuing CA certificate.

4.6.3 Processing Certificate Renewal Requests

Renewal requests may be processed using the same process used for initial certificate issuance. A CSR will be used with the same Public Key to be certified as in the original certificate.

4.6.4 Notification of New Certificate Issuance to Subscriber

As per 4.3.2

4.6.5 Conduct Constituting Acceptance of a Renewed Certificate

As per 4.4.1

4.6.6 Publication of the Renewal Certificate by the CA

As per 4.4.2

4.6.7 Notification of Certificate Issuance by the CA to Other Entities

As per 4.4.3

4.7 Certificate Re-Key

4.7.1 Circumstances for Certificate Re-key

TrustFactory Client Root CA may re-key a Certificate under the following criteria:

- The original Certificate has not been revoked;
- The Public Key from the original Certificate has not been blacklisted for any reason;
- The Subject details remain the same; and
- The request has been authorized by the PA.

The original Certificate will be revoked when the re-key is performed.

4.7.2 Who May Re-Key Renewal

The TrustFactory General Manager should submit a request to the PA for approval of the re-key of the Issuing CA certificate.

4.7.3 Processing Certificate Re-Key Requests

For a Re-key, a new CSR must be provided containing the new Public Key.

4.7.4 Notification of New Certificate Issuance to Subscriber

As per 4.3.2

4.7.5 Conduct Constituting Acceptance of a Re-Keyed Certificate

As per 4.4.1

4.7.6 Publication of the Re-Keyed Certificate by the CA

As per 4.4.2

4.7.7 Notification of Certificate Issuance by the CA to Other Entities

As per 4.4.3

4.8 Certificate Modification / Re-issue

4.8.1 Circumstances for Certificate Modification

TrustFactory Client Root CA may modify/reissue a Certificate under the following criteria:

- The original Certificate has not been revoked;
- The Public Key from the original Certificate has not been blacklisted for any reason;
- The Subject details remain the same; and
- The request has been authorized by the PA.

The original Certificate will be revoked when the reissue is performed.

4.8.2 Who May Request Certificate Modification

The TrustFactory General Manager should submit a request to the PA for approval of the re-issue of the Issuing CA certificate.

4.8.3 Processing Certificate Modification Requests

For a Modification/Re-issue, a CSR will be provided containing the existing Public Key.

4.8.4 Notification of New Certificate Issuance to Subscriber

As per 4.3.2

4.8.5 Conduct Constituting Acceptance of a Re-Keyed/Reissued Certificate

As per 4.4.1

4.8.6 Publication of the Re-Keyed/Reissued Certificate by the CA

As per 4.4.2

4.8.7 Notification of Certificate Issuance by the CA to Other Entities

As per 4.4.3

4.9 Certificate Revocation and Suspension

4.9.1 Circumstances for Revocation

4.9.1.1. Reasons for Revoking a Subscriber Certificate

Not applicable.

4.9.1.2. Reasons for Revoking a Subordinate CA Certificate

Revocation of a Client Issuing CA Certificate will be performed within seven (7) days under the following circumstances as identified by the TrustFactory management team:

1. The TrustFactory General Manager requests revocation in writing;
2. The TrustFactory General Manager notifies the PA that the original certificate request was not authorized and does not retroactively grant authorization;
3. The TrustFactory operations obtains evidence that the Issuing CA's Private Key corresponding to the Public Key in the Certificate suffered a Key Compromise or no longer complies with the requirements of Sections 6.1.5 and 6.1.6,
4. The TrustFactory operations obtains evidence that the Certificate was misused;
5. The TrustFactory operations is made aware that the Certificate was not issued in accordance with or that Issuing CA has not complied with this CPS or the applicable Certificate Policy or Certification Practice Statement;
6. The TrustFactory operations determines that any of the information appearing in the Certificate is inaccurate or misleading;
7. The Issuing CA ceases operations for any reason and has not made arrangements for another CA to provide revocation support for the Certificate;
8. The Issuing CA's right to issue Certificates under these Requirements expires or is revoked or terminated, unless the Issuing CA has made arrangements to continue maintaining the CRL; or
9. Revocation is required by the Issuing CA's Certificate Policy and/or Certification Practice Statement.

4.9.2 Who Can Request Revocation

The TrustFactory management or operations team may request revocation of a TrustFactory Client Issuing CA Certificate if there is reasonable cause to revoke the certificate.

Additionally, Subscribers, Relying Parties, Application Software Suppliers, and other third parties may submit Certificate Problem Reports, through the TrustFactory website at www.trustfactory.net, informing the TrustFactory Client Root CA of reasonable cause to revoke the certificate.

