SISP – SOCIEDADE INTERBANCÁRIA E SISTEMAS DE PAGAMENTO

Certification Practices Statement

- CPS of SISPCA01 Issuing Certification Authority -

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Related Documents

(CP) Certificate Policy of SISP Root CA
(CPS) Certification Practices Statement of SISP Root CA

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Date: 2020.03.10 10:12:39 -01'00'

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1. INTRODUCTION

1.1. OBJECTIVES

This document aims at defining the practices and procedures used by SISPCA01 - Issuing Certification Authority to support its digital certification business.

1.2. TARGET AUDIENCE

This is a public document and is intended for all those who relate with SISPCA01 Issuing Certification Authority, hereinafter referred to as SISP CA, notably SISP Auditors and Partners.

1.3. DOCUMENT LAYOUT

This document complies with the layout defined and proposed by the PKIX task force of the IETF in document RFC 3647[1], as well as the "MINIMUM DRAFTING REQUIREMENTS FOR CERTIFICATION PRACTICES STATEMENTS (CPS) OF THE ICP-CV".

Paragraph 2 provides a number of relevant acronyms and definitions used in the document. The following eight paragraphs focus on the most important procedures and practices followed within the scope of digital certification of SISP CA. The eleventh section is devoted to legal matters.

2. ACRONYMS AND DEFINITIONS

[1] Cf. RFC 3647, 2003, Internet X.509 Public Key Infrastructure, Certificate Policy and Certification Practices Framework

2.1. ACRONYMS

Acronym	
ANSI	American National Standards Institute
CA	Certification Authority (the same as CE)
CE	Certification Entity
CPS	Certification Practices Statement
CRL	Certificate Revocation List
DL	Decree-Law
DN	Distinguished Name
ICP-CV	Public Key Infrastructure of Cabo Verde
MAC	Message Authentication Codes
OCSP	Online Certificate Status Protocol
OID	Object Identifier
PKCS	Public-Key Cryptography Standards
PKI	Public Key Infrastructure
SHA	Secure Hash Algorithm
SISP Root CA	SISP Root Certification Authority
SSCD	Secure Signature Creation Device
URI	Uniform Resource Identifier

2.2. DEFINITIONS

Digital signature, as provided for in DL no. 33/2007, of September 24	Advanced electronic signature modality based on an asymmetric cryptographic system made up by an algorithm or series of algorithms with which is generated an exclusive and interdependent key pair, one of which is private and another public, and which allows the titleholder to use the private key to declare authorship of the electronic document to which the signature has been added and agreement with its content, and the recipient to use the public key to check if the signature has been created with the corresponding private key and if the electronic document was changed after the signature was added.
Electronic signature, as provided for in DL no. 33/2007, of September 24	Data in electronic form which are attached to or logically associated with a data message and which serve as a method of authentication.
Advanced electronic signature as set forth in DL no. 33/2007, of September 24	An electronic signature that meets the following requirements: i) It is uniquely linked to the signatory; ii) Affixing it to the document depends solely on the willingness of the signatory; iii) It is created using means that the signatory can maintain under his sole control; iv) It relates in such a manner with the document that any subsequent change of the data is detectable.
Qualified electronic signature as provided for in DL no. 33/2007, of September 24	Digital signature or other advanced electronic signature that meets safety demands identical to those of digital signature, based on a qualified certificate and created through a security device for signature creation.
Accreditation authority, as set forth in DL no. 33/2007, of September 24	Entity responsible for accrediting and supervising the Certification Entities.
Certificate, as anticipated in DL no. 33/2007, of September 24	Digital record that links signature-verification data to the signatory and confirms the identity of that person.
Qualified certificate, as set forth in DL no. 33/2007, of September 24	Certificate that includes all the elements referred to in Article 67 of the DL 33/2007 [6] and is issued by a certification authority that complies with the requirements defined in Article 45 of DL 33/2007.
Private key, as provided for in DL no. 33/2007, of September 24	An element of the pair of asymmetric keys that is kept secret by its holder, and that is used to affix the digital signature to the electronic document or to decrypt electronic records

	previously encrypted with the corresponding Public Key.
Public Key, as set forth in DL no. 33/2007, of September 24	The key of a key pair that may be publicly disclosed and that is used to verify digital signatures created by the holder of the asymmetric keys or to encrypt messages to be sent to the holder of the said key pair.
Accreditation, as set forth in DL no. 33/2007, of September 24	The act whereby upon request an entity that performs the role of certification entity is acknowledged to fulfil the requirements defined in the DL no. 33/2007, of September 24, for the purposes anticipated therein.
Signature-creation data, as provided for in DL no. 33/2007, of September 24	Unique data, such as codes or private cryptographic keys, which are used by the signatory to create an electronic signature.
Signature-verification data, as set forth in DL no. 33/2007, of September 24	A set of data, such as codes or public cryptographic keys, which are used for the purpose of verifying an electronic signature.
Signature-creation device, as anticipated in DL no. 33/2007, of September 24	Configured software or hardware used to implement the signature-creation data.
Secure signature-creation device, as set forth in DL no. 33/2007, of September 24	A signature-creation device that ensures, by appropriate technical and procedural means, that: i) Data required for the creation of a signature, used for signature generation, can occur only once and their secrecy is fully guaranteed; ii) Data required for the creation of a signature, used for signature generation, cannot, with reasonable assurance, be derived and the signature is protected against forgery using currently available technology; iii) Data required for the creation of a signature, used for signature generation, can be reliably protected by the holder against the illegitimate use by third-parties; iv) Data to be signed cannot be altered and may be submitted to the holder prior to the signature process.
Electronic document, as laid down in DL no. 33/2007, dated September 24	Document prepared by electronic data processing.
Electronic address, as laid down in DL no. 33/2007, dated September 24	Identification of appropriate computer equipment to receive and store electronic documents.

3. GENERAL CONTEXT

3.1. OBJECTIVE

The present document is a Certification Practices Statement (CPS) and aims to define a set of practices required to issue and validate certificates and safeguard the reliability of such certificates. It is not meant to list legal rules or obligations but rather inform the parties involved. Therefore, this document is intended to be clear, straightforward, and understood by a larger audience, including those who do not hold any technical or legal knowledge.

This document describes the overall practices observed by SISP CA in certificate issuance and management, explains what a certificate means and also specifies the procedures that must be followed by Relying Parties and any other relevant persons in order to rely on the Certificates issued by the CA.

This document may be subject to regular updating.

Any certificates issued by SISPCA01 shall include a reference to the present CPS, Document Code no. PLRC002.02, to enable the Relying Parties and other relevant persons to obtain information on the certificate and the issuing entity.

3.2. FRAMEWORK

The practices associated with certificate creation, signature and issuance, as well as the revocation of certificates whose validity period has expired or upon request of the titleholder, carried out by a CE are key issues to ensure the reliability of a Public Key Infrastructure.

This CPS applies to Issuing CA “SISPCA”, in accordance with the structure in use under ICP-CV, based on the following standards:

a) RFC 3647: Internet X.509 Public Key Infrastructure – Certificate Policy and Certification Practices Framework;
b) RFC 5280 – Internet X.509 Public Key Infrastructure – Certificate and CRL Profile
c) ETSI TS 102 042 V2.4.1
d) CA –Browser-Forum-EV Guidelines V1.7.0

and further specifies the way to implement the procedures and controls used by SISP CA and how it should attain the requirements laid down in ICP-CV standards.

3.3. DOCUMENT IDENTIFICATION

This document is a CPS and is represented on a certificate through a unique number named as “Object Identifier” (OID). The OID value associated with this CPS is 2.16.132.1.3.2.3.2.

This document shall be identified through data contained in the following table:

DOCUMENT INFORMATION	
Document Version	Version 2.0
Document Status	Approved
OID	2.16.132.1.3.2.3.2.
Date of Issue	June 30, 2019
Validity	1 Year
Location	http://pki.sisp.cv/

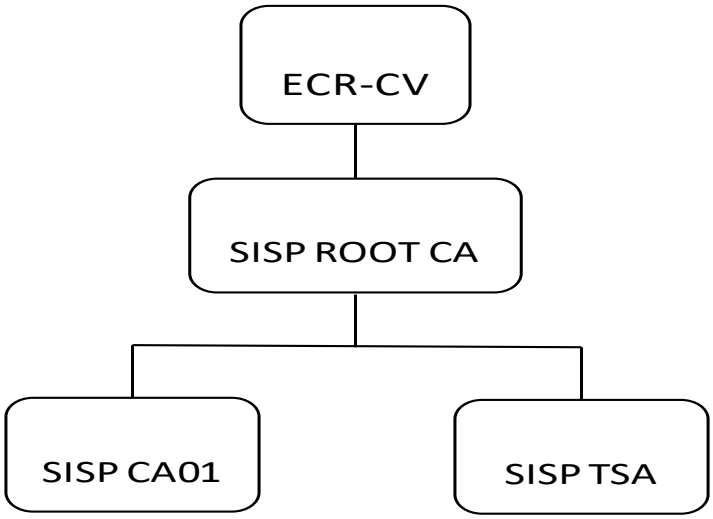
3.4. PARTICIPANTS IN THE PUBLIC KEY INFRASTRUCTURE

As the Managing Body of the PKI, SISP complies with all the provisions set forth in the applicable laws and regulations and makes full use of the powers and responsibilities described therein. Accordingly, SISP is responsible for providing services and ensuring the procedures required to guarantee the functionalities below:

1. Generating the key pairs associated with each one of the Certification Authorities;
2. Receiving and validating the requests for certificate issuance made by Issuing Certification Authority (CA), as well as other subscribers;
3. Issuing certificates related with requests that comply with the format required by SISP Certification Entities;
4. Receiving and validating requests for certificate suspension and revocation;
5. Publishing the certificates (when, where, and if deemed appropriate) and disclosing information on their status;
6. Ensuring continuous availability of public information to all its users.

The PKI of SISP comprises the following CAs:

- Root Certification Authority of Cabo Verde (ECR-CV)
- SISP Root Certification Authority (SISP Root CA)
- SISP Certification Authority (SISP CA)
- SISP Time-Stam Certification Authority (SISP TSA)



3.4.1. SISP CERTIFICATION AUTHORITY (SISPCA01)

The Issuing Certification Authority SISPCA01 stands out as a Certification Entity accredited by ARME – Agência de Regulação Multissetorial da Economia (National Agency of Communications), in light of the Cabo-Verdean legislation. It is legally authorized to issue any type of certificate, including qualified certificates, those of a higher degree of security as per the laws in force.

It is included in the hierarchy of trust of the Public Key Infrastructure of Cabo Verde.

SISPCA01 may issue certificates of:

- **Qualified signature for natural persons**
  - A certificate including the name of its titleholder, which will be used to sign documents.
- **Quality-based qualified signature (Professional Associations)**
  - A certificate with the same features as those of natural persons, to which a quality feature is added, associated to an entity/organization (e.g. professional associations of doctors, engineers, Commercial Directors, Administrators, etc).
- **Qualified signature in representation of a legal entity**
  - A certificate with the same features as those of private individuals or natural persons, with an additional feature granting the powers of representation of an Organization to its titleholder. These powers of representation are delegated or granted by the legal representatives of the organization.
- **Electronic seal**
  - A certificate issued for the organization, where the certificate holder is a legal person. This certificate may be used, for instance, for signing electronic invoices (issuance of large volumes with increased security), electronic account statements, electronic declarations, certificates, and other types of documents issued online by public entities.
- **Advanced signature**

- Certificates issued to private individuals and professionals, enabling the electronic signature of documents (with no probative value) and the safe and unique electronic identification of a given person.

- **Web Authentication (SSL)**
  - Certificates to guarantee the ownership of the domain, the identity of the website and the confidentiality of the information exchanged between the user and the website.

as well as OCSP Online Validation.

