
CrossCert Certification Practice Statement



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CrossCert Certification Practice Statement

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1. Introduction

This document is the CrossCert Certification Practice Statement (“CPS”) and is based upon the VeriSign Certificate Practices Statement (see <https://www.verisign.com/cps>).¹ It states the practices that CrossCert certification authorities (“CAs”) employ in providing certification services that include, but are not limited to, issuing, managing, revoking, and renewing certificates in accordance with the specific requirements of the VeriSign Trust Network Certificate Policies (“CP”). VeriSign, Inc.

Please Note: The capitalized terms in this CPS are defined terms with specific meanings. Please see Section 9 for a list of definitions.

(“VeriSign”) is the leading provider of trusted infrastructure services to web sites, enterprises, electronic commerce service providers, and individuals. The company’s domain name, digital certificate, and payment services provide the critical web identity, authentication, and transaction infrastructure that online businesses require to conduct secure e-commerce and communications.

The CP provides describes the VeriSign Trust NetworkSM (“VTN”), which is a global public key infrastructure (“PKI”) that provides digital certificates (“Certificates”) for both wired and wireless applications. The VTN accommodates a large, public, and widely distributed community of users with diverse needs for communications and information security. VeriSign is one of the service providers within the VTN, together with CrossCert and a global network of affiliates (“Affiliates”) throughout the world.

The CP is the principal statement of policy governing the VTN. It establishes the business, legal, and technical requirements for approving, issuing, managing, using, revoking, and renewing, digital Certificates within the VTN and providing associated trust services. These requirements, called the “VTN Standards,” protect the security and integrity of the VTN, apply to all VTN Participants, and thereby provide assurances of uniform trust throughout the VTN. More information concerning the VTN and VTN Standards is available in the CP.²

VeriSign and each Affiliate has authority over a portion of the VTN. The portion of the VTN controlled by VeriSign or a CrossCert is called its “Subdomain” of the VTN. An Affiliate’s Subdomain consists of the portion of the VTN under its control. A CrossCert’s Subdomain includes entities subordinate to it such as its Customers, Subscribers, and Relying Parties.

CrossCert, VeriSign and each of the Affiliates have a CPS that governs its Subdomain within the VTN. While the CP sets forth requirements that VTN Participants must meet, this CPS describes how CrossCert meets these requirements within CrossCert’s Subdomain of the VTN, which is primarily located in South Korea. More specifically, this CPS describes the practices that CrossCert employs for:

¹ Internal cross references to CPS sections (*i.e.*, in the form of “CPS §”) are references to sections of this document. Other references to the term “CPS” refer to a certification practice statement, which may include this document or the CPSs of others, such as VTN Affiliates. *See* CPS § 9 (Definitions).

² The CP is published in electronic form within the VeriSign Repository at <https://www.verisign.com/CP>. The CP is available in paper form from the VeriSign Trust Network Policy Management Authority (“PMA”) upon requests sent to: VeriSign, Inc., 487 East Middlefield Road, Mountain View, CA 94043 USA, Attn: Practices Development – CP.

- securely managing the core infrastructure that supports the VTN, and
- issuing, managing, revoking, and renewing VTN Certificates

within CrossCert's Subdomain of the VTN, in accordance with the requirements of the CP and its VTN Standards.³

1.1 Overview

This CPS is specifically applicable to:

- VeriSign's Public Primary Certification Authorities (PCAs), CrossCert Infrastructure CAs, and CrossCert Administrative CAs supporting the VeriSign Trust Network
- CrossCert's Public CAs and the CAs of Managed PKI⁴ Customers, which issue Certificates within the VTN.

More generally, the CPS also governs the use of VTN services within CrossCert's Subdomain of the VTN by all individuals and entities within CrossCert's Subdomain (collectively, CrossCert Subdomain Participants"). Private CAs and hierarchies managed by CrossCert are outside the scope of this CPS.

The VTN includes three classes of Certificates, Classes 1-3, and the CP describes how these three Classes correspond to three classes of applications with common security requirements. The CP is a single document that defines three certificate policies, one for each of the Classes, and sets VTN Standards for each Class.