4.9.3 Procedure for Revocation Request

TrustFactory operations will record each request for revocation and authenticate the source, taking appropriate action to revoke the Certificate if the request is authentic and approved. A revocation request to revoke a TrustFactory

Issuing CA Certificate will be approved and issued by the TrustFactory PA.

The TrustFactory operations team will generate a CRL signing request for an updated CRL containing the serial number of the Issuing CA Certificate that needs to be revoked, and manually sign the CRL using the offline Client Root CA.

Once revoked, the serial number of the Certificate and the date and time will be added to the appropriate CRL. CRL reason codes may be included. CRLs are published according to this CPS.

Subscribers, Relying Parties, Application Software Suppliers, and other third parties can report suspected Private Key Compromise, Certificate misuse, or other types of fraud, compromise, misuse, inappropriate conduct, or any other matter related to Certificates, through the "Report Abuse" link on the TrustFactory website at www.trustfactory.net

4.9.4 Revocation Request Grace Period

Revocation requests should be made as soon as reasonably practicable, but not more than 24 hours after confirming the compromise of the Private Key.

4.9.5 Time Within Which CA Must Process the Revocation Request

TrustFactory operations will begin investigating Certificate Problem Reports within twenty-four (24) hours of receipt of the report and provide a preliminary report on its findings to the entity who filed the Certificate Problem Report.

After reviewing the facts and circumstances, the TrustFactory CA operations will work with the entity reporting the Certificate Problem Report or other revocation-related notice to establish whether or not the certificate will be revoked, and if so, a date which the CA will revoke the certificate. The period from receipt of the Certificate Problem Report or revocation-related notice to published revocation will not exceed the time frames stipulated in Section 4.9.1. The date selected for revocation will consider the following criteria:

1. The nature of the alleged problem (scope, context, severity, magnitude, risk of harm);

2. The consequences of revocation (direct and collateral impacts to Subscribers and Relying Parties);

3. The number of Certificate Problem Reports received about a particular Certificate or Subscriber;

4. The entity making the complaint; and

5. Relevant legislation.

TrustFactory Client Root CA will revoke Issuing CA certificates as quickly as practical upon receipt of a proper revocation request. Section 4.9.1 states the circumstances under which the revocation request will be processed within 7 days. Revocation requests will be processed before the next CRL is published, excepting those requests received within twelve hours of CRL issuance.

4.9.6 Revocation Checking Requirements for Relying Parties

Prior to relying upon a Certificate, Relying Parties must validate the suitability of the Certificate to the purpose intended and ensure the Certificate is valid. Relying Parties will need to consult the CRL information for each Certificate in the chain as well as validating that the Certificate chain itself is complete and follows IETF PKIX standards.

4.9.7 CRL Issuance Frequency

For the status of Issuing CA Certificates:

The TrustFactory Root CA will update and reissue CRLs at least:

(i) once every twelve months; and

(ii) within 24 hours after revoking an Issuing CA Certificate; and

the value of the nextUpdate field will not be more than twelve months beyond the value of the thisUpdate field.

4.9.8 Maximum Latency for CRLs

No stipulation

4.9.9 On-Line Revocation/Status Checking Availability

CRLs for Issuing/Subordinate CA revocation information are published in online repositories at:
http://www.trustfactory.net/crl/tf-client-issuing.crl

The Root CA will ensure that revocation data for issued Certificates are available through a Repository 24 hours a day, 7 days a week.

4.9.10 On-Line Revocation Checking Requirements

Relying Parties must confirm revocation information otherwise all warranties becomes void.

4.9.11 Other Forms of Revocation Advertisements Available

No requirements specified

The TrustFactory General Manager shall notify the TrustFactory PA of the revocation of an Issuing CA Certificate, and a notice is placed on the Repository.

4.9.12 Special Requirements Related to Key Compromise

In the event of compromise of a TrustFactory Client Root CA Private Key used to sign Client Issuing CA Certificates, TrustFactory operations will as soon as practically possible inform the Client Issuing CA that the private key may have been Compromised. This includes cases where TrustFactory operations at its own discretion decides that evidence suggests a possible Key Compromise has taken place.

Where Key Compromise is not disputed, TrustFactory Client Root CA will revoke Issuing CA Certificates within 24 hours and publish online updated CRLs within 24 hours of creation.

4.9.13 Circumstances for Suspension

Not Applicable. Certificate suspension is not supported and not permitted.