CERTIFICATE INFORMATION	
Distinguished Name	C = CV, O = ICP-CV, OU = SISP-Sociedade Interbancária e Sistemas de Pagamentos, CN = Entidade Certificadora da SISP 01
Validity	From 03/01/2019 16:27:13 -01:00 To 01/01/2025 16:27:13 -01:00
Thumbprint	9b c0 3e a2 ae 11 d1 fc d2 4c cc 61 14 34 d9 bd 26 69 e8 32
Issuer	CN = Entidade de Certificação Raiz da SISP 01, OU = SISP-Sociedade Interbancária e Sistemas de Pagamentos, O = ICP-CV, C = CV

3.4.2. REGISTRATION ENTITIES OR UNITS

Registration Entities (RE) or Units refer to the entities to which the CAs delegate the provision of services in the field of identification and registration of certificate users, as well as management of requests for certificate renewal and revocation. SISP may act as a Registration Unit and/or establish agreements with third-parties in order to play this role. The list of Registration Entities comprised in the PKI of SISP is available on http://pki.sisp.cv.

The Registration Entities of PKI SISP comply with the requirements established in this document and are subject to External Audits performed by ARME, as well as Internal Audits undertaken by SISP. The General Conditions for Digital Certificate Issuance are attached to the certificate application form and made available on http://pki.sisp.cv.

3.4.2.1. **INTERNAL REGISTRATION ENTITY**

Under SISP CA01 Certification Authority, the registration entity is materialized through the internal services it provides, which register and validate the required data as specified in the Certificate Policy of each type of certificate issued.

3.4.2.2. **EXTERNAL REGISTRATION ENTITY**

The PKI of SISP decentralizes this duty through the external RE, which develops the following activities in respect of Qualified Digital Signatures:

- Validate the certificate application;
- Following approval, submit the certificate application to the PKI of SISP,
- SISP returns the certificate, which is customized in a secure device.

The RE is responsible for guaranteeing delivery of the certificate to its titleholder or to whoever legally represents him/her.

Other than these activities, the REs may also request certificate revocation to the PKI of SISP soon after its titleholder ceases to perform the duties initially anticipated in the certificate.

3.4.3. CERTIFICATE HOLDERS OR TITLEHOLDERS

Within the scope of this document, the term "subscriber/holder" applies to all final users to whom the PKI of SISP allocates certificates.

The holders of certificates issued by the PKI of SISP shall be those whose name has been entered in the "Subject" field of the certificate, who use the certificate and the respective private key in accordance with the provisions of the different certificate policies described in this document. Accordingly, certificates shall be issued for the following categories of holders:

- Physical or legal person;
- Legal person (Organizations)
- Services (PC, servers and domains,etc).

In some cases, certificates are directly issued to physical or legal persons for personal use. However, there may be situations in which the certificate applicant differs from its titleholder. For example, an organization may request certificates for its staff members so that they can represent it in electronic transactions. Under such circumstances, the entity requesting the certificate is different from its titleholder.

3.4.4. SPONSOR

Certificate issuance for the purpose of technological equipment is made at all times under human responsibility, being this entity referred to as sponsor.

The sponsor accepts the certificate and is responsible for its proper use, as well as for the protection and safeguard of its private key.

3.4.5. RELYING PARTIES

a) Relying parties or recipients are private individuals, entities or equipment that rely on the validity of the mechanisms and procedures used throughout the process of associating the holder name with its public key, i.e. they trust that the certificate corresponds, in reality, to whomever it claims to belong.

b) In this CPS, a relying party is the one that relies on the contents, validity, and applicability of the certificate issued in the hierarchy of trust of the PKI of SISP.

3.4.6. OTHER PARTICIPANTS

3.4.6.1. ACCREDITATION AUTHORITY

The Accreditation Authority takes on the role of a body that provides compliance audit/inspection services expected to assess whether the processes used by the CEs in the certification activities meet the minimum requirements set out in the laws and regulations in force.

Therefore, its key duties are outlined below:

a) Accredit the certification entities;
b) Control and monitor the certification entities;
c) Charge fees for accreditation services;
d) Ensure that the certification entities are held liable for any damage caused to any entity, either private individuals or legal entities, who reasonably rely on the certificates;
e) Audit the certification entities;
f) Ensure that the security devices supporting the creation of electronic signatures comply with the conditions anticipated in article 28 of the Decree-Law no. 33/2007, of September 24;
g) Promote mutual recognition agreements with accreditation authorities of foreign countries, subject to prior authorization granted by the governmental department in charge of communications;
h) Maintain information on the internet regarding the list of certification entities and the suspension or revocation of digital certificates, as well as on other relevant aspects associated with the certification process;
i) Define the technical requirements that determine the adequacy of any activity developed by the certification entities;
j) Assess the activities undertaken by authorized certification entities in light of the technical requirements defined under the terms of the preceding paragraph;
k) Ensure adequate operation and effective service provision of the certification entities, in conformity with the related legal and regulatory provisions;
l) Any other business as may be determined by law.

3.4.6.2. EXTERNAL SERVICE PROVIDERS

The responsibilities of the entities that render services to the PKI of SISP are duly defined through agreements previously established with them.

3.4.6.3. OCSP VALIDATION ENTITIES

It is the duty of the OCSP Validation Entities to check the status of the certificates issued by using the Online Certificate Status Protocol (OCSP) to determine the current status of the certificate upon request of an entity, without having to resort to the Certificate Revocation List (CRL).

The OCSP Validation Service is made available by the PKI of SISP.

3.4.6.4. SECURITY AUDITOR

The security auditor is independent from the sphere of influence of the Certification Authority and is required by the Accreditation Authority. He is endowed with the task of auditing the infrastructure of the Certification Authority in what respects equipment, human resources, processes, policies and rules, being bound to submit an annual report to the Accreditation Authority. A list of Security Auditors accredited by the Accreditation Authority can be found at http://www.pki.ecrcv.cv/.

Compliance Audits shall take place at least every 12 months with the purpose of confirming that SISP, as a qualified provider of reliable services, and the reliable services it renders, comply with the requirements established in the Decree Law no. 18/2007.

3.5. CERTIFICATE USE

3.5.1. CERTIFICATES ISSUED

The certificates issued by the PKI of SISP are used by the different holders, systems, applications, mechanisms, and protocols, with the objective of guaranteeing the following services:

- Access control
- Confidentiality
- Integrity
- Authentication, and
- Non-repudiation.

These services are provided with resort to the use of public key cryptography, by using it in the trust structure made available by the PKI of SISP. Furthermore, the identification, authentication, integrity, and non-repudiation services are offered by using digital signatures. Confidentiality is guaranteed through recourse to encipherment algorithms, along with mechanisms to establish and distribute keys managed by certified encrypted equipment.

3.5.2. PROPER USE

The requirements and rules defined in this document apply to all certificates issued by the PKI of SISP.

The certificates issued by the PKI of SISP are used by the relying parties to verify the chain of trust of a certificate issued under the ICP-CV, and also to ensure the authenticity and identity of the issuer of a digital signature generated by the private key corresponding to the public key contained in a certificate signed by the PKI of SISP.

The certificates issued by the PKI of SISP must be used in accordance with the capacity and purpose established in this document, the related Certificate Policies, and the legislation in force.

The certificates issued for services are to be used in authentication services and in establishing enciphered channels.

The certificates issued for physical or legal persons in conformity with the certificate type granted may be used for:

- Signing documents
- Signing electronic mail.

The certificates for organizations are issued to guarantee property rights of a website and/or identify the organization.

3.5.3. UNAUTHORIZED USE

The certificates may be used in other contexts only to the extent permitted by the rules of ICP-CV and the applicable legislation.

The certificates issued by the PKI of SISP cannot be used in any other capacity out of the scope of the previously described use.

The certification services offered by the PKI of SISP have not been designed for, nor is their use authorized in high risk activities or others that require an activity exempt from failures, such as hospital and nuclear operations, air traffic control, railway traffic control or any other activity where a failure can lead to death, personal injury or serious damages to the environment.

3.6. POLICY MANAGEMENT

The Security Working Group is responsible for managing this CPS and may be contacted through the address and telephone numbers listed below:

Name:	Security Working Group
Address:	SISP, SA Conjunto Habitacional Novo Horizonte Rua de Funchal Achada Santo António – Praia Cabo Verde
e-mail:	pki@sisp.cv
Site:	www.sisp.cv
Telephone:	+238 260 6310 / +238 262 6317

The Security Working Group provides for the suitability and application of this CPS (and/or respective CPs) at internal level, and subsequently submits it to the Management Working Group for approval purposes.

Validation of this CPS (and/or respective CPs) and subsequent amendments (or updates) shall be carried out by the Security Working Group. Any corrections or amendments should be

released as new versions of this CPS (and/or respective CPs), thus replacing any previously adopted CPS (and/or respective CPs).

The Security Working Group shall also determine the time when amendments to the CPS (and/or respective CPs) will lead to alterations in object identifiers (OID) of the CPS (and/or respective CPs).

Following completion of the validation phase, the CPS (and/or respective CPs) is submitted to the Management Working Group, which is the entity responsible for approving and authorizing any corrections or amendments to this type of document.

All certification policies, rules, and practices implemented within the scope of this CPS may be found in the repository available at http://pki.sisp.cv.

4. LEGAL PROVISIONS

4.1. DUTIES AND OBLIGATIONS

4.1.1. DUTIES AND OBLIGATIONS OF THE CERTIFICATION ENTITY

The PKI of SISP is bound to:

- Carry out its operations in accordance with this Policy;
- Clearly state all its Certification Practices in the appropriate document;
- Protect its private keys;
- Issue certificates in accordance with Standard X.509;
- Issue certificates that are in conformity with the information known at the time they are issued and free from data input errors;
- Ensure confidentiality in generating signature-creation-data and its secure delivery to the holder;
- Use trustworthy systems and products which are protected against any modification and ensure the technical and cryptographic security of the certification processes;
- Use trustworthy systems to store certificates under conditions necessary to establish their authenticity and prevent unauthorized persons to modify those data;
- Archive, unaltered, the certificates issued;
- Guarantee that the date and time on which a given certificate was issued or cancelled or suspended can be precisely determined;
- Employ personnel who possess the expert knowledge, experience, and qualifications necessary for the certification services provided;
- Revoke certificates under the terms set forth in section 6.10 of this document and publish the revoked certificates in the CRL of the SISPCA01 repository with the frequency stipulated in section 6.10.10;
- Publish its CPS and the applicable Certificate Policies in its repository, so ensuring access both to the current and previous versions of those documents;
- Promptly notify the certificate holders by e-mail, in case the CE revokes or suspends their certificates, together with the reasons for such action;

- Cooperate with the audits led by the Accreditation Authority in order to validate their own keys;
- Operate in accordance with the applicable legislation;
- Safeguard, where they exist, the keys under custody;
- Guarantee CRL's availability in light of the provisions of section 6.10.10;
- In the event of ceasing its activity, inform all holders of certificates issued, as well as the Accreditation Authority, at least three months in advance;
- Comply with all specifications included in the standard on Personal Data Protection;
- Store and keep all records and documents related with an acknowledged certificate and the Certificate Practices Statement in force at all times and for a period of twenty years as from the moment of issuance.

4.1.2. DUTIES AND OBLIGATIONS OF REGISTRATION ENTITIES

Registration entities are bound to:

- Receive certificate applications;
- Validate and authenticate all data related with certificate applicants;
- Validate other related data as submitted, whose verification and approval are delegated to the certification authority in what concerns certificates with specific competences, namely the quality of a legal person's representative, the quality of an employee, and the quality of a member of a professional association, *inter alia*;
- Forward the approved requests to the certification entity to which it is linked;
- Receive and validate any requests for certificate suspension or revocation, and forward them to the certification entity;
- Cooperate with inspections and audits undertaken by the certification entity, ANAC, and its auditors;
- Guarantee delivery of the certificate to its titleholder or to its legal representative, and
- Agree upon with the titleholders under the terms defined by the Certification Entity.

4.1.3. DUTIES AND OBLIGATIONS OF CERTIFICATE HOLDERS

The duties and obligations of holders of issued certificates include:

- Restrict and tailor the use of certificates in accordance with the use foreseen in the Certificate Policies;
- Take every caution and measures deemed necessary to ensure possession of their private key;
- Apply immediately for the revocation of a certificate where there is knowledge or suspicion that the private key can be computed from the public key contained in the certificate, as per section 6.10.5.;
- Abstain from using a digital certificate that has lost its efficiency either due to revocation or suspension, or because its validity period expired;
- Submit to the Certification (or Registration) Entity full, accurate information as regards data requested by the former to conclude the registration process. Any changes in such information should be reported at once to the CE; and

- Abstain from monitoring, manipulating or executing “reverse engineering” techniques on the infrastructure (software and hardware) of the certification services without previous written authorization of the PKI of SISP.