CrossCert offers each of the three Classes of Certificates within its Subdomain of the VTN. This CPS describes how CrossCert meets the CP requirements for each Class within its Subdomain. Thus, the CPS, as a single document, covers practices and procedures concerning the issuance and management of all three Certificate Classes.

(a) Role of the CrossCert CPS and Other Practices Documents

The CP describes at a general level the overall business, legal, and technical infrastructure of the VTN. This CPS then applies VTN Standards from the CP to CrossCert Subdomain Participants, and explains specific practices of CrossCert in response to the CP. More specifically, the CPS describes, among other things:

- Obligations of Certification Authorities, Registration Authorities, Subscribers, and Relying Parties within CrossCert's Subdomain of the VTN,
- Legal matters that are covered in Subscriber Agreements and Relying Party Agreements within CrossCert's Subdomain,
- Audit and related security and practices reviews that CrossCert and CrossCert Subdomain Participants undertake,

³ Although VeriSign CAs certify the CAs of Affiliates, the practices relating to an Affiliate are covered in the Affiliate's CPS, rather than this CPS.

⁴The Managed PKI Service was formerly known as OnSite. All references to OnSite in this CPS have been changed to Managed PKI. Server OnSite has been changed to Managed PKI for SSL and Global Server OnSite has been changed to Managed PKI for SSL Premium Edition. Customers may still see references to OnSite in other Managed PKI documentation or URLs. The OnSite Service itself has not changed other than the name.

- Methods used within CrossCert’s Subdomain to confirm the identity of Certificate Applicants for each Class of Certificate,
- Operational procedures for Certificate lifecycle services undertaken in CrossCert’s Subdomain: Certificate Applications, issuance, acceptance, revocation, and renewal,
- Operational security procedures for audit logging, records retention, and disaster recovery used within CrossCert’s Subdomain,
- Physical, personnel, key management, and logical security practices of CrossCert Subdomain Participants,
- Certificate and Certificate Revocation List content within CrossCert’s Subdomain, and
- Administration of the CPS, including methods of amending it.

The CPS, however, is only one of a set of documents relevant to CrossCert’s Subdomain of the VTN. These other documents include:

- Ancillary security and operational documents that supplement the CP and CPS by providing more detailed requirements, such as:
 - The VeriSign Security Policy, which sets forth security principles governing the VTN infrastructure,
 - The Security and Audit Requirements Guide, which describes detailed requirements for CrossCert concerning personnel, physical, telecommunications, logical, and cryptographic key management security,
 - The Enterprise Security Guide, which describes detailed requirements for Managed PKI Customers concerning personnel, physical, telecommunications, logical, and cryptographic key management security, and
 - Key Ceremony Reference Guide, which presents detailed key management operational requirements.
- Ancillary agreements imposed by CrossCert. These agreements would bind Customers, Subscribers, and Relying Parties of CrossCert. Among other things, the agreements flow down VTN Standards to these VTN Participants and, in some cases, state specific practices for how they must meet VTN Standards.

In many instances, the CPS refers to these ancillary documents for specific, detailed practices implementing VTN Standards where including the specifics in the CPS could compromise the security of CrossCert’s Subdomain of the VTN.

Table 1 is a matrix showing various VTN and CrossCert practices documents, whether they are publicly available, and their locations. The list in Table 1 is not intended to be exhaustive. Note that documents not expressly made public are confidential to preserve the security of the VTN.

<i>Documents</i>	<i>Status</i>	<i>Where Available to the Public</i>
VeriSign Trust Network Certificate Policies	Public	CrossCert Repository per CP § 8.2.2. See https://www.crosscert.com/repository
<i>VTN Ancillary Security and Operational Documents</i>		
CrossCert Security Policy	Confidential	N/A
Security and Audit Requirements Guide	Confidential	N/A