4.9.14 Who Can Request Suspension

Not applicable. Certificate suspension is not supported and not permitted

4.9.15 Procedure for Suspension Request

Not applicable. Certificate suspension is not supported and not permitted

4.9.16 Limits on Suspension Period

Not applicable. Certificate suspension is not supported and not permitted

4.10 Certificate Status Services

4.10.1 Operational Characteristics

TrustFactory Client Root CA provides a Certificate status service in the form of a CRL distribution point. These services are presented to Relying Parties within the Client Issuing CA Certificate and the URLs to access the CRL are provided in Section 2.2 of this CPS.

Revocation entries on a CRL are not be removed until after the Expiry Date of the revoked Certificate.
CRLs are signed by the TrustFactory Client Root CA Private Key.

4.10.2 Service Availability

The TrustFactory Client Root CA maintains an online 24x7 Repository that application software can use to automatically check the current status of all unexpired Certificates issued by the CA.

The TrustFactory maintains a continuous 24x7 ability to respond internally to a high-priority Certificate Problem Report (submitted via the Report Abuse link on the TrustFactory website), and where appropriate, forward such a complaint to law enforcement authorities, and/or revoke a Certificate that is the subject of such a complaint.

4.10.3 Operational Features

No requirements specified

4.11 End of Subscription

Subscribers may end their subscription to Certificate services by having their Certificate revoked or naturally letting it expire.

4.12 Key Escrow and Recovery

4.12.1 Key Escrow and Recovery Policy and Practices

CA Private Keys are never escrowed. TrustFactory Client Root CA does not offer key escrow services.

4.12.2 Session Key Encapsulation and Recovery Policy and Practices

Not applicable.

5.0 Facility, Management, and Operational Controls

TrustFactory Client Root CA operate under physical and environmental security policies designed to provide reasonable assurance of the detection, deterrence and prevention of unauthorized logical or physical access to CA related facilities.

5.1 Physical Controls

5.1.1 Site Location and Construction

Controls are as defined in the TrustFactory CP.

5.1.2 Physical Access

Controls are as defined in the TrustFactory CP.

5.1.3 Power and Air Conditioning

Controls are as defined in the TrustFactory CP.

5.1.4 Water Exposures

Controls are as defined in the TrustFactory CP.

5.1.5 Fire Prevention and Protection

Controls are as defined in the TrustFactory CP.

5.1.6 Media Storage

Controls are as defined in the TrustFactory CP.

5.1.7 Waste Disposal

Controls are as defined in the TrustFactory CP.

5.1.8 Off-Site Backup

Controls are as defined in the TrustFactory CP.

5.2 Procedural Controls

5.2.1 Trusted Roles

Controls are as defined in the TrustFactory CP

5.2.2 Number of Persons Required per Task

Controls are as defined in the TrustFactory CP

5.2.3 Identification and Authentication for Each Role

Controls are as defined in the TrustFactory CP.

5.2.4 Roles Requiring Separation of Duties

Controls are as defined in the TrustFactory CP

5.3 Personnel Controls

5.3.1 Qualifications, Experience, and Clearance Requirements

Controls are as defined in the TrustFactory CP.

5.3.2 Background Check Procedures

Controls are as defined in the TrustFactory CP.

5.3.3 Training Requirements

Controls are as defined in the TrustFactory CP.

5.3.4 Retraining Frequency and Requirements

Controls are as defined in the TrustFactory CP.

5.3.5 Job Rotation Frequency and Sequence

Controls are as defined in the TrustFactory CP.

5.3.6 Sanctions for Unauthorized Actions

Controls are as defined in the TrustFactory CP.

5.3.7 Independent Contractor Requirements

Controls are as defined in the TrustFactory CP.

5.3.8 Documentation Supplied to Personnel

Controls are as defined in the TrustFactory CP.

5.4 Audit Logging Procedures

5.4.1 Types of Events Recorded

Audit logs are generated for events relating to the security and services of the CA. Where possible, the audit logs are automatically generated. Where this is not possible, a logbook, signed scripts, paper form, or other physical mechanism is used. The security audit logs, both electronic and non-electronic, will be retained and made available during compliance audits.

TrustFactory Client Root CA logs all events relating to the lifecycle of Certificates.