4.1.4. DUTIES AND OBLIGATIONS OF RELYING PARTIES

The parties who rely on the certificates issued by the PKI of SISP are bound to:

- Restrict the reliability of the certificates to the uses permitted under the corresponding Certificate Policy;
- Check the status of the certificates before a transaction based on them takes place;
- Assume the responsibility for the accurate verification of the digital signatures;
- Assume the responsibility for proof of validity, revocation, or suspension of the certificates relied upon;
- Be fully aware of the guarantees and responsibilities applicable in certificate acceptance and use, and agree to be subject to them.

4.1.5. DUTIES AND OBLIGATIONS OF OTHER PARTICIPANTS

No stipulation.

4.2. PUBLICATION AND STORAGE RESPONSIBILITIES

SISP reserves the right to publish information regarding the digital certificates issued in a repository available online, as well as publish information on the certificate status in third-party repositories.

SISP maintains a document repository online through which information on its practices, procedures, and contents of certain policies, including the CPS, are released. All parties associated with the issuance, use or management of SISP certificates are herein notified that SISP can publish, upon request, in its publicly accessible repository, information on the status of the digital certificate.

SISP abstains from publicly releasing confidential information, namely those related with security controls, procedures, internal security policies, among other.

4.2.1. REPOSITORIES

SISP, S.A. is responsible for the repository functions of SISP CA, by publishing, *inter alia*, information related with the practices adopted and the status of the certificates issued (CRL).

Access to the information made available by the repository is facilitated through the HTTPS and HTTP protocol, and the following security mechanisms have been implemented:

- Both the CRL and the CPS can only be modified through duly defined processes and procedures;

- The technological platform of the repository is duly protected with state-of-the-art techniques of physical and logical security;
- The human resources who manage and administer the said platform hold the educational skills and training deemed adequate for the service at stake.

4.2.2. PUBLICATION OF INFORMATION ON CERTIFICATION

SISP maintains a repository on a Web environment that enables the Relying Parties to carry out online research regarding revocation and other information on the status of the certificates, 24 (twenty-four) hours a day, 7 (seven) days a week.

SISP always releases the following public information at URL http://pki.sisp.cv:

- Its own certificate;
- An updated electronic copy of the CPS of the CAs linked to SISP Root CA;
- An updated electronic copy of the CP of the CAs linked to SISP Root CA;
- A list of the Certification Authorities linked to SISP Root CA;
- A list of Revoked Certificates of the CAs linked to SISP Root CA (CRL);
- A list of the Registration Entities and addresses of the respective technical facilities;
- Certificates of the CAs linked to SISP Root CA;
- Application form for certificate issuance;
- Application form for certificate revocation.

In addition, all previous versions of the CPS of Issuing CAs will be kept and made available upon request (to be reasoned). However, they will remain outside the free public access repository.

4.2.3. TIME OR FREQUENCY OF PUBLICATION

SISP guarantees that all updates to the present CPS and respective policies will be published whenever an alteration is deemed necessary.

A new CRL of SISP CA will be published at least once a day.

4.2.4. ACCESS CONTROL

The information published by SISP will be available on the internet, remaining subject to access control mechanisms (read-only access). SISP has implemented logical and physical security measures intended to prevent unauthorized people to add, erase or modify records included in the repository.

4.3. COMPLIANCE AUDIT AND OTHER ASSESSMENTS

A regular audit on compliance with this CPS and other rules, procedures, and processes will be undertaken by the members of the Audit Working Group of the PKI of SISP.

Other than compliance audits, SISP will carry out additional surveillance and investigations to ensure conformity of the Certification Entities comprised in the PKI of SISP with the national

legislation, as well as with the applicable international standards. The execution of these internal audits, surveillance, and investigations may be delegated to an external audit entity.

In the case of the Certification Entities embraced by the PKI of SISP but operated by other entities, SISP may, whenever deemed appropriate, perform internal audits to the former. These entities are also required to submit an annual audit report, or a compliance statement, to SISP, made by an independent recognized security audit firm.

4.3.1. COMPLIANCE AUDIT AND OTHER ASSESSMENTS

The PKI of SISP complies with the requirements defined by ICP-CV. This audit is executed by auditors duly certified by ANAC.

4.3.2. FREQUENCY OR REASON FOR THE AUDIT

SISP certification practices are subject to regular audits at minimum intervals determined by law, *id est*, at least once a year, with the issuance of a report as at March 31 of the financial year at stake. This audit shall be carried out by an Auditor certified by the ANAC, based on the existing standards. The results are henceforth reported to the accreditation authority, which is entitled to publish the outcome of the entire process.

In order to fulfil these duties, SISP keeps records of all operations related with the life-cycle of certificates and all correspondence exchanged with recognized registration/certification entities. Likewise, SISP requires these entities to keep records of the subscription applications received and processed, in which it has been involved.

Such records must be maintained in a data repository created for that purpose and confirmed by analyzing the mail records (e-mail or other) exchanged with the certification entity.

To verify compliance with these provisions, SISP will conduct periodical audits to the registration/certification entities as a means to determine the adequacy of the operating procedures and the levels of technological security to the Certificate Policies in place. Non-compliance with the contractual conditions and terms may lead to the suspension and/or revocation of the issued certificate(s).

5. IDENTIFICATION AND AUTHENTICATION

5.1. NAMING

This section describes the procedures used to authenticate the certified entities prior to certificate issuance, as well as name related disputes.

Naming shall obey to the convention described below:

- The real name (or alias) of the holder will be assigned to certificates of natural persons;
- The name of the entity will be assigned to the certificates of legal persons, which will include the name of the legal representative;
- The qualified name of the domain and/or scope of its use will be assigned to the certificates of services.

5.1.1. TYPES OF NAMES

Naming is based on the convention determined by ICP-CV. SISP guarantees the issuance of certificates including a X.509 Distinguished Name (DN), defined as RFC5280, and issues certificates for applicants that submit documents containing a verifiable name.

SISP shall ensure, within its reliable infrastructure, the absence of certificates which, even containing the same DN, may identify separate entities.

The unique name of these certificates is identified in the respective Certificate Policies:

Certificate Type	OID of the Certificate Policy
SISP Root CA	2.16.132.1.2.2.3
Qualified Digital Signature and Electronic Seal	2.16.132.1.2.2.3.2
Authentication	2.16.132.1.2.2.3.2
Web Authentication	2.16.132.1.2.2.3.2

5.1.2. NEED FOR NAMES TO BE MEANINGFUL

SISP will ensure that the names used in the certificates it issues identify, in a significant way, its users. In other words, SISP will ensure that the DN used is appropriate for the user in question, and that the component "Common name of the DN" represents the user in a readily comprehensible manner. Nevertheless, SISP may issue pseudonymous certificates provided that they are identified as such.

5.1.3. TITLEHOLDER ANONYMITY OR PSEUDONYM

SISPCA01 shall issue certificates with holder pseudonyms and to that end guarantee that:

- The certificate includes the holder's pseudonym, clearly identified as such, being kept the information details that prove the true identity of the certificate applicant holders with pseudonym.
- SISPCA01 will report to the judicial authority, whenever legally ordered, any data related to the identity of the certificate holders that are issued with a pseudonym. In this regard, the provisions of the laws in force will apply.

5.1.4. RULES FOR INTERPRETING VARIOUS NAME FORMS

The rules used by SISP to interpret name format conform with those stipulated in the RFC 5280, thus ensuring that all *DirectoryString* features of the *issuer* and *subject* fields of the certificate are codified in a *UTF8String*, with the exception of the *country* and *serial number* features, which are codified in a *PrintableString*.

5.1.5. UNIQUENESS OF NAMES

SISP will control the existing subject names in such a way as to ensure that a certificate includes an unambiguous and unique DN related to a sole entity.

5.1.6. NAME CLAIM DISPUTE RESOLUTION PROCEDURE

SISP will be responsible for granting and approving the DNs. It will also be responsible for settling any disputes that are likely to arise in this field.

5.1.7. TRADEMARK RECOGNITION, AUTHENTICATION, AND ROLES

The subject names issued by SISP will conform, to the maximum possible extent, with registered trademark holders. SISP will not deliberately permit the use of registered names whose ownership may not be proved by the applicant. However, SISP may reject the issuance of certificates with names of registered trademarks if it considers another identification as more suitable.

5.1.8. METHOD TO PROVE POSSESSION OF PRIVATE KEY

The key pair and certificate are provided in a cryptographic token (SmartCard or USB token) with encrypted chip, physically customized for the titleholder. Possession of the private key is proved by issuing and customizing the cryptographic token, thus guaranteeing that:

- The key pair is generated in the encrypted HSM and inserted in the cryptographic token through direct, secure communication, without leaving any records whatsoever in any device;
- The cryptographic token is customized for its holder;
- The public key is forwarded to SISP for the purposes of issuing the corresponding digital certificate, which is also inserted in the cryptographic token;
- The cryptographic token is delivered on-site.

5.2. INITIAL IDENTITY VALIDATION

SISPCA01 is responsible for validating the identity of the entities applying for a certificate.

The Qualified Certificates of Digital Signature and Authentication are issued for private individuals (natural persons) who are responsible for their usage. A Qualified Certificate of Electronic Seal or Web Authentication Certificate is issued for an Organization (Legal Person) to which a natural person, identified as “technical manager” but not represented in the certificate, is linked and is responsible for handling and using the certificate on behalf of the organization.

5.2.1. QUALIFIED CERTIFICATES

5.2.1.1. AUTHENTICATION OF A NATURAL PERSON’S IDENTITY

The process of authenticating the identity of a natural person must compulsorily guarantee that the person to whom the certificate shall be issued is really who he/she claims to be.

The actions required to attain this objective include:

1. Verifying, based on officially recognized documents bearing a photograph:
   a) The subscriber's full name;
   b) The unique identification number;
   c) The contact details, including the address, if any.
2. Guaranteeing the physical presence of the subscriber at the time of registration, unless a relationship of trust already exists that is previously based on such physical presence of the subscriber;
3. Verifying, when it comes to quality certificates, that the applicant is entitled to such benefits or privileges.

5.2.1.2. AUTHENTICATION OF A LEGAL PERSON'S IDENTITY

The process of authenticating a legal or collective person shall necessarily guarantee that the legal person is really who it claims to be, and that the creation of a signature through a signature creation device demands the intervention of natural persons who, legally or statutorily, represent that legal person.

The documentation on which the issuance of a qualified certificate of electronic seal is based must include namely the following items:

a) Documents for the purposes of identifying the legal person and its legal name, e.g. commercial registry certificate;
b) Tax identification number, headquarters, corporate object, names of the members of the corporate bodies and other persons who have the power to bind the legal person;
c) Full name, identification card number or any other document that enables the unique identification of the natural persons who, legally or statutorily, represent the legal person;
d) Address and other contact details. Wildcard emails such as Hotmail, Gmail, Yahoo or similar are not accepted.

Web authentication certificates are issued only after the legal existence of the domains and respective ownership have been proven.

The validation of applicants is carried out using the same documents stated in points a), b), c) and d) mentioned above.

Before issuing the certificate, SISP confirms the domain by checking relevant CAA records. In addition, confirmation of the certificate issuance request, is made by calling the technical subscriber indicated on the form.

5.2.2. ADVANCED CERTIFICATES

Initial validation of the identity of the applicant for an advanced certificate issued by SISPCA01 is performed in the documentation sent by the applicant jointly with the advanced certificate application form, through which data are validated, namely the information on the holder and the entity requesting the certificate. The signatures contained in the form are verified by comparing them with the copies of the identification documents provided.