<i>Documents</i>	<i>Status</i>	<i>Where Available to the Public</i>
Key Ceremony Reference Guide	Confidential	N/A
Managed PKI Administrator's Handbook	Public	https://www.crosscert.com/enterprise/library/index.html
Managed PKI Key Management Service Administrator's Guide	Public	https://www.crosscert.com/enterprise/library/index.html
Enterprise Security Guide	Confidential	N/A
<i>VeriSign-Specific Documents</i>		
CrossCert Certification Practice Statement	Public	CrossCert Repository per CPS § 2.6.1. See https://www.crosscert.com/Repository
CrossCert's ancillary agreements (Managed PKI Agreements, Subscriber Agreements, and Relying Party Agreements)	Public, including Managed PKI Lite agreements, but not Managed PKI agreements, which are confidential	CrossCert Repository per CPS § 2.6.1. See https://www.crosscert.com/Repository

Table 1 – Availability of Practices Documents

(b) Background Concerning Digital Certificates and the VTN Hierarchy

This CPS assumes that the reader is generally familiar with Digital Signatures, PKIs, and the VTN. If not, CrossCert advises that the reader obtain some training in the use of public key cryptography and public key infrastructure as implemented in the VTN. General educational and training information is accessible from CrossCert at <http://www.crosscert.com>. Also, a brief summary of the roles of the different VTN Participants is set forth in Section 1.1(b) of the CP.

(c) Compliance with Applicable Standards

The practices specified in this CPS have been designed to meet or exceed the requirements of generally accepted and developing industry standards including the AICPA/CICA WebTrust Program for Certification Authorities, ANS X9.79:2001 PKI Practices and Policy Framework, and other industry standards related to the operation of CAs.

The structure of this CPS generally corresponds to the *Internet X.509 Public Key Infrastructure Certificate Policy and Certification Practices Framework*, known as RFC 2527 of the Internet Engineering Task Force, an Internet standards body. The RFC 2527 framework has become a standard in the PKI industry. This CPS conforms to the RFC 2527 framework in order to make policy mapping and comparisons, assessment, and interoperation easier for persons using or considering using VeriSign services.

CrossCert has conformed the CPS to the RFC 2527 structure where possible, although slight variances in title and detail are necessary because of the complexity of CrossCert business models. While CrossCert intends to continue the policy of adhering to RFC 2527 in the future, CrossCert reserves the right to vary from the RFC 2527 structure as needed, for example to enhance the quality of the CPS or its suitability to CrossCert Subdomain Participants. Moreover, the CPS structure may not correspond to future versions of RFC 2527.

1.1.1 Policy Overview

CrossCert offers three distinct classes of certification services, Classes 1-3, for both the wired and wireless Internet and other networks, corresponding to the three Classes of Certificates whose policies are described in the CP. Each level, or class, of Certificate provides specific functionality and security features and corresponds to a specific level of trust. CrossCert Subdomain Participants choose which Classes of Certificates they need.

One of the functions of the CP is to describe the three Certificate Classes in detail.⁵ Nonetheless, this section summarizes the Certificate Classes offered by CrossCert within its Subdomain.

Class 1 Certificates offer the lowest level of assurances within CrossCert's Subdomain. They are individual Certificates, whose validation procedures are based on assurances that the Subscriber's distinguished name is unique and unambiguous within the CA's Subdomain and that a certain e-mail address is associated with a public key. They are appropriate for digital signatures, encryption, and access control for non-commercial or low-value transactions where proof of identity is unnecessary.

Class 2 Certificates offer a medium level of assurances in comparison with the other two Classes. Again, they are individual Certificates. In addition to the Class 1 validation procedures, Class 2 validation procedures add procedures based on a comparison of information submitted by the Certificate applicant against information in business records or databases or the database of a CrossCert-approved identity proofing service. They can be used for digital signatures, encryption, and access control, including as proof of identity in medium-value transactions.

Class 3 Certificates provide the highest level of assurances within CrossCert's Subdomain. Class 3 Certificates are issued to individuals, organizations, and Administrators for CAs and RAs. Class 3 individual Certificates may be used for digital signatures, encryption, and access control, including as proof of identity, in high-value transactions. Class 3 individual Certificates provide assurances of the identity of the Subscriber based on the personal (physical) presence of the Subscriber before a person that confirms the identity of the Subscriber using, at a minimum, a well-recognized form of government-issued identification and one other identification credential. Other Class 3 organizational Certificates are issued to devices to provide authentication; message, software, and content integrity; and confidentiality encryption. Class 3 organizational Certificates provide assurances of the identity of the Subscriber based on a confirmation that the Subscriber organization does in fact exist, that the organization has authorized the Certificate Application, and that the person submitting the Certificate Application on behalf of the Subscriber was authorized to do so. Class 3 organizational Certificates for servers (Secure Server IDs and Global Server IDs) also provide assurances that the Subscriber is entitled to use the domain name listed in the Certificate Application.