The TrustFactory Client Root CA records at least the following events:

1. CA key lifecycle management events, including:
    a. Key generation, backup, storage, recovery, archival, and destruction;
        - Withdrawal of keying material from service;
        - Identity of the entity authorizing a key management operation,
        - Identity of entity handling any keying material (such as key components or keys stored in portable devices or media);
        - Compromise of a private key;
    b. Cryptographic device lifecycle management events:
        - device receipt and installation;
        - placing into or removing a device from storage;
        - device activation and usage;
        - device changes in state of use
2. CA and Subscriber Certificate lifecycle management events, including:
    a. Certificate requests, renewal, and revocation;
    b. All verification activities stipulated in this CPS;
    c. Acceptance and rejection of CA certificate requests by the TrustFactory PA;
    d. Issuance of Certificates;
    e. Generation of Certificate Revocation Lists.
3. Security events, including:
    a. Successful and unsuccessful PKI system access attempts;
    b. PKI and security system actions performed;
    c. Security profile changes;
    d. System crashes, hardware failures, and other anomalies;
    e. Entries to and exits from the CA facility.

At a minimum, each audit record includes the following (either recorded automatically or manually) elements:

- Date and time of entry;
- Identity of the person or entity making the journal entry; and
- Description of the entry.

5.4.2 Frequency of Processing Log

Audit logs of security events on the IT and security infrastructure are reviewed on a weekly basis by the TrustFactory Security Officer, for any evidence of malicious activity. Unauthorized or suspicious activity is investigated.

Any important operation involving the Root CA HSM is conducted through documented CA ceremony scripts which are witnessed by the internal auditors.

5.4.3 Retention Period for Audit Log

Controls are as defined in the TrustFactory CP

5.4.4 Protection of Audit Log

Controls are as defined in the TrustFactory CP

5.4.5 Audit Log Backup Procedures

Controls are as defined in the TrustFactory CP

5.4.6 Audit Collection System (Internal vs. External)

Controls are as defined in the TrustFactory CP

5.4.7 Notification to Event-Causing Subject

No requirements specified.

5.4.8 Vulnerability Assessments

Controls are as defined in the TrustFactory CP

1.

5.5 Records Archival

5.5.1 Types of Records Archived

All records related to auditable events defined in Section 5.4.1 should be archived.

5.5.2 Retention Period for Archive

Controls as defined in the TrustFactory CP.

5.5.3 Protection of Archive

Controls as defined in the TrustFactory CP.

5.5.4 Archive Backup Procedures

Controls as defined in the TrustFactory CP.

5.5.5 Requirements for Timestamping of Records

Controls as defined in the TrustFactory CP.

5.5.6 Archive Collection System (Internal or External)

Controls as defined in the TrustFactory CP.

5.5.7 Procedures to Obtain and Verify Archive Information

Controls as defined in the TrustFactory CP.

5.6 Key Changeover

Towards the end of the Client Root CA private key's lifetime, in accordance with Section 6.3.2, a new CA signing key pair is commissioned by the TrustFactory PA and all subsequently issued Certificates and CRLs are signed with the new private signing key. Both keys may be concurrently active. Private Keys used to sign previous Client Issuing CA Certificates are maintained until such time as all Client Issuing CA Certificates have expired. Certificate Subject information may also be modified and Certificate profiles may be altered to adhere to best practices.

The corresponding new Root CA Certificate is provided to Subscribers and relying parties through the online repository at www.trustfactory.net/repository.

5.7 Compromise and Disaster Recovery

Controls are as defined in the TrustFactory CP.

5.7.1 Incident and Compromise Handling Procedures

Controls are as defined in the TrustFactory CP

5.7.2 Recovery Procedures if Computing Resources, Software, and/or Data Are Corrupted

Controls are as defined in the TrustFactory CP

5.7.3 Recovery Procedures After Key Compromise

Controls are as defined in the TrustFactory CP

5.7.4 Business Continuity Capabilities after a Disaster

Controls are as defined in the TrustFactory CP

5.8 CA or RA Termination

Controls are as defined in the TrustFactory CP

6.0 Technical Security Controls

6.1 Key Pair Generation and Installation

6.1.1 Key Pair Generation

6.1.1.1 CA Key Pair Generation

The signing key pair for the TrustFactory Client Root CA was created during the initial startup of the CA application and is protected by the master keys for the TrustFactory Client Root CA. Hardware key generation is used which is compliant to FIPS 140-2 level 3 and uses FIPS 186-2 key generation techniques.

TrustFactory Client Root CA generates its CA Key Pairs under the following conditions:
1. in a physically secured environment, that has access control;
2. using personnel in trusted roles under the principles of multiple person control and split knowledge,
3. generate the CA keys within a cryptographic module which is certified at least to FIPS 140-2 level 3 or above;
4. log its CA key generation activities;
5. prepares and follows a Key Generation Script; and
6. witnessed by a qualified independent auditor

6.1.1.2 RA Key Pair Generation

Not applicable

6.1.1.3 Subscriber Key Pair Generation

Not applicable

6.1.2 Private Key Delivery to Subscriber

Not applicable.