5.2.3. AGREEMENT WITH THE SUBSCRIBER

SISPCA01 shall keep record of the agreement signed with the subscriber, including:

1. Agreement on the terms and conditions established with the subscriber. In case the certificate subscriber is different from the subject, the latter will also be informed on the terms and conditions;
2. Consent to the keeping of records by SISP with the information used in the registration process, as well as information on subsequent events related with the agreement and its purpose;
3. Permission to pass on this information to third-parties under specific conditions;
4. Permission to pass on information on the status of the issued certificates, under the agreement, to unspecified third-parties.

5.2.4. CERTIFICATE APPLICATION

As outlined in section 6.2.

5.3. FACE-TO-FACE AUTHENTICATION OF SEPARATE ENTITIES

Face-to-face authentication of the authorized representative of the organizations applying for a certificate shall be based in at least two types of identification issued by the government (at least one identification document bearing a photograph, such as a passport or an identification card). The person's capacity to act on behalf of an applicant organization shall also be authenticated upon presentation of paper documents stating that fact.

The above described information has to be validated by SISP when returning the fully completed forms. SISPCA01 or a designated Registration Entity will be responsible for verifying the identity of the representatives on a person-to-person basis.

5.4. IDENTIFICATION AND AUTHENTICATION FOR KEY RENEWAL REQUESTS

5.4.1. IDENTIFICATION AND AUTHENTICATION FOR ROUTINE KEY RENEWAL

There is no such routine key renewal. Certificate renewal shall observe the procedures used in initial authentication and identification where new key pairs are generated.

5.4.2. RENEWAL AFTER REVOCATION

If a certificate is revoked, the individual/organization will be subject to the entire registration process in order to obtain a new certificate.

5.5. REVOCATION REQUEST

The revocation request must obey to the conditions described in detail in section 6.10.

6. OPERATIONAL REQUISITES FOR THE LIFECYCLES OF THE CERTIFICATES

6.1. CERTIFICATE REQUEST

The certificate request must be made by completing the appropriate form available on SISP's website or at the REs. The information deemed necessary and the procedures to follow are indicated for each type of certificate.

6.2. PROCESSING THE CERTIFICATE APPLICATION

6.2.1. IDENTIFICATION AND AUTHENTICITY OF THE REQUEST

Soon after receiving the request for a certificate issuance, as well as the information required to process the request, SISPCA01 will proceed to the validation of all information made available in order to check the authenticity of the data included therein (See section 5.2).

6.2.2. APPROVAL AND REJECTION OF CERTIFICATE APPLICATIONS

SISPCA01 will only accept the certificate application if all data included therein are deemed authentic. In this case, the request is approved.

Should the information contained in the form be untrue or incomplete, the CA will reject the application for a certificate issuance and notify the applicant accordingly.

6.2.3. TIME TO PROCESS CERTIFICATE APPLICATIONS

SISPCA01 holds an SLA for certificate issuance whose information is available on the respective website. Nevertheless, certificate issuance and the time elapsing between the certification request and its delivery will depend, above all, on the readiness of the information provided and its accuracy.

6.3. CERTIFICATE ISSUANCE

Certificates are issued by SISPCA01 through the platform automatically made available by SISP after registration and approval of the certificate application. Following approval, the request is forwarded directly to the Certification Authority which shall then issue the certificate.

Any certificate issued in the PKI of SISP shall be subject to approval. This approval depends on the type of certificate and the Certification Authority at stake. For the purposes of approval of a final user certificate, the Registration Working Group is responsible for managing and approving certification requests.

6.3.1. ISSUE OF QUALIFIED DIGITAL CERTIFICATES

As for Qualified Certificates of Signature and Electronic Seal, the certificate will be stored in a secure storage device which, depending on the option chosen, may be a SmartCard (card with encrypted chip) or a USB token.

In order to issue Certificates for a Web Server, the certificate request (CER) or application is generated and sent to SISP. The certificate is subsequently issued and made available to the customer by e-mail or downloaded from a Web Portal

6.3.2. ISSUE OF ADVANCED CERTIFICATES

Advanced certificates may be provided in a secure storage device, just as the qualified digital certificates, but may also be downloaded or made available in a magnetic device (CD, pen drive, etc.).

6.3.3. ISSUE OF APPLICATION CERTIFICATES

To issue application certificates, the certificate request is generated by the customer and then sent to SISP. Based on the request, the certificate is issued and then downloaded or made available in a magnetic device (CD, pen drive, etc.).

6.3.4. NOTIFICATION OF CERTIFICATE ISSUANCE

The titleholder shall be deemed notified of the certificate issuance upon receipt of the certificate.

6.4. CERTIFICATE ACCEPTANCE

6.4.1. PROCEDURES FOR CERTIFICATE ACCEPTANCE

For each type of certificate, the respective Certificate Policy shall describe the way to accept certificates.

6.4.2. PUBLICATION OF THE CERTIFICATE

SISP shall not publish the certificates it issues, with the exception of the certificates and respective public keys of the Certification Authorities within its managerial control.

6.4.3. NOTIFICATION OF CERTIFICATE ISSUANCE TO OTHER ENTITIES

SISP shall not notify other entities of certificate issuance unless otherwise previously agreed upon.

6.5. USAGE OF CERTIFICATE AND PRIVATE KEY BY SUBSCRIBER

Certificate titleholders (representatives) shall use their private keys only for the purpose for which these are meant (as set forth in the certificate “key usage” field) and always for legal purposes.

Their use shall only be allowed if the holder agrees upon and signs the general conditions for certificate issuance and usage at the time of subscription, in the following terms:

- To anyone assigned in the “Subject” field of the certificate;
- In conformity with the conditions defined under section 3.5.;
- As long as the certificate is valid and is not in the CRL of the respective CA.

6.6. CERTIFICATE AND PUBLIC KEY USAGE BY THIRD PARTIES

Not applicable.

6.7. CERTIFICATE RENEWAL

This practice is not supported by the PKI of SISP.

Certificate renewal is a process in which previous data of the certificate is used for the issuance of a new certificate, without modifying the keys or any other information, except for the validity period of the certificate.

6.7.1. CIRCUMSTANCE FOR CERTIFICATE RENEWAL

No stipulation.

6.7.2. WHO MAY REQUEST CERTIFICATE RENEWAL

No stipulation.

6.7.3. PROCESSING CERTIFICATE RENEWAL REQUESTS

No stipulation.

6.7.4. NOTIFICATION OF NEW CERTIFICATE ISSUANCE TO SUBSCRIBER

No stipulation.

6.7.5. PROCEDURES FOR CERTIFICATE ACCEPTANCE

No stipulation.

6.7.6. PUBLICATION OF CERTIFICATE FOLLOWING RENEWAL

No stipulation.

6.7.7. NOTIFICATION OF CERTIFICATE ISSUANCE TO OTHER ENTITIES

No stipulation.

6.8. CERTIFICATE RENEWAL WITH THE CREATION OF A NEW KEY PAIR

Certificate keys renewal (certificate re-key) is a process where a titleholder generates a new key pair and submits a request for the issuance of a new certificate which certifies the new public key. This process, within the scope of the PKI of SISP, is named as certificate renewal with the creation of a new key pair, being deemed as a new issue.

Certificate renewal with the creation of a new key pair is accomplished in accordance with the provisions of section 6.2.

6.8.1. CIRCUMSTANCES FOR CERTIFICATE RENEWAL WITH THE CREATION OF A NEW KEY PAIR

Certificate renewal with the creation of a new key pair will be acceptable whenever the following circumstances occur:

- The certificate is about to expire;
- The key pair has reached the anticipated usage period;
- The information that originated the certificate has changed.

6.8.2. WHO MAY REQUEST CERTIFICATION OF A NEW PUBLIC KEY

As set out in section 6.1.

6.8.3. PROCESSING CERTIFICATE RENEWAL REQUEST WITH THE CREATION OF A NEW KEY PAIR

As set out in section 6.2.

6.8.4. NOTIFICATION OF NEW CERTIFICATE ISSUANCE TO SUBSCRIBER

As set out in section 6.3.4.

6.8.5. CONDUCT CONSTITUTING ACCEPTANCE OF THE CERTIFICATE RENEWED WITH THE CREATION OF A NEW KEY PAIR

As set out in section 6.4.1.

6.8.6. PUBLICATION OF THE CERTIFICATE RENEWED WITH THE CREATION OF A NEW KEY PAIR

As set out in section 6.4.2.

6.8.7. NOTIFICATION OF RENEWED CERTIFICATE ISSUANCE TO OTHER ENTITIES

As set out in section 6.4.3.

6.9. CERTIFICATE MODIFICATION

This practice is not supported by the PKI of SISP.

Certificate modification is a process in which a certificate is issued to a titleholder and the respective keys are maintained. Changes occur only in the information contained in the certificate.

6.9.1. CIRCUMSTANCES FOR CERTIFICATE MODIFICATION

No stipulation.

6.9.2. WHO MAY REQUEST CERTIFICATE MODIFICATION

No stipulation.

6.9.3. PROCESSING CERTIFICATE MODIFICATION REQUESTS

No stipulation.

6.9.4. NOTIFICATION OF ISSUANCE OF MODIFIED CERTIFICATE TO SUBSCRIBER

No stipulation.

6.9.5. CONDUCT CONSTITUTING ACCEPTANCE OF MODIFIED CERTIFICATE

No stipulation.

6.9.6. PUBLICATION OF THE MODIFIED CERTIFICATE

No stipulation.

6.9.7. NOTIFICATION OF ISSUANCE OF MODIFIED CERTIFICATE TO OTHER ENTITIES

No stipulation.

6.10. CERTIFICATE SUSPENSION AND REVOCATION

Certificate suspension and revocation are a procedure through which the certificate ceases to be valid before the end of its validity period, so losing its operability.

The revocation process of a certificate issued by SISPCA01 is handled and completed within 24 hours upon request.

6.10.1. CIRCUMSTANCES FOR SUSPENSION

Suspensions are not executed by SISPCA01.

6.10.2. WHO CAN REQUEST SUSPENSION

No stipulation.

6.10.3. PROCEDURE FOR A SUSPENSION REQUEST

As outlined in section 6.10.7. No stipulation.

6.10.4. LIMITS ON THE SUSPENSION PERIOD

No stipulation.

6.10.5. REASONS FOR REVOCATION

A certificate shall be revoked due to one of the following circumstances:

- Private key is compromised;
- Card/token has been lost or stolen;
- Data update/change;
- Card/token is damaged or deteriorated;
- The quality of the certificate holder, as affixed in the digital certificate, ceases to be valid;
- Powers of representation included in the certificate have been suspended or changed;
- Improper use of the certificate;
- Failure in using the card/token;
- By court order or, provided it is duly justified by the entities comprised in the IPC-CV, namely:
  - The Managing Board of the ICP-CV;
  - The Accreditation Authority;
  - The ECR-CV.
- Termination of service.

The certificate shall be revoked within a maximum of 24 hours.

6.10.6. REQUESTING REVOCATION

The following entities are entitled to request a certificate revocation if one or more of the circumstances described in 6.10.5 occur:

- SISP, S.A.;
- A relying party, whenever it can demonstrate that the certificate was used for purposes other than those for which it was intended.

SISPCA01 should store all information and documents used to verify the identity and authenticity of the entity requesting the revocation, guarantee verification of the identity of its legal representatives by legally recognized means, and not accept powers of representation for any revocation request of a certificate.

6.10.7. PROCEDURE FOR REQUESTING REVOCATION

All revocation requests must be addressed to SISP, S.A. or to the designated Registration Entities in writing or by digitally signed e-mail, through a specific revocation request form complying with the following:

- Identification and authentication of the entity that made the revocation request;
- Record and archive the revocation request form;
- Analysis of the revocation request by the Authentication Working Group of the PKI of SISP, which shall approve or reject the request;
- Whenever a certificate is revoked, the revocation is published in the respective CRL.

In any case, a detailed description of the entire decision-making process is archived, including the following:

- Date of the revocation request;
- Name of the certificate titleholder;
- Reasons behind the revocation request;
- Name and duties of the person requesting the revocation;
- Contact details of the person requesting the revocation;
- Signature of the person requesting the revocation.

6.10.8. PROCESSING THE REVOCATION REQUEST

The revocation request must be handled at once and, therefore, shall not exceed 24 hours.