Table 2 below summarizes the Certificate Classes offered by CrossCert in compliance with the CP. It sets forth the properties of each Certificate class, based on whether they are issued to individuals or organizations, and whether they are offered on a Retail or Managed PKI basis, or issued to Administrators.

⁵ See CP § 1.1.1.

The specifications for Classes of Certificates in the CP, as summarized in this CPS, set forth the minimum level of assurances provided for each Class. For example, any Class 1 Certificate may be used for digital signatures, encryption, and access control where proof of identity is not necessary, that is, for applications requiring a low level of assurances. Nonetheless, by contract or within specific environments (such as an intra-company environment), CrossCert Subdomain Participants are permitted to use validation procedures stronger than the ones set forth within the CP, or use Certificates for higher security applications than the ones described in CPS §§ 1.1.1, 1.3.4.1. Any such usage, however, shall be limited to such entities and subject to CPS §§ 2.2.1.2, 2.2.2.2, and these entities shall be solely responsible for any harm or liability caused by such usage.

<i>Class</i>	<i>Issued to</i>	<i>Services Under Which Certificates are Available⁶</i>	<i>Confirmation of Certificate Applicants' Identity (CPS §§ 3.1.8.1, 3.1.9)</i>	<i>Applications implemented or contemplated by Users (CPS § 1.3.4.1)</i>
<i>Class 1</i>	Individuals	Retail	Name and e-mail address search to ensure that the distinguished name is unique and unambiguous within the CA's Subdomain.	Modestly enhancing the security of e-mail through confidentiality encryption, digital signatures, and web-based access control, where proof of identity is unnecessary. Applications requiring a low level of assurances in comparison with the other Classes, such as non-commercial web browsing and e-mail.
<i>Class 2</i>	Individuals	Managed PKI	Same as Class 1 Managed PKI plus checking internal documentation or databases to confirm identity of the Certificate Applicant (e.g., human resources documentation).	Enhancing the security of e-mail through confidentiality encryption, digital signatures for authentication, and web based access control. Applications requiring a medium level of assurances in comparison with the other Classes, such as some individual and intra- and inter-company e-mail, on-line subscriptions, account applications, and password replacement, including as proof of identity for medium-value transactions.

⁶ Retail Certificates are Certificates issued by CrossCert, acting as CA, to individuals or organizations applying one by one to CrossCert on its web site. Managed PKI Certificates are based on a Certificate Application approved by a Managed PKI Customer that enters into a Managed PKI Agreement with CrossCert for the issuance of a certain quantity of Certificates (see CP § 1.1.2.1.1). In addition to Retail and Managed PKI Certificates, VTN Certificates are issued, for Administrators of CAs and RAs, and through the Authentication Service Bureau. For more information about Authentication Service Bureau, see CP § 1.1.2.2.1. Administrator Certificates are issued to CA or RA Administrators to allow them to perform administrative functions on behalf of the CA or RA.

<i>Class</i>	<i>Issued to</i>	<i>Services Under Which Certificates are Available⁶</i>	<i>Confirmation of Certificate Applicants' Identity (CPS §§ 3.1.8.1, 3.1.9)</i>	<i>Applications implemented or contemplated by Users (CPS § 1.3.4.1)</i>
<i>Class 3</i>	Individuals	Administrators	Specialized confirmation procedures depending upon the type of Administrator. The identity of the Administrator and the organization utilizing the Administrator are confirmed. <i>See also</i> CPS § 5.2.3.	Administrator functions.
	Organizations	Retail	Check of third-party database or other documentation showing proof of right to use the organizational name. Validation check by telephone (or comparable procedure) to confirm information in, and authorization of, the Certificate Application. In the case of web server Certificates, confirmation that the Certificate Applicant has the right to use the domain name to be placed in the Certificate.	Server authentication, confidentiality encryption, and (when communicating with other servers) client authentication (Secure Server ID, Global Server ID, and Wireless Transport Layer Security Certificates); authentication, message integrity; and authentication and integrity of software and other content.
		Managed PKI	Validation of Managed PKI for SSL Customer or Managed PKI for SSL Premium Edition Customer as in Class 3 organizational Retail, plus validation of Managed PKI Administrator.	Server authentication, confidentiality encryption, and (when communicating with other properly enabled servers) client authentication (Secure Server ID and Global Server ID).