6.1.3 Public Key Delivery to Certificate Issuer

TrustFactory Client Root CA only accepts Public Keys from TrustFactory Issuing CAs that are delivered to the TrustFactory Client Root CA through a PKCS#10 Certificate Signing Request (CSR) as part of the Certificate Issuance process included in a formal key generation ceremony.

6.1.4 CA Public Key Delivery to Relying Parties

The TrustFactory Client Root CA ensures that its Public Keys are delivered to Relying Parties in such a way as to prevent substitution attacks.

TrustFactory Client Root CA Public Keys are available via a TrustFactory Repository at https://www.trustfactory.net/repository

6.1.5 Key Sizes

The TrustFactory Client Root CA will have a key size of 4096 bit RSA key with Secure Hash Algorithm 2 (SHA-256). All new Subordinate CA's will have a minimum key size of 2048-bit RSA.

Certificates meet the following requirements for algorithm type and key size.

Root CA Certificates

Digest algorithm	SHA- 256, SHA-384 or SHA-512
RSA modulus size (bits)	Minimum 2048 bits and must be divisible by 8
ECC curve	NIST P-256, or P-384

Subordinate CA Certificates

Digest algorithm	SHA-256, SHA-384 or SHA-512

RSA modulus size (bits)	Minimum 2048 bits and must be divisible by 8
ECC curve	NIST P-256, or P-384

*** L and N (the bit lengths of modulus p and divisor q, respectively) are described in the Digital

6.1.6 Public Key Parameters Generation and Quality Checking

TrustFactory Client Root CA generates Key Pairs in accordance with the Baseline Requirements and uses reasonable techniques to validate the suitability of Public Keys presented bythe TrustFactory Issuing CAs.

6.1.7 Key Usage Purposes

TrustFactory Client Root CA sets key usage and extended key usage limitations of subordinate TrustFactory Issuing CA Certificates via the X.509 v3 Key Usage and Extended Key Usage Fields.

Private Keys corresponding to Root Certificates are not used to sign Certificates except in the following cases:

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

Key Usage or extended key usage for the TrustFactory Client Root CA Certificate and TrustFactory Client Issuing CA Certificate are set as per the profiles defined in Annexure A.

Any other use not specified is prohibited.

6.2 Private Key Protection and Cryptographic Module Engineering Controls

6.2.1 Cryptographic Module Standards and Controls

As per the TrustFactory CP

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

As per the TrustFactory CP

6.2.3 Private Key Escrow

As per the TrustFactory CP

6.2.4 Private Key Backup

As per the TrustFactory CP

6.2.5 Private Key Archival

As per the TrustFactory CP

6.2.6 Private Key Transfer Into or From a Cryptographic Module

As per the TrustFactory CP

6.2.7 Private Key Storage on Cryptographic Module

As per the TrustFactory CP

6.2.8 Method of Activating Private Key

As per the TrustFactory CP

6.2.9 Method of Deactivating Private Key

As per the TrustFactory CP

6.2.10 Method of Destroying Private Key

As per the TrustFactory CP

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

TrustFactory Client Root CA archives Public Keys from Certificates.

6.3.2 Certificate Operational Periods and Key Pair Usage Periods

TrustFactory Client Root CA Certificates and renewed Certificates have a maximum Validity Period of 30 years.

TrustFactory Client Issuing CA Certificates and renewed Certificates have a maximum Validity Period of 15 years

TrustFactory Client Root CA complies with the Baseline Requirements with respect to the maximum Validity Period.

6.4 Activation Data

6.4.1 Activation Data Generation and Installation

Generation and use of TrustFactory Client Root CA activation data used to activate TrustFactory Client Root CA Private Keys are made during a key ceremony (Refer to Section 6.1.1). Activation data is either generated automatically by the appropriate HSM or in such a way that meets the same needs. It is then delivered to a holder of a share of the key who is a person in a trusted role. The delivery method maintains the confidentiality and the integrity of the activation data.

6.4.2 Activation Data Protection

TrustFactory Client Root CA activation data is protected from disclosure through a combination of cryptographic and physical access control mechanisms. TrustFactory Client Root CA activation data is stored on hardware tokens.

6.4.3 Other Aspects of Activation Data

TrustFactory Client Root CA activation data may only be held by personnel in trusted roles.

6.5 Computer Security Controls

Controls as per the TrustFactory CP

6.5.1 Specific Computer Security Technical Requirements

Controls as per the TrustFactory CP.

6.5.2 Computer Security Rating

Controls as per the TrustFactory CP.