6.10.9. REVOCATION CHECKING REQUIREMENTS FOR RELYING PARTIES

Prior to using a certificate, the relying parties shall verify the status of all certificates through the CRLs or via an online certificate status protocol (OCSP).

6.10.10. CRL ISSUANCE FREQUENCY (IF APPLICABLE)

SISPCA01 shall make available a new CRL database on a daily basis.

6.10.11. VERIFICATION REQUIREMENTS OF THE CRLs

The most updated information on a certificate revocation status will be made available through Servers with status verification services provided by SISP. All relevant parties must use those servers to check the current status of a certificate.

6.10.12. OTHER FORMS AVAILABLE FOR DIVULGING THE REVOCATION

SISP keeps an online validation service (OCSP) for certificate status.

6.11. CERTIFICATE STATUS SERVICES

6.11.1. OPERATIONAL FEATURES

The status of issued certificates is publicly available through the CRLs and the OCSP service.

6.11.2. SERVICE AVAILABILITY

The certificate status service is available 24 hours a day, 7 days a week.

6.12. END OF THE SUBSCRIPTION PERIOD

A certificate will be considered inoperative in the following cases:

- Certificate revocation;
- Expiry of its validity period.

6.13. RETENTION OF THE PRIVATE KEY (KEY ESCROW)

The PKI of SISP shall only retain its private key.

7. MANAGEMENT, OPERATIONAL, AND PHYSICAL SECURITY MEASURES

SISP has developed and implemented several rules and policies on the physical, human, and procedural controls that support the security requirements included in this CPS.

These rules and policies comply with the good practices recommended by the main international standards related with information security, namely ISO 27001.

7.1. PHYSICAL SECURITY CONTROLS

7.1.1. SITE LOCATION AND CONSTRUCTION TYPE

The premises of the PKI of SISP have been designed so as to provide an environment that is able to control and audit access to the certification systems, and is physically protected against unauthorized use, damage, or interference. Its architecture uses the concept of in-depth defense, that is, independent levels of protection, so guaranteeing that access to a higher security level is only possible when one has previously reached the immediately prior level.

7.1.2. PHYSICAL ACCESS

The PKI systems of SISP are protected by a minimum of 4 (four) hierarchical security levels which ensure that access to a higher security level is only possible when one has previously reached the immediate prior level.

Sensitive operational activities of the CAs, creation and storage of cryptographic material, any activities within the lifecycle of the certification process like authentication, verification, and issuance, occur within the limits of the most restricted security areas. Physical access is automatically entered and recorded for auditing purposes.

7.1.3. POWER AND AIR CONDITIONING

The secure facilities of the PKI of SISP are equipped with redundant power and climate control systems to ensure continuous and uninterrupted operation of the systems 24 hours a day, 7 days a week, for:

- Uninterrupted feeding systems with enough power to maintain an autonomous electrical network during periods when power is off and to protect the equipment in case of electrical surges that may damage them (redundant equipment consists of batteries for uninterrupted power supply and diesel electricity generators);
- Refrigeration/ventilation/air conditioning that control the temperature and humidity levels and guarantee adequate conditions for the proper functioning of all electronic and mechanical equipment present within the environment.

7.1.4. WATER EXPOSURE

No stipulation.

7.1.5. FIRE PREVENTION AND PROTECTION

Reasonable fire prevention and protection mechanisms are in place at the secure facilities of the PKI of SISP to prevent, detect and extinguish fires or other incidents caused by flames or smoke. These mechanisms comply with the existing regulations:

- Fire detection and fire alarm systems are installed at the various physical security levels;

- Fixed and mobile fire-extinguishing appliances are available and placed at easily accessible and strategic locations so that they can be rapidly used when a fire outbreaks and successfully extinguish it;
- Well defined emergency procedures, in case of fire.

7.1.6. DATA STORAGE MEDIUM

All sensitive computer media are stored in safety vaults and lockers within the high security area, as well as in a different environment outside the building, with appropriate physical and logical access controls that restrict access only to authorized members of the Working Groups.

7.1.7. WASTE DISPOSAL

Documents and paper material that contain sensitive information shall be shredded before secure disposal.

No information can be retrieved from the media support used to store or transmit sensitive information before they are securely disposed of. Cryptographic devices or logical access keys shall be physically destroyed in accordance with the manufacturer's waste disposal guidelines.

Other storage equipment (hard disks, tapes, etc) shall be duly erased so that no information whatsoever can be retrieved.

7.1.8. OFF-SITE BACKUP

Alternate facilities have been established with physical security and environmental controls comparable to those of the primary facility.

7.2. PROCEDURAL CONTROLS/TRUSTED ROLES

The activity of a Certification Authority (hereinafter called CA) depends on the coordinated and complementary action of a wide range of human resources, namely because:

- Given the security requirements inherent in the operation of a CA, it becomes vital to guarantee an adequate separation of duties aimed at minimizing the individual importance of each one of the team members;
- It becomes necessary to guarantee that the CA may only be subject to denial-of-service attacks when a significant number of intervening parties act in collusion;
- Whenever the same entity holds various CAs with different security or hierarchical levels, it may be often desirable that the human resources associated with a CA do not accumulate duties (or at least the same) in a different CA.

Due to the above, this section describes the requirements needed to recognize trusted roles and responsibilities linked to each duty. This section also includes the separation of duties as to the roles that cannot be executed by the same individuals.

7.2.1. WORKING GROUPS

Trusted roles consist of employees, suppliers, and consultants that require access to, or control over cryptographic or authentication operations.

The PKI of SISP has established that trusted roles be grouped in six different categories (which correspond to five separate Working Groups) in order to ensure that sensitive operations are carried out by different authorized persons that eventually belong to distinct Working Groups, each comprising two members.

7.2.1.1. AUDIT WORKING GROUP

The Audit Working Group is responsible for performing internal audits to all actions deemed relevant and necessary to ensure the operational readiness of the CA.

7.2.1.2. SECURITY WORKING GROUP

The Security Administration Working Group is responsible for proposing, managing, and implementing all policies, keeping them up-to-date, and ensuring that all information needed for the functioning and audit of a CA is available over time. This Working Group also exercises the duty of HSM Operation.

7.2.1.3. SYSTEMS ADMINISTRATION GROUP

The Systems Administration Working Group is responsible for installing, setting up, and maintaining (hardware and software) the CA, without affecting the application security.

7.2.1.4. REGISTRATION GROUP

The Registry Administration Working Group is responsible for executing the routine tasks needed for the smooth operation of the CA, as well as all incidents that take place. This Group is also in charge of operating the CA in what concerns certificate issuance, suspension, and revocation.

The duties of this Group include certificate issuance, suspension, and revocation.

7.2.1.5. MANAGEMENT GROUP

The Management Group is responsible for appointing the members of the remaining groups and taking critical level decisions. This group must comprise a minimum of 4 (four) members.

7.2.2. NUMBER OF INDIVIDUALS REQUIRED PER TASK

There are a number of strict control procedures that require the separation of duties based on the specificities of each Working Group, so as to ensure that sensitive tasks may only be executed by a manifold set of certified persons.

Internal control procedures have been prepared in such a way as to guarantee a minimum of 2 trusted individuals to have physical or logical access to the security devices.

7.2.3. ROLES REQUIRING SEPARATION OF DUTIES

The following matrix defines the incompatibilities (indicated by an X) between membership of a group/subgroup identified in the left column and membership of the group/subgroup identified in the first line, within the context of this CA:

Working Group	**Inconsistent with**				
	(a)	(b)	(c)	(d)	(e)
Security Administration (a)		X	X	X	
Systems Administration (b)	X		X	X	
Registry Administration (c)	X	X		X	
Audit (d)	X	X	X		X
Management (e)				X	

7.3. STAFF CONTROL MEASURES

7.3.1. REQUIREMENTS RELATED WITH QUALIFICATIONS, EXPERIENCE, BACKGROUND AND ACCREDITATION

All personnel occupying a trusted role in the PKI of the SISP must comply with the following requirements:

- Be formally appointed for the position to be performed;
- Present evidence of the background, qualifications and experience needed for the tasks related with his position;
- Hold adequate training for the performance of the respective duties;
- Guarantee confidentiality as to the sensitive information on the CA or identification details of titleholders;
- Guarantee knowledge of the terms and conditions for the position to be performed; and
- Guarantee that he/she does not perform any other duties that may conflict with his/her responsibilities at the CA.

7.3.2. BACKGROUND CHECK PROCEDURES

Background check procedures derives from the accreditation process of the individuals appointed for assignments in any trusted role position. Background check includes:

- Confirmation of identification, using documents issued by reliable sources; and
- Investigation of criminal records.

7.3.3. TRAINING REQUIREMENTS AND PROCEDURES

The members of the Working Groups receive adequate training so that they may perform their duties in a satisfactory and efficient way.

In addition, they are subject to a training plan embracing the following topics:

- Digital certificate and Public Key Infrastructures;
- General concepts on information security;
- Specific training for his/her role within the Working Group;
- Operational functioning of the PKI of SISP;
- Certificate Policy and Certification Practices Statement;
- Recovery in case of disaster;
- Business continuity procedures, and
- Basic legal aspects related with the provision of certification services.

7.3.4. RETRAINING FREQUENCY AND REQUIREMENTS

Whenever required, additional training will be provided to the members of the Working Groups in order to guarantee the intended level of professionalism for the satisfactory execution of their duties. In particular,

- In the event of any technological change, introduction of new tools or changes in the procedures, adequate training is organized for all staff members working at the PKI of SISP;
- Where there are alterations in the Certificate Policy or Certification Practices Statement, retraining sessions for the PKI staff will also be organized.

7.3.5. JOB ROTATION FREQUENCY AND SEQUENCY

No stipulation.

7.3.6. SANCTIONS FOR UNAUTHORIZED ACTIONS

Unauthorized actions are regarded as any actions that fail to respect the Certification Practices Statement and the Certificate Policies, whether arising from negligence or being deliberate.

In accordance with the rules and regulations of the PKI of SISP and the national security legislation, appropriate disciplinary actions shall be taken for unauthorized actions or unauthorized use of the systems.

7.3.7. SERVICE PROVIDERS' CONTROLS

Consultants or independent service providers are allowed access to the high security area provided that they are always accompanied and directly supervised by the members of the Working Group and that their access is entered in the Guest Book.

7.3.8. DOCUMENTATION SUPPLIED TO PERSONNEL

The Working Groups are provided with all adequate information so that they may carry out their tasks in a competent and satisfactory fashion.

7.4. AUDIT LOGGING PROCEDURES

7.4.1. TYPE OF EVENTS RECORDED

Significant events generate auditable records. These include at least the following:

- Access attempts (successful or unsuccessful) to request, generate, sign, issue, or revoke certificate keys;
- Access attempts (successful or unsuccessful) to create, modify, or delete information on certificate titleholders;
- Access attempts (successful or unsuccessful) and security profile changes in the operating system;
- Issuance and publication of the CRLs;
- Application start-up and shut down;
- Access attempts (successful or unsuccessful) for login and logout;
- Access attempts (successful or unsuccessful) to create, modify, and delete user accounts in the system;
- Backup copies, data retrieving or filing;
- Software and hardware changes or updates;
- System maintenance;
- Operations executed by members of the Working Groups;
- Changes in Human Resources;
- Access attempts (successful or unsuccessful) to the premises on the part of authorized or unauthorized personnel;
- The key generation ceremony and systems involved therein, such as applicational servers, databases, and operating system.

7.4.2. FREQUENCY FOR PROCESSING AUDIT LOGS

Audit logs are reviewed on a daily basis and in an automated form, sending alerts to the Audit Working Group whenever there are suspicions or unusual activities, or threats of some kind. The actions taken, based on the information included in the logs, are also documented.

7.4.3. RETENTION PERIOD FOR AUDIT LOGS

Audit logs shall be available online during the validity period of the certification after which they are archived under the terms described in section 8.5.

7.4.4. PROTECTION OF AUDIT LOGS

Audit logs are exclusively reviewed by members of the Audit Working Group and reported to the Management Working Group.