Table 2 - Certificate Properties Affecting Trust

1.1.2 VeriSign's Offering of VTN Services

The VTN offers a series of services to assist in the deployment, management, and uses of Certificates, as described fully in CP § 1.1.2. This section discusses which VTN services CrossCert offers in accordance with CP § 1.1.2. For more information about any of these programs, consult CrossCert's web site at <http://www.crosscert.com>. All of such services are subject to the specific agreements with CrossCert. Table 3 summarizes CrossCert's offering of VTN services.

<i>VTN Service</i>	<i>Explanation in CP</i>	<i>CrossCert's Offering</i>
<i>Certificate Distribution Services</i>		
VeriSign Managed PKI	CP § 1.1.2.1.1	Managed PKI

<i>VTN Service</i>	<i>Explanation in CP</i>	<i>CrossCert's Offering</i>
		Managed PKI Lite
		Managed PKI for SSL
<i>Value-Added Services</i>		
VeriSign Digital Notarization Service	CP § 1.1.2.2.2	CrossCert Digital Notarization services
Not offered at this time by CrossCert		
<i>Special Certificate Types</i>		
VeriSign Managed PKI offered by CrossCert Key Manager Services	CP § 1.1.2.3.2	Managed PKI Key Manager dual key systems
		Managed PKI Key Manager single key systems
VeriSign Roaming Service offered by CrossCert	CP § 1.1.2.3.3	Roaming Service in which the Enterprise holds the Enterprise Roaming Server
		Roaming Service in which a trusted fourth party holds the Enterprise Roaming Server

Table 3 – CrossCert’s Offering of VTN Services

1.1.2.1 Certificate Distribution Services

1.1.2.1.1 VeriSign Managed PKI offered by CrossCert

VeriSign Managed PKI offered by CrossCert is a fully integrated managed PKI service that allows enterprise Customers of CrossCert to provide Certificates to individuals, such as employees, partners, suppliers, and customers, as well as devices, such as servers, routers, and firewalls. VeriSign’s Managed PKI offered by CrossCert services are more fully described in CP § 1.1.2.1.1. Within CrossCert’s Subdomain, the security requirements for Managed PKI are set forth in the Enterprise Security Guide. Managed PKI is an outsourcing service. Customers of CrossCert obtaining VeriSign Managed PKI offered by CrossCert (“Managed PKI Customers”) fall into three categories.

First, some Managed PKI Customers (“Managed PKI Customers”) provide client Certificates by becoming a Certification Authority within CrossCert’s Subdomain of the VTN. Managed PKI Customers perform the RA “front-end” functions of approving or denying Certificate Applications, and initiating the revocation or renewal of Certificates using Managed PKI functionality. RA functions are a subset of CA functions. At the same time, the Managed PKI Customer can leverage the secure PKI backbone of the VeriSign Trust Network by outsourcing all “back-end” Certificate issuing, management, revocation, and renewal functions to CrossCert.

The second category of Managed PKI Customers (“Managed PKI Lite Customers”) uses Managed PKI Lite, which provides security for smaller enterprises and organizations than typical Managed PKI Customers. Managed PKI Lite Customers become Registration Authorities associated with a CrossCert CA, which is shared among CrossCert’s Managed PKI Lite Customers of the specific class of Certificates. Managed PKI Lite Customers, like Managed PKI Customers, approve or deny Certificate Applications using Managed PKI functionality, and request the revocation or renewal of Certificates. As with Managed PKI Customers, CrossCert

performs all the back-end Certificate issuance, management, revocation, and renewal functions, as with Managed PKI Customers.