6.6 Lifecycle Technical Controls

Controls as per the TrustFactory CP

6.6.1 System Development Controls

Controls as per the TrustFactory CP

6.6.2 Security Management Controls

Controls as per the TrustFactory CP.

6.6.3 Lifecycle Security Controls

Controls as per the TrustFactory CP.

6.7 Network Security Controls

Controls as per the TrustFactory CP

6.8 Time Stamping

Controls as per the TrustFactory CP

7.0 Certificate, CRL, and OCSP Profiles

7.1 Certificate Profile

Typical content of information published on a TrustFactory Client Issuing CA Certificate may include but is not limited to the following elements of information:

- Serial number
- Signature algorithm
- Signature hash algorithm
- Issuer
- Valid from
- Valid to
- Subject
- Public key
- Basic Constraints
- Key Usage
- Authority Information Access
- Certificate Policies
- CRL Distribution Points
- Extended key usage

Certificate profiles are provided in Annexure A.

7.1.1 Version Number(s)

TrustFactory Client Root CA issues Certificates in compliance with X.509 Version 3.

7.1.2 Certificate Extensions

TrustFactory Client Root CA issues Certificates in compliance with RFC 5280 and meets the requirements for Certificate content and extensions as specified in the Baseline Requirements.

7.1.2.1. Root CA Certificate

The following applies to the TrustFactory SSL Root CA – the specific content of the fields in the certificate can be found in the profile in Annexure A:

a. basicConstraints
   This extension is set as a critical extension. The cA field is set true.
b. keyUsage
   This extension is set as a critical extension.
   Bit positions for keyCertSign and cRLSign are set.
c. certificatePolicies
   This extension is not present.
d. extendedKeyUsage
   This extension is not present.

7.1.2.2. Subordinate CA Certificate

The following applies to the TrustFactory SSL Issuing CA – the specific content of the fields in the certificate can be found in the profile in Annexure A:

a. certificatePolicies

   This extension is present and not set as critical.
b. cRLDistributionPoints

   This extension is present and is not set as critical, and it contains the HTTP URL of the CA's CRL service.
c. authorityInformationAccess

   This extension is present and is not set as critical, and it contains the HTTP URL of the Issuing CA's OCSP responder (accessMethod = 1.3.6.1.5.5.7.48.1).
d. basicConstraints

   This extension is present and is set as a critical extension. cA field is set true.
e. keyUsage
   This extension is present and is set as a critical extension.
   Bit positions for digitalSignature, keyCertSign and cRLSign are set.
f. extkeyUsage (optional)
   This extension is not present

7.1.2.3. Subscriber Certificates

Not applicable

7.1.2.4. All Certificates

All other fields and extensions are set in accordance with RFC 5280. The CA will not issue a Certificate that contains a keyUsage flag, extendedKeyUsage value, Certificate extension, or other data not specified in section 7.1.2.

7.1.3 Algorithm Object Identifiers

TrustFactory uses the SHA-2 hash algorithm across all its certificates.

7.1.4 Name Forms

7.1.4.1. Issuer Information

TrustFactory Client Root CA issues Certificates with name forms compliant to RFC 5280.

Name chaining of a Certificate is performed by matching the content of the Certificate Issuer Distinguished Name field of the SSL Issuing CA Certificate to the Subject Distinguished Name of the SSL Root CA that issued the Certificate.

7.1.4.2. Subject Information – Subscriber Certificates

Not applicable

7.1.4.3. Subject Information – Root Certificates and Subordinate CA Certificates

By issuing a Client Issuing CA Certificate, the TrustFactory Client Root CA represents that it followed the procedure set forth in its Certificate Policy and/or Certification Practice Statement to verify that, as of the Certificate's issuance date, all of the Subject Information was accurate.

The following **Subject Distinguished Name Fields** are populated in accordance with profile in Annexure A:

a. **Certificate Field:** subject:commonName
b. **Certificate Field:** subject:organizationName
c. **Certificate Field:** subject:organizationalUnitName
d. **Certificate Field:** subject: localityName
e. **Certificate Field:** subject:stateOrProvinceName
f. **Certificate Field:** subject:countryName

7.1.5 Name Constraints

TrustFactory Client Root CA may issue Certificates with name constraints where necessary and mark as critical where necessary.

7.1.6 Certificate Policy Object Identifier

7.1.6.1. Reserved Certificate Policy Identifiers

No requirements specified

7.1.6.2. Root CA Certificates

The TrustFactory Client Root CA Certificate does not contain the certificatePolicies extension.