Audit logs are protected by auditable electronic mechanisms enabling to detect and prevent the occurrence of modification attempts, removal, or other unauthorized data manipulation schemes.

Audit logs of the PKI of SISP are backed up and stored at a secure location and in vaults complying with the Standard EN 1143.

The destruction of an audit log shall only take place with the authorization of the Management Group and executed in the presence of at least two employees (a security element and an audit element). This act should be recorded in an audit log.

7.4.5. AUDIT LOG BACKUP PROCEDURES

Audit logs are backed up on a regular basis in high capacity storage systems, namely tape and storage.

7.4.6. AUDIT LOG ACCUMULATION SYSTEM (INTERNAL / EXTERNAL)

The audit log handling and collection process comprises a combination of automatic and manual processes executed on the operating systems by the applications of PKI of SISP and the personnel that operate them. All audit logs are stored in the internal systems of the PKI of SISP.

7.4.7. NOTIFICATION TO EVENT-CAUSING SUBJECT

Auditable events are recorded in the audit system and kept in a safe way without notification to the event-causing subject.

7.4.8. VULNERABILITY ASSESSMENTS

Auditable logs are regularly analyzed in order to minimize and eliminate potential attempts to compromise system security. Four intrusion tests are performed yearly with the objective of detecting and assessing vulnerabilities. The result of the analysis is then reported to the Management Group of the PKI of SISP to review and approve an implementation and correction plan for the vulnerabilities detected.

7.5. RECORDS ARCHIVAL

7.5.1. TYPES OF RECORDS ARCHIVED

All auditable data are archived (as indicated in section 8.4.1), as well as information on certificate requests and documents supporting the lifecycle of the various operations.

The information and events that are recorded and archived include:

- Audit data, as specified in Section 8.4.1. of this CPS;
- Backups of the applications and systems comprised in the PKI of SISP;
- All documents related to the lifecycle of the certificates, namely:
  - Certificate issuance and revocation procedures;
  - Certificate issuance and acceptance forms;
- Confidentiality agreements;
- Protocols established with Subscribers;
- Contracts signed between the PKI of SISP and other entities – only made available upon request, after previous analysis and approval of the request;
- Authorizations of access to the information systems;
- Access to the apparatus found in the custodies.

7.5.2. RETENTION PERIOD FOR ARCHIVE

Data subject to archive are retained for the period defined in the national legislation.

7.5.3. ARCHIVE DATA PROTECTION

Archives are protected so that:

- Only authorized members of the Working Groups may view and have access to the archives;
- Archives are protected against any modification or attempt to remove them;
- Archives are protected against damage of the media where they are kept, by means of periodical migration to a new media;
- Archives are protected against obsolescence of the hardware, operating systems, and other software, by maintaining the hardware, operating systems, and other software which become part of the archive itself, in order to enable access and use of the records kept in a timeless way;
- Archives are kept in a secure manner, in safe external environments, in accordance with the Policy of Data Retention. The backups of the PKI of SISP are maintained in safe locations, in vaults that comply with the standard EN 1143.

7.5.4. ARCHIVE BACKUP PROCEDURES

Backup copies are fully made and kept in WORM (Write Once Read Many) devices.

7.5.5. REQUIREMENTS FOR TIME-STAMPING OF RECORDS

A few database entries shall contain time and date information which is provided by an accurate, time reference service.

7.5.6. ARCHIVE DATA COLLECTION SYSTEM (INTERNAL / EXTERNAL)

The systems for the collection and maintenance of archived records are internal.

7.5.7. PROCEDURES TO OBTAIN AND VERIFY ARCHIVED INFORMATION

Only authorized members of the Working Groups shall have access to archives in order to verify their integrity.

Integrity checks to the electronic archives (backup copies) shall be automatically carried out at the time of their creation. In the event of errors or unforeseen practices, new archives will be created.

7.6. KEY CHANGEOVER

Only Issuing certification authorities of the PKI of SISP with valid certificates may request renewal of the respective key pair, provided that the generation of a new key pair is in conformity with section 7.7.

7.7. COMPROMISE AND DISASTER RECOVERY

This section describes the requirements linked to the notification and recovery procedures in case of disaster or compromise.

7.7.1. INCIDENT AND COMPROMISE HANDLING PROCEDURES

Backup copies of private keys of the CAs (generated and maintained in light of section 8.2.3.1) and data archived (section 7.5.1) are stored in safe external environments and made available in the event of a disaster. In case of compromise of the private key of SISPCA01, the latter should take the following actions:

- Proceed to its immediate revocation;
- Revoke all dependent certificates contained therein;
- Inform all titleholders of certificates and known third-parties;
- Inform all Entities comprised in the PKI of SISP.

7.7.2. RECOVERY PROCEDURES IF COMPUTING RESOURCES, SOFTWARE, AND/OR DATA ARE CORRUPTED

In case the computing resources, software, and/or data are corrupted, or should there exist suspicion of corruption, backup copies of the private key of the CA and data archived may be obtained to enable verification of the integrity of the original data.

Where there is confirmation that the computing resources, software, and/or data are corrupted, appropriate measures should be taken to address the incident. Incident response may include recovery of the corrupted equipment/data by using similar equipment and/or recovering backup copies and data archived. Until such time as safe conditions are restored, the CA will suspend its services and notify all Entities involved. In cases where it is found that this situation has affected the issued certificates, titleholders will be notified accordingly, and the respective certificates revoked.

7.7.3. RECOVERY PROCEDURES AFTER PRIVATE KEY COMPROMISE

Where the private key of the CA is compromised or there is suspicion of its compromise, appropriate measures must be taken for incident response, which may include:

- Informing the National Accreditation Authority and the Managing Board of the ICP-CV;
- Revoking the certificate of the CA and all other certificates issued within the trust hierarchy of the CA;
- Notifying all holders of certificates issued within the trust hierarchy of the CA;
- Generating a new key pair for the CA and including them in the various systems/browsers;
- Renewing all certificates issued within the trust hierarchy of the CA.

7.7.4. BUSINESS CONTINUITY CAPABILITIES AFTER A DISASTER

The PKI of SISP has established the computing resources, software, backup copies, and archived data in its secondary facilities, deemed necessary to resume or recover key operations (certificate issuance and revocation with the publication of information on revocation) based on the procedures defined in the Contingency Plan, after a natural disaster or any other type of disaster.

7.8. PROCEDURES IN CASE OF TERMINATION OF THE CA OR RE

In case of termination of its activities as a Certification services provider, the CA shall execute the procedures anticipated in the Business Cessation Plan, as per article 36 of DL no. 33/2007.

If any modifications occur in the organization/structure responsible for managing the CA, the latter shall report such fact to the National Accreditation Authority and the Managing Board of the ICP-CV.

8. TECHNICAL SECURITY CONTROLS

This section defines the security controls implemented by the PKI of SISP for the CAs with the objective of protecting the cryptographic keys generated by the latter, and the respective

activation data. The security level allocated to key maintenance must be the maximum so that private keys and secure keys, as well as activation data, are protected at all times and can be accessed by duly authorized persons.

8.1. KEY PAIR GENERATION AND INSTALLATION

Generation of the CA's key pairs is processed in conformity with the requirements and algorithms defined in this policy.

Generation of cryptographic keys of the CAs is performed by a Working Group including members so authorized in a ceremony planned and audited in accordance with written procedures on the operations to be executed. All key generation ceremonies are recorded, dated, and signed by the members of the Working Group.

The cryptographic hardware used for generating the keys of the CAs complies with the requirements of FIPS 140-2 level 3, and/or Common Criteria EAL 4+, and carries out key maintenance, retrieval, and all operations involving cryptographic keys by exclusively using the hardware. Access to critical keys is protected by security policies, role division between the Working Groups, as well as through restricted access rules for users. The backup copies of cryptographic keys are only made using hardware enabling these copies to be duly audited and facilitating total, secure key recovery in the event of loss of data.

Private keys for natural persons' certificates and legal persons' certificates are generated by the CAs by using a cryptographic hardware that meets the requirements set forth in FIPS 140-1 level 3, and/or Common Criteria EAL 4+.

The CAs will work in online mode.

8.1.2. PRIVATE KEY DELIVERY TO THE TITLEHOLDER

Delivery of the private key associated with the natural persons' certificates and legal persons' certificates will be executed in an SSCD (Secure Signature-Creation Device) cryptographic device.

8.1.3. PUBLIC KEY DELIVERY TO CERTIFICATE ISSUER

The public key is delivered to the applicants in accordance with the procedures defined in section 6.4.1.

8.1.4. DELIVERY OF THE CA's PUBLIC KEY TO THE RELYING PARTIES

The public key of the CE will be made available through the certificate of the CA, as per section 4.2.2.

8.1.5. KEY SIZES

The key pairs must be long enough so as to prevent possible cryptanalysis attacks that may unveil the private key corresponding to the key pair in its lifecycle. Key sizes are the following:

- 4096 RSA bits for the key of the CAs;
- 2048 RSA bits for the keys associated to the remaining certificates issued by the CAs with sha256RSA signature algorithm.

8.1.6. GENERATION OF PUBLIC KEY PARAMETERS AND QUALITY CHECKING

Generation of public key parameters and quality checking shall always be based on the standard that defines the algorithm.

The CA's keys should be generated based on the use of random or pseudo-random processes described in ANSI X9.17 (Annex C), as stipulated in the standard PKCS#11.

8.1.7. KEY USAGE PURPOSES (X.509 V3 "KEY USAGE" FIELD)

As described in section 9.1.

8.2. PRIVATE KEY PROTECTION AND CRYPTOGRAPHIC MODULE CHARACTERISTICS

This section considers the requirements for private key protection and the cryptographic modules of the CAs. The PKI of SISP has implemented a combination of duly documented physical and logical controls and procedures meant to ensure the secrecy and integrity of the private keys of the CAs.

8.2.1. CRYPTOGRAPHIC MODULE STANDARDS AND CONTROLS

In order to generate the key pairs of the CAs, as well as for private key storage, the PKI of SISP uses a cryptographic module in hardware that meets the following standards:

- Physical Security
  - Common Criteria EAL 4+ and/or
  - FIPS 140-2, level 3
- Authentication
  - Two-factor authentication.

8.2.2. PRIVATE KEY (N out of M) MULTI-PERSON CONTROL

Multi-person control is only used for CA's keys whereas the private key of the certificates is under the exclusive control of its titleholder.

The PKI of SISP has implemented a series of mechanisms and techniques that require the participation of various members of the Working Groups to perform sensitive cryptographic operations in the CA.

All operations are executed with a minimum of two persons in trusted roles positions of the entity, with distinct duties.

In practice, at least two persons (N=2) among the entire workforce of the entity (M=staff) are used in the different duties.

The private keys of the PKI of SISP are held by more than one member. They are activated by starting the CA's software through a combination of HSM operators and administrators. This is the only method of activating the private key.

8.2.3. PRIVATE KEY RETENTION (KEY ESCROW)

SISP only retains its private key.

8.2.3.1. KEY RECOVERY POLICIES AND PRACTICES

The private keys of the CAs are stored in an HSM and a backup copy is made by using a direct connection from hardware to hardware with the two-factor authentication, executed by representatives of different Working Groups.

The backup hardware, along with the backup copy of the private key of SISPCA01, is placed in a secure vault in safe secondary facilities, accessible only to authorized members of the Working Groups.

The backup copy of the private key of the CA may be recovered in case of malfunction of the original key. The key recovery ceremony uses the same two-factor authentication mechanisms with multiple persons who participated in the backup copy ceremony.

8.2.3.2. POLICIES AND PRACTICES FOR ENCAPSULATION AND RECOVERY OF SESSION KEYS

No stipulations.

8.2.4. PRIVATE KEY BACKUP

The private key of the CAs has at least one backup with the same security level as the original key.

All keys that have been subject to backups are archived for a minimum of 20 years following the end of their validity period.

8.2.5. PRIVATE KEY ARCHIVAL

The private keys of the CAs, subject to backups, are archived as referred to in section 8.2.3.

8.2.6. PRIVATE KEY TRANSFER INTO OR FROM A CRYPTOGRAPHIC MODULE

The private keys of the CAs are not retrievable from the cryptographic token FIPS 140-2 level 3.