The final categories of Managed PKI Customers approve Certificate Applications for server Certificates known as Secure Server IDs (“Managed PKI for SSL Customers”) and for server Certificates known as Global Server IDs (“Managed PKI for SSL Premium Edition Customers”). (For a discussion of the differences between Secure Server IDs and Global Server IDs, see CPS Definitions Section). Managed PKI for SSL Customers and Managed PKI for SSL Premium Edition Customers become Registration Authorities associated with a CrossCert CA, which is shared among all VTN (including CrossCert’s) Managed PKI for SSL Customers or Managed PKI for SSL Premium Edition Customers. Managed PKI for SSL Customers and Managed PKI for SSL Premium Edition Customers, as with other Managed PKI Customers, approve or deny Certificate Applications using Managed PKI functionality, and request the revocation or renewal of Certificates. Moreover, as with other Managed PKI Certificates, CrossCert performs all the back-end Certificate issuance, management, revocation, and renewal functions.

CrossCert’s Managed PKI Customers and Managed PKI Lite Customers are not permitted to approve the Certificate Applications of anyone other than one of their own Affiliated Individuals, except as noted below. Managed PKI Customers may not approve Certificate Applications for VTN Certificates issued to the general public. The Authentication Service Bureau, however, provides one solution for organizations seeking to obtain Certificates for unaffiliated individuals and organizational representatives. *See* CPS § 1.1.2.2.1.

A Managed PKI for SSL Customer or Managed PKI for SSL Premium Edition Customer may only approve Certificate Applications for servers within their own organizations. Managed PKI for SSL Customers and Managed PKI for SSL Premium Edition Customers are not permitted to approve the Class 3 Certificate Applications of any servers outside their respective organizations, and may not issue Certificates to the general public.

1.1.2.1.2 VeriSign Affiliate Program

CrossCert is a Service Center as described in CP § 1.1.2.1.2 which means CrossCert can approve or reject Certificate Applications in the case of Retail Certificates or, in the case of Managed PKI Certificates, arrange with a Processing Center to provide Managed PKI Customers with back-end Certificate lifecycle services. Service Center Affiliates providing client Certificates (“Client Service Centers”) become CAs within the VTN but outsource back-end functions to VeriSign or another Processing Center. When providing server Certificates, however, Service Centers become RAs within the VTN for a VeriSign CA issuing either Secure Server IDs or Global Server IDs. These Service Centers (“Service Centers”) perform validation functions to approve or reject Certificate applications for Secure Server IDs or Global Server IDs. Service Centers can also provide VeriSign Managed PKI to their Managed PKI Customers. These Managed PKI Customers enter into a Managed PKI arrangement with the Service Center, which under its contract with CrossCert or another Processing Center, arranges to have the Processing Center provide back-end Certificate lifecycle services to these Managed PKI Customers. CrossCert is a “Processing Center,” as described in CP § 1.1.2.1.2, which means CrossCert has established a secure facility housing, among other things, CA systems, including the cryptographic modules holding the private keys used for the issuance of Certificates. CrossCert acts as a CA in the VTN

and performs all Certificate lifecycle services of issuing, managing, revoking, and renewing Certificates. It also provides CA key management and Certificate lifecycle services on behalf of its Managed PKI Customers or the Managed PKI Customers of the Service Centers subordinate to CrossCert. CrossCert also offers Certificates in all three lines of business, Consumer (Class 1 and 2 client Retail Certificates), Web Site (Secure Server IDs and Global Server IDs), and Enterprise (providing Managed PKI services), as described in CP § 1.1.2.1.2. The practices relating to services provided by Affiliates or services provided by VeriSign to Affiliates are beyond the scope of this CPS.

1.1.2.1.3 Not Provided

1.1.2.1.4 Not offered at this time by CrossCert

1.1.2.2 Value-Added Certification Services

1.1.2.2.1 Not offered by CrossCert

1.1.2.2.2 VeriSign Digital Notarization Service offered by CrossCert

CrossCert offers the “VeriSign Digital Notarization Service offered by CrossCert,” as set forth in CP § 1.1.2.2.2. CrossCert’s offering of these services is subject to terms of a contract between CrossCert and a Customer of the VeriSign Digital Notarization Service offered by CrossCert.