7.1.6.3. Subordinate CA Certificates

TrustFactory SSL Issuing CA is an Affiliate of its issuer TrustFactory SSL Root CA, and asserts the "anyPolicy" identifier 2.5.29.32.0 to indicate certificate is issued and managed in compliance with the Requirements.

7.1.6.4. Subscriber Certificates

Not applicable

7.1.7 Usage of Policy Constraints Extension

No requirements specified.

7.1.8 Policy Qualifiers Syntax and Semantics

No requirements specified.

7.1.9 Processing Semantics for the Critical Certificate Policies Extension

No requirements specified.

7.2 CRL Profile

7.2.1 Version Number(s)

TrustFactory Client Root CA issues Version 2 CRLs in compliance with RFC 5280. CRLs have the following fields:

- **Issuer:**
  CN = TrustFactory Client Root Certificate Authority
  OU = TrustFactory PKI Operations
  O = TrustFactory(Pty)Ltd
  L = Johannesburg
  S = Gauteng
  C = ZA
- **Effective date** Date and Time issued
- **Next update** Date and Time of next issue
- **Signature Algorithm** sha256RSA
- **Signature Hash Algorithm** sha256
- **Serial Number(s)** List of revoked serial numbers
- **Revocation Date** Date of Revocation

7.2.2 CRL and CRL Entry Extensions

CRLs have the following extensions:

- **CRL Number** Monotonically increasing serial number for each CRL
- **Authority Key Identifier** AKI of the issuing CA for chaining/validation requirements

7.3 OCSP Profile

TrustFactory Client Root CA does not operate an Online Certificate Status Profile (OCSP) responder.

7.3.1 Version Number(s)

Not Applicable.

7.3.2 OCSP Extensions

Not Applicable.

8.0 Compliance Audit and Other Assessments

TrustFactory Client Root CA is audited for compliance to xthe current applicable version of one or more of the following standards:-

- WebTrust for Certification Authorities

8.1 Frequency and Circumstances of Assessment

As per the TrustFactory CP

8.2 Identity/Qualifications of Assessor

As per the TrustFactory CP

8.3 Assessor's Relationship to Assessed Entity

As per the TrustFactory CP

8.4 Topics Covered by Assessment

As per the TrustFactory CP

8.5 Actions Taken as a Result of Deficiency

As per the TrustFactory CP

8.6 Communications of Results

As per the TrustFactory CP

9.0 Other Business and Legal Matters

9.1 Fees

9.1.1 Certificate Issuance or Renewal Fees

As per the TrustFactory CP

9.1.2 Certificate Access Fees

As per the TrustFactory CP

9.1.3 Revocation or Status Information Access Fees

As per the TrustFactory CP

9.1.4 Fees for Other Services

As per the TrustFactory CP

9.1.5 Refund Policy

As per the TrustFactory CP

9.2 Financial Responsibility

As per the TrustFactory CP

9.2.1 Insurance Coverage

Controls as per the TrustFactory CP

9.2.2 Other Assets

Controls as per the TrustFactory CP

9.2.3 Insurance or Warranty Coverage for End Entities

Controls as per the TrustFactory CP

9.3 Confidentiality of Business Information

As per the TrustFactory CP

9.3.1 Scope of Confidential Information

Controls as per the TrustFactory CP

9.3.2 Information Not Within the Scope of Confidential Information

Controls as per the TrustFactory CP

9.3.3 Responsibility to Protect Confidential Information

Controls as per the TrustFactory CP.

9.4 Privacy of Personal Information

As per the TrustFactory CP

9.4.1 Information Treated as Private

Controls as per the TrustFactory CP.

9.4.2 Information Not Deemed Private

Controls as per the TrustFactory CP.

9.4.3 Responsibility to Protect Private Information

Controls as per the TrustFactory CP.

9.4.4 Notice and Consent to Use Private Information

Controls as per the TrustFactory CP.

9.4.5 Disclosure Pursuant to Judicial or Administrative Process

Controls as per the TrustFactory CP.

9.4.6 Other Information Disclosure Circumstances

Controls as per the TrustFactory CP.

9.5 Intellectual Property rights

As per the TrustFactory CP

9.6 Representations and Warranties

As per the TrustFactory CP

9.6.1 CA Representations and Warranties

Controls as per the TrustFactory CP

9.6.2 RA Representations and Warranties

Controls as per the TrustFactory CP

9.6.3 Subscriber Representations and Warranties

Controls as per the TrustFactory CP

9.6.4 Relying Party Representations and Warranties

Controls as per the TrustFactory CP.

9.6.5 Representations and Warranties of Other Participants

Controls as per the TrustFactory CP.

9.7 Disclaimers of Warranties

As per the TrustFactory CP

9.8 Limitations of Liability

As per the TrustFactory CP

9.9 Indemnities

As per the TrustFactory CP

9.9.1 Indemnification by TrustFactory CA

Controls as per the TrustFactory CP.

9.9.2 Indemnification by Subscribers

Controls as per the TrustFactory CP.

9.9.3 Indemnification by Relying Parties

Controls as per the TrustFactory CP.

9.10 Term and Termination

As per the TrustFactory CP.

9.10.1 Term

Controls as per the TrustFactory CP.

9.10.2 Termination

Controls as per the TrustFactory CP.

9.10.3 Effect of Termination and Survival

Controls as per the TrustFactory CP.

9.11 Individual Notices and Communications with Participants

As per the TrustFactory CP

9.12 Amendments

As per the TrustFactory CP

With respect to any amendments impacting Advanced Electronic Signature certificates, significant changes are defined as changes that impact on the:

- identification process
- reliance limits of certificates
- key generation, storage and usage

In compliance with the regulations of the ECT Act in relation to Advanced Electronic Signature certificates, TrustFactory will submit a notification of the significant changes and updated edition in writing to the South African Accreditation Authority at least 30 days prior to the changes taking effect.

9.12.1 Procedure for Amendment

Controls as per the TrustFactory CP.

9.12.2 Notification Mechanism and Period

Controls as per the TrustFactory CP.

9.12.3 Circumstances Under Which OID Must be Changed

Controls as per the TrustFactory CP.

9.13 Dispute Resolution Provisions

As per the TrustFactory CP

9.14 Governing Law

As per the TrustFactory CP

9.15 Compliance with Applicable Law

As per the TrustFactory CP

9.16 Miscellaneous Provisions

As per the TrustFactory CP

9.16.1 Entire Agreement

Controls as per the TrustFactory CP.

9.16.2 Assignment

Controls as per the TrustFactory CP.

9.16.3 Severability

Controls as per the TrustFactory CP.

9.16.4 Enforcement (Attorney's Fees and Waiver of Rights)

Controls as per the TrustFactory CP

9.17 Other Provisions

Controls as per the TrustFactory CP

Annexure A: Client CA Certificate Profiles

TrustFactory Client Root CA – Certificate Profile

V1 Fields	
Version	V3
Serial number	
Signature algorithm	sha256RSA
Signature hash algorithm	sha256
Issuer	CN = TrustFactory Client Root Certificate Authority OU = TrustFactory PKI Operations O = TrustFactory(Pty)Ltd L = Johannesburg S = Gauteng C = ZA
Validity	30 years
Subject	CN = TrustFactory Client Root Certificate Authority OU = TrustFactory PKI Operations O = TrustFactory(Pty)Ltd L = Johannesburg S = Gauteng C = ZA
Public key	RSA (4096 bits)
Critical Extensions	
Basic Constraints	Subject Type=CA
	Path Length Constraint=None
Key Usage	Certificate Signing Off-line CRL Signing CRL Signing
Extensions	
Properties	
Thumbprint algorithm	SHA1

TrustFactory Client Issuing CA – Certificate Profile

V1 Fields	
Version	V3
Serial number	
Signature algorithm	sha256RSA
Signature hash algorithm	sha256
Issuer	CN = TrustFactory Client Root Certificate Authority OU = TrustFactory PKI Operations O = TrustFactory(Pty)Ltd L = Johannesburg S = Gauteng C = ZA
Validity	15 years
Subject	CN = TrustFactory Client Issuing Certificate Authority OU = TrustFactory PKI Operations O = TrustFactory(Pty)Ltd L = Johannesburg S = Gauteng C = ZA
Public key	RSA (4096 bits)
Critical Extensions	
Basic Constraints	Subject Type=CA
	Path Length Constraint=0
Key Usage	Digital Signature Certificate Signing Off-line CRL Signing CRL Signing
Extensions	
Authority Information Access	[1]Authority Info Access Access Method=On-line Certificate Status Protocol (1.3.6.1.5.5.7.48.1) Alternative Name: URL=http://ocsp.trustfactory.net/tf-client-issuing
Certificate Policies	[1]Certificate Policy: Policy Identifier=1.3.6.1.4.1.50318.1 [1,1]Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: https://www.trustfactory.net/repository
CRL Distribution Points	[1]CRL Distribution Point Distribution Point Name: Full Name: URL=http://www.trustfactory.net/crl/tf-client-issuing.crl
Properties	
Thumbprint algorithm	SHA1