If a backup of the private keys of the CAs is copied into another cryptographic token, then such copy is directly made, from hardware to hardware, so ensuring transport of the keys between modules in an encrypted transmission.

8.2.7. PRIVATE KEY STORAGE ON CRYPTOGRAPHIC MODULE

The private keys of the CAs are stored in a ciphered form in the cryptographic hardware modules.

8.2.8. ACTIVATING PRIVATE KEYS

SISPCA01 is an online Certification Authority whose private key is activated when the system/application of the CA is connected. This activation becomes effective when authentication has been carried out by the HSM administrators in the cryptographic module, being compulsory the use of two-factor authentication. In order to activate the private key, at least two individuals are required to be authenticated. Once the key is activated, it will remain so until the deactivation process is executed.

8.2.9. DEACTIVATING PRIVATE KEYS

The private key of the CAs is deactivated when the CA system is disconnected. Once deactivated, it will remain inactive until the activation process is executed.

8.2.10. DESTROYING PRIVATE KEYS

The private keys of the CAs (including the backup copies) shall be deleted/destroyed through a duly identified and audited procedure within a minimum of 30 days following its validity term (or otherwise if revoked before that period).

The PKI of SISP shall destroy the private keys and guarantee that there are no residues that can enable their reconstruction. To that end, it makes use of the formatting function (boot value zero) made available by the cryptographic hardware or other appropriate means, so as to ensure total destruction of the CA's private keys.

8.2.11. CRYPTOGRAPHIC MODULE ASSESSMENT / LEVEL

Described in section 8.2.1.

8.3. OTHER ASPECTS OF KEY PAIR MANAGEMENT

8.3.1. PUBLIC KEY ARCHIVAL

A backup copy of all public keys of the CAs is executed by the members of the Working Group and remains in storage after the expiration of the corresponding certificates for verification of the signatures generated during their validity period.

8.3.2. CERTIFICATE AND KEY PAIR VALIDITY PERIODS

The usage period of keys is determined by the certificate validity period and, therefore, after expiration of the certificate the keys cannot be used, giving way to permanent cessation of their operability and usage.

Given the above, the validity of the various types of certificates and the period in which they must be renewed is as follows:

- The certificate of the Issuing CAs of SISP shall be valid for 6 years and be used to sign certificates during its first 3 years and reissued prior to reaching 3 years of validity;
- The OCSP (Online Certificate Status Protocol) certificates are valid for 5 years and 4 months. They are used during their initial four years and reissued following the fourth year of validity.
- The certificate of a natural person enjoys a two-year validity period;
- The certificate of a legal person enjoys a two-year validity period.

8.4. ACTIVATION DATA

8.4.1. ACTIVATION DATA GENERATION AND INSTALLATION

Activation data needed to use the private key of SISPCA01 are divided into various parts (saved in PED keys – small digital identification tokens in a smartcard format – distinguishing the different roles in accessing the HSM), and remain under the responsibility of different members of the Working Group. The different parts are generated in accordance with the rules defined in the key generation process/ceremony and obey to the requirements specified in the standard FIPS 140-2 level 3.

8.4.2. ACTIVATION DATA PROTECTION

Activation data (in separate parts and/or password) are memorized and/or saved in tokens that highlight violation attempts and/or are stored in envelopes and kept in secure vaults.

The private keys of the CAs are kept, in a ciphered form, in cryptographic tokens.

8.4.3. OTHER ASPECTS OF ACTIVATION DATA

If it becomes necessary to transmit the activation data of private keys, this transmission will be protected against information losses, theft, data alteration, and unauthorized disclosure.

Activation data are destroyed (by means of formatting and/or physical destruction) when the related private key is destroyed.

8.5. COMPUTER SECURITY CONTROLS

8.5.1. SPECIFIC TECHNICAL REQUIREMENTS

Access to the servers of the CAs is restricted to the members of the Working Groups who present a valid reason for that access. The CAs function online, being the certificate issuance requests made from the RA operation module. The CAs and the RA Management have protection devices, namely firewall systems, which comply with the requirements for identification, authentication, access controls, administration, audits, reusage, responsibility, and recovery of services and information exchange.

8.5.2. ASSESSMENT/COMPUTER SECURITY RATING

The various systems and products used by the CAs are reliable and protected against modifications. The cryptographic module on Hardware of the Issuing CAs conforms with the standard EAL 4+ Common Criteria for Information Technology Security Evaluation and/or FIPS 140-2 level 3.

8.6. LIFECYCLE OF TECHNICAL CONTROLS

8.6.1. SYSTEM DEVELOPMENT CONTROLS

Applications are developed and implemented by third-parties, in light of their regulations regarding system development and change management.

Auditable methodology is made available which enables to verify that the software of the CAs has not been modified before its initial use. The entire configuration and software changes are executed and audited by members of the Working Groups of the PKI of SISP.

8.6.2. SECURITY MANAGEMENT CONTROLS

The PKI of SISP has mechanisms and/or Working Groups that control and monitor the configuration of the CA's systems. Whenever used for the first time, the CA's system is verified to guarantee that the software used is reliable and legal, and has not been modified after being installed.

8.6.3. LIFECYCLE OF SECURITY CONTROLS

The updating and maintenance operations of the CA's systems and products follow the same controls as the original equipment and are installed by members of the Working Group holding adequate knowledge and training in that field and follows the procedures defined for that purpose.

8.7. NETWORK SECURITY CONTROLS

The CAs have protection devices, namely firewall system, and comply with the requirements regarding identification, authentication, access controls, administration, audits, reusage, responsibility, and recovery of services and information exchange.

8.8. TIME-STAMPING

Certificates, CRLs, and other database entries shall always contain time and date information. All these entries are digitally signed by a certificate issued to that end.

9. CERTIFICATE, CRL, AND OCSP PROFILES

9.1. CERTIFICATE PROFILE

The users of a public key must trust that the associated private key is held by the right remote titleholder (person or system) with whom they will use encipherment mechanisms or digital signature. Trust is obtained through the use of X.509 v.3 digital certificates, which are a data structure that establishes connection between the public key and its holder. This connection is asserted through the digital signature of each certificate by a trusted CA. The CA may base this assertion upon technical means (for instance, proof of possession of private key by means of a challenge-solution protocol), presentation of the private key, or the registration made by the titleholder.

A certificate has a limited validity period, which is indicated in its contents and signed by the CA. Considering that the signature on the certificate and its validity may be separately verified by any software that uses certificates, the latter may be distributed throughout communication lines and public systems, and also be kept in any type of storage unit.

The user of a security service requiring knowledge of the public key of the user normally has to obtain and validate the certificate containing that key. If the service does not have a reliable copy of the public key belonging to the CA that signed the certificate, as well as the name of the CA and related information (such as the validity period), then it may need an additional certificate in order to obtain the public key of the CA and validate the user's public key. As a rule, validation of a user's public key may require a chain of multiple certificates, including the user's public key certificate signed by a CE and zero or more additional certificates of CAs signed by other CAs.

The profile of the certificates issued by Issuing CAs is in conformity with the:

- Recommendation ITU.T X.509;
- RFC 5280;
- National applicable laws and regulations
- Baseline Requirements from CABForum

Certificates profiles can be found in the CP associated with this CPS.

9.2. PROFILE OF THE CERTIFICATE REVOCATION LIST (CRL)

When a certificate is issued, it is expected to be used during its entire validity period. However, various circumstances may lead a certificate to become invalid before its validity period expires. Such circumstances include name change, change of association between the holder and certificate data (e.g. an employee who leaves the company), compromise or suspected compromise of the corresponding private key. Under those circumstances, the CA has to revoke the certificate.

The protocol X.509 defines a certificate revocation method involving the periodical issuance, by the CA, of a signed data structure which is called Certificate Revocation List (CRL). The CRL is a list including the temporary identification of revoked certificates, signed by the CE and freely made available in a public repository. Each revoked certificate is identified in the CRL by its series number. When an application makes use of a certificate (for example, to verify the digital signature of a remote user), the application verifies the certificate's signature and validity and simultaneously obtains the most recent CRL to check if the series number of the certificate is not contained therein. It should be noted that every CA shall issue a new CRL on a regular and periodic basis.

The CRL profile is in accordance with the:

- Recommendation ITU.T X.509;
- RFC 5280; and
- National applicable legislation.

9.3. PROFILE OF THE OCSP CERTIFICATE

The OCSP profile is in accordance with the:

- Recommendation ITU.T X.509;
- RFC 5280; and
- National applicable legislation.

10. POLICY MANAGEMENT

10.1. SPECIFICATION CHANGE PROCEDURES

10.1.1. PROCEDURES FOR AMENDING THE CPS

10.1.1.1. LIST OF CHANGES

Any changes to be introduced to the CPS of SISPCA01 will result in a change proposal document.

10.1.1.2. NOTIFICATION MECHANISMS

Changes in the policies will be made available in a repository and forwarded to the Registration Entities.

10.1.1.3. PARTICIPANTS' CONTRIBUTIONS

The relying parties of the services provided by the PKI of SISP (subscribers, registration, validity, and time-stamping entities, or even certification entities with which mutual trust-based relations have been established) may provide insights and comments, and issue opinions to SISP or the Registration Entities via e-mail pki@sisp.cv.

10.1.1.4. MECHANISMS TO HANDLE CONTRIBUTIONS

Once gathered, a formal change proposal including the inputs collected will be submitted to the Management Working Group of the PKI of SISP. The Management Working Group shall be bound to request the opinion of the Accreditation Authority on the impact of those changes upon the accreditation of SISPCA01.

Once in possession of all that information, the Management Group and the Security Working Group shall discuss and deliberate on the proposed changes to the CPS and notify all interested parties on the decisions taken. The subscribers will then be entitled to a maximum period of 30 days to request termination of the agreement with SISPCA01, without which the new provisions shall be deemed to have been accepted.

10.1.1.5. PERIOD IN WHICH CHANGES ENTER INTO FORCE

Following conclusion of this process, the approved changes will be implemented after validation of all related controls. In addition, procedures will be adopted in order to ensure that all changes to the CPs and the CPS are tracked and strict version control tools are adopted.

10.2. PUBLICATION AND DISCLOSURE POLICIES

10.2.1. REQUEST FOR PUBLICATION AND NOTIFICATION

All items contained the CPs and CPS of SISPCA01 shall be subject to publication and notification.

Any material to be published or notified will be so made through SISP website https://pki.sisp.cv/index.html, unless such publication or notification has major impact on SISP and titleholders/relying parties.

SISPCA01 must digitally sign each publication or notification before it is placed in the respective repository.

SISP will make available, publish, or notify titleholders on matters concerning:

- Adequate protection forms of private keys;
- Risks associated to the use of any certificate issued by the PKI of SISP, whose technology has been discontinued;
- Security rules and practices for the use of the services made available.

10.2.2. PUBLICATION OF CPS UPDATES

The duly updated CPS document remains permanently available on the URL https://pki.sisp.cv/.

10.2.3. CPS APPROVAL PROCEDURES

Validation of this CPS (and/or respective CPs) and any corrections (or updates) thereof must be carried out by the Security Working Group. Any corrections (or updates) must be published by way of new versions of this CPS (and/or respective CPs), thus replacing any previously defined CPS (and/or respective CPs). The Security Working Group shall also determine the time when changes to the CPS (and/or respective CPs) will lead to a change in the object identifiers (OID) of the CPS (and/or respective CPs).

After the validation phase, CPS (and/or respective CPs) will be submitted to the Management Group, which is the entity responsible for the approval and authorization of any changes introduced in this type of document.

11.OTHER BUSINESS AND LEGAL MATTERS

This section regulates business aspects and legal matters.

11.1. FEES

11.1.1. CERTIFICATE ISSUANCE OR RENEWAL FEES

To be defined in a formal proposal to be made by SISP.

11.1.2. CERTIFICATE ACCESS FEES

No stipulation.

11.1.3. CERTIFICATE REVOCATION OR STATUS INFORMATION ACCESS FEES

Access to information on certificate status or revocation (CRL) is free of charge.