1.1.2.2.3 Not offered by CrossCert

1.1.2.3 Special Certificate Types

1.1.2.3.1 Not offered at this time by CrossCert

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1.1.2.3.2 VeriSign Managed PKI Key Manager Services offered by CrossCert

Managed PKI Key Manager permits Managed PKI Customers to generate key pairs on behalf of Subscribers whose Certificate Applications they approve. It also permits Managed PKI Customers to transmit to Subscribers the private keys of such Subscribers in a secure fashion, store a retained backup copy of the Subscribers’ private keys in a secure fashion, and recover private keys when needed. Managed PKI Key Manager facilitates both a single key pair system and a dual key pair system. Single key pair systems generate keys that an end-user Subscriber uses for both digital signature and confidentiality functions. The Subscriber obtains one Certificate for both functions. Dual key pair systems, by contrast, generate a key pair that the

end-user Subscriber uses for confidentiality. The Subscriber, however, generates his or her own key pair for digital signature functions. In a dual key pair system, the Subscriber receives two Certificates, one for each public key. The Managed PKI Key Manager software operates in conjunction with a VeriSign Key Recovery Service offered by CrossCert. Managed PKI Key Manager is described in detail in CP § 1.1.2.3.2.

Managed PKI Key Manager software stores the backup copy of private keys at the Managed PKI Customer's site in an encrypted form. Each Subscriber's private key is individually encrypted with its unique key encryption key. A key recovery block ("KRB") is generated from this encryption key using key recovery technology, then the encryption key is deleted. Both the Subscriber's encrypted private key and the KRB are stored in the Key Manager database on the Managed PKI Customer's systems.

The Managed PKI Key Manager software operates in conjunction with a VeriSign Key Recovery Service offered by CrossCert. Recovery of a private key requires Managed PKI Key Manager, under the Managed PKI Customer's administrator's direction, to retrieve the KRB from the database and send it online to the Key Recovery Service operated out CrossCert's secure data center. Only CrossCert holds the private key that can unlock the KRB and recover the embedded encryption key. The recovery request to CrossCert will include enterprise emergency recovery codes needed to authorize the unlocking of the KRB. If a valid KRB is delivered, and the correct emergency recovery codes are supplied, the Key Recovery Service returns the encryption key to the Managed PKI Key Manager software, allowing it to recover the corresponding user private key.

1.1.2.3.3 VeriSign Roaming Service offered by CrossCert

The "VeriSign Roaming Service offered by CrossCert," as presented too CrossCert's Managed PKI Customers, enables a Subscriber to digitally sign critical transactions, such as stock trades, and obtain access to confidential information, without being bound to a single client terminal on which his or her private key resides. CrossCert's roaming technology permits Subscribers using the service ("Roaming Subscribers") to securely download their private keys and conduct private key operations on different client terminals. The Roaming Subscriber can use his or her private key from any client terminal.

The VeriSign Roaming Service offered by CrossCert encrypts Roaming Subscribers' private keys with symmetric keys that are split and stored on two servers in two physical locations to protect against attacks on a single credential server. Specifically, components of these symmetric keys are split between a server residing at the site of the Managed PKI Customer ("Enterprise Roaming Server") (or a trusted fourth party in lieu of the Managed PKI Customer) and another server at CrossCert ("CrossCert Roaming Server"). The private key itself is stored in encrypted form on the Enterprise Roaming Server. The Roaming Subscriber authenticates himself or herself to these servers using a password, and assuming the password is successfully provided to the servers, the encrypted private key and the components of the symmetric key needed to decrypt the Subscriber's private key are downloaded to the client terminal. At the client terminal, the symmetric key is reconstituted, the Subscriber's private key is decrypted, and the private key is then available for use during a single session. Following the session, the private key on the client terminal is deleted such that it is unrecoverable.

1.2 Identification

This document is the CrossCert Certification Practice Statement. VTN Certificates contain object identifier values corresponding to the applicable VTN Class of Certificate. Therefore, CrossCert has not assigned this CPS an object identifier value. Certificate Policy Object Identifiers are used in accordance with CPS § 7.1.6.

1.3 Community and Applicability

The community governed by this CPS is CrossCert's Subdomain