11.1.4. FEES FOR OTHER SERVICES

The fees for time-stamping and online validation (OCSP) services will be identified in a formal proposal to be made by SISP.

11.1.5. REFUND POLICY

No stipulation.

11.2. FINANCIAL RESPONSIBILITY

11.2.1. INSURANCE COVERAGE

SISP maintains a civil liability insurance in accordance with article 45 of the Decree-Law no. 33/2007, dated September 24.

11.2.2. OTHER ASSETS

No stipulation.

11.2.3. INSURANCE OR WARRANTY COVERAGE FOR TITLE HOLDERS AND RELYING PARTIES

SISP maintains a civil liability insurance in accordance with article 45 of the Decree-Law no. 33/2007, dated September 24.

11.3. CONFIDENTIALITY OF BUSINESS INFORMATION

11.3.1. SCOPE OF CONFIDENTIAL INFORMATION

It is herein expressly declared as confidential any information that cannot be disclosed to third-parties without explicit authorization. This information is taken into custody and only duly authorized Working Groups may be allowed access to it.

11.3.2. INFORMATION BEYOND THE SCOPE OF CONFIDENTIALITY

The following information may be disclosed to the public:

- Certificate Policy;

- Certification Practices Statement;
- CRL, and

Any information categorized as “public” (information not expressly considered as “public” is deemed to be confidential).

SISP permits access to non-confidential information without prejudice of any security controls required to protect the authenticity and integrity of such information.

11.3.3. RESPONSIBILITY TO PROTECT CONFIDENTIAL INFORMATION

The members of the Working Groups or other entities who receive confidential information shall be responsible for ensuring that it is not copied, reproduced, stored, translated or disclosed to third-parties by any means whatsoever, before obtaining SISP’s written consent.

The coordination of this responsibility is undertaken by the CISO (Chief Information Security Officer). In case of breach of trust, the CISO should be contacted by e-mail ciso@sisp.cv.

11.4. PRIVACY OF PERSONAL INFORMATION

11.4.1. PRIVACY SAFEGUARD MEASURES

SISP is responsible for the implementation of measures guaranteeing the privacy of personal information pursuant to the Cabo-Verdean legislation.

11.4.2. INFORMATION TREATED AS PRIVATE

Any information provided by the holder, on which the latter indicates a processing option shall be deemed private.

11.4.3. INFORMATION NOT DEEMED PRIVATE

Any information provided by the certificate holder that is available through the content of the holder’s digital certificate shall not be treated as private.

11.4.4. RESPONSIBILITY TO PROTECT PRIVATE INFORMATION

In accordance with the Cabo-Verdean legislation.

11.4.5. NOTICE AND CONSENT TO USE PRIVATE INFORMATION

In accordance with the Cabo-Verdean legislation.

11.4.6. DISCLOSURE PURSUANT TO JUDICIAL OR ADMINISTRATIVE PROCESS

No stipulation.

11.4.7. OTHER INFORMATION DISCLOSURE CIRCUMSTANCES

No stipulation.

11.5. INTELLECTUAL PROPERTY RIGHTS

All intellectual property rights, including those related with certificates, CRL, OID, CPS, and CP, as well as any other document belonging to the PKI of SISP, are property of SISP, S.A.

Private keys and public keys are the titleholder's property, regardless of the physical means used for their storage.

The titleholder retains all intellectual property rights on the trademarks, products, or commercial name contained in the certificate.

11.6. DISCLAIMERS OF WARRANTIES

The PKI of SISP disclaims all warrantees on services that are not included in the liabilities established in this CPS.

11.7. LIMITATIONS OF LIABILITY

SISPCA01:

- Shall be responsible for any losses and damages that it may cause to any person while performing its business activities, as provided for in Article 62 of the Decree-Law no. 33/2007, of September 24;
- Shall be liable for any damages that it may cause to the titleholders or third-parties due to failure or delay in including certificate revocation or suspension in the consulting service on certificate validity whenever it is aware of such failure or delay;
- Shall undertake total responsibility towards third-parties for the performance of the holders of the positions required for the provision of certification services;
- The responsibility of the administration/management of SISPCA01 rests upon an objective basis and covers every risk that private parties are likely to suffer as a consequence of the normal or abnormal operation of its services;
- Shall only be responsible for losses and damages caused by the improper use of a recognized certificate whenever the certificate does not state, in a clear way duly acknowledged by third-parties, the limit as to its possible use;
- Shall not be liable when the titleholder overcomes the limits imposed in the certificate as to its possible uses, in accordance with the conditions established and notified to the titleholder;
- Shall not assume any responsibility in case of loss or damage:

- Arising from the services provided, in case of war, natural disasters, or any other force majeure cases;
- Caused by certificate use when the limits established in the Certificate Policy and corresponding CPS are exceeded;
- Caused by improper or fraudulent use of the certificates or CRLs issued by SISPCA01.

11.8. INDEMNITIES

In conformity with the laws in force.

11.9. TERM AND TERMINATION

11.9.1. TERM

The documents related with the PKI of SISP (including this CPS) become effective upon being approved by the Management Working Group and are only amended or cancelled by order of that working group.

This CPS enters into force upon its publication in the repository of the PKI of SISP.

This CPS shall remain into force until it is expressly revoked by being replaced by a new version or through the renewal of SISPCA01 keys, in which case a new version will be compulsorily drafted.

11.9.2. CPS REPLACEMENT AND REVOCATION

The Management Working Group may decide in favor of the elimination or amendment of a document related with the PKI of SISP (including this CPS) whenever:

- Its contents are considered incomplete, inaccurate or wrong;
- Its contents have been compromised.

In that case, the eliminated document shall be replaced by a new version.

This CPS shall be replaced by a new version with autonomy of transcendence of the changes herein made and, therefore, it is to be implemented at all times as a whole.

Once the CPS is revoked, it shall be withdrawn from the repository, being however retained for a period of 20 years.

11.10. INDIVIDUAL NOTICES AND COMMUNICATIONS TO PARTICIPANTS

All participants must use reasonable methods to communicate with each other. These methods may include digitally signed electronic mail, facsimile, signed forms or other, depending on the communication criticality and subject.

11.11. AMENDMENTS

11.11.1. PROCEDURES FOR AMENDMENT

For the purposes of amending this document or any certificate policies, a formal request must be submitted to the Security Working Group, including (at least):

- The identification of the person who submitted the amendment request;
- The reasons underlying the request;
- The changes requested.

The Security Working Group will review the request and, if it is found relevant, it will proceed to the introduction of the required changes, which will result in a new draft version. The new draft version is then made available to all members of the Working Group and the parties affected (if any), to enable its scrutiny. Commencing from the date on which the document became available, the parties involved will submit their comments within a period of 15 working days. Once that period has expired, the Security Working Group will be entitled to an additional 15 working days to assess all comments received and, if relevant, incorporate them in the document. Thereafter, the document is approved and made available to the Management Working Group for validation, approval, and publication. At this stage, the amendments made become final and effective.

11.11.2. NOTIFICATION MECHANISM AND PERIOD

Should the Management Working Group consider that the amendments to the specification may affect the acceptability of the certificates for specific purposes, the users of the corresponding certificates will be notified of the changes and advised to view the new CPS in the defined repository.

11.11.3. CIRCUMSTANCES UNDER WHICH OID MUST BE CHANGED

The Security Working Group must determine if the changes to the CPS require changes in the OID of the Certificate Policy or the URL indicated for the CPS.

In such situations where, in the view of the Security Working Group, the changes in the CPS do not affect the acceptability of the certificates, an increase in the lower version number of the document and the last Object Identifier (OID) number that represents it will take place, keeping the highest version number of the document, as well as the rest of its associated OID. It is not deemed necessary to notify this type of amendments to certificate users.

In case the Security Working Group considers that the changes to the specification may affect the acceptability of the certificates for specific purposes, the highest version number of the document shall be increased, and its lower number shall be placed at zero. The two last numbers of the Object Identifier (OID) that represent it will also be modified. This type of modifications will be notified to the certificate users according to the provisions of paragraph 11.11.2.

11.12. DISPUTE RESOLUTION PROVISIONS

All disputes between users and the PKI of SISP must be reported by the aggrieved party to the Accreditation Authority in an attempt to settle the dispute between the parties involved.

For the resolution of any dispute that may arise in relation to this CPS, the parties, expressly waiving any other jurisdiction that may apply to them, submit to the jurisdiction of Administrative Litigation.

11.13. GOVERNING LAWS

The following specific laws govern the activity of the certifying entities or certification authorities:

a) Decree-Law no. 33/2007, of September 24;
b) Decree-Law no. 44/2009, of November 9;
c) Ordinance no. 2/2008, of January 28;
d) Joint Ordinance no. 4/2008, of February 2008;
e) Regulatory Decree no. 18/2007, of December 24.

11.14. COMPLIANCE WITH APPLICABLE LAWS

This CPS is subject to all applicable national laws, rules, regulations, ordinances, decrees, and orders, including but not limited to, restrictions on the export or import of software, hardware, or technical information.

The Accreditation Authority is bound to ensure compliance with the applicable legislation listed in section 11.13.

11.15. MISCELLANEOUS PROVISIONS

11.15.1. FULL AGREEMENT

All relying parties assume, in its entirety, the contents of the latest version of this CPS.

11.15.2. ASSIGNMENT

In case one or more provisions of this document are, or tend to be, invalid, null, or unclaimable, in legal terms, they should be considered as ineffective.

The situation referred to above shall only be valid in cases where such provisions are not deemed essential. It is the responsibility of the Accreditation Authority to assess their importance and relevance.

11.15.3. SEVERABILITY

No stipulation.

11.15.4. ENFORCEMENT (ATTORNEYS' FEES AND WAIVER OF RIGHTS)

No stipulation.

11.15.5. FORCE MAJEURE

No stipulation.

11.16. OTHER PROVISIONS

No stipulation.

BIBLIOGRAPHICAL REFERENCES

1) ARME, Certification Practices Statement of the Root CE of Cabo Verde;
2) ARME, Certificate Policies of the ICP-CV and Minimum-Security Requirements;
3) Ordinance no. 2/2008, of January 28;
4) Decree-Law no. 44/2009, of November 9;
5) Regulatory Decree no. 18/2007, of December 24;
6) Decree-Law no. 33/2007, of September 24;
7) Joint Ordinance no. 4/2008, of February 2008;
8) FIPS 140-2. 1994, Security Requirements for Cryptographic Modules;
9) ISO/IEC 3166. 1997, Codes for the representation of names and countries and their subdivisions;
10) ITU-T Recommendation X.509. 1997 (1997 E): Information Technology – Open Systems Interconnection – The Directory: Authentication Framework;
11) NIST FIPS PUB 180-1. 1995. The Secure Hash Algorithm (SHA-1). National Institute of Standards and Technology. "Secure Hash Standard", U.S. Department of Commerce;
12) RFC 1421. 1993. Privacy Enhancement for Internet Electronic Mail: Part I: Message Encryption and Authentication Procedures;
13) RFC 1422. 1993, Privacy Enhancement for Internet Electronic Mail: Part II: Certificate-Based Key Management;
14) RFC 1423. 1993, Privacy Enhancement for Internet Electronic Mail: Part III: Algorithms, Modes, and Identifiers;
15) RFC 1424. 1993, Privacy Enhancement for Internet Electronic Mail: Part IV: Key Certification and Related Services;
16) RFC 2252. 1997. Lightweight Directory Access Protocol (v3);
17) RFC 2560. 1999. X.509 Internet Public Key Infrastructure Online Certificate Status Protocol – OCSP;
18) RFC 2986. 2000, PKCS #10: Certification Request Syntax Specification, version 1.7;
19) RFC 3161. 2001, Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP);
20) RFC 3279. 2002, Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile;
21) RFC 5280. 2008, Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile;
22) RFC 3647. 2003, Internet X. 509 Public Key Infrastructure Certificate Policy and Certification Practice Framework;
23) RFC 4210. 2005, Internet X. 509 Public Key Infrastructure Certificate Management Protocol (CMP).
24) CABForum Baseline Requirements
25) CABForum-EV-Guidelines –v1.7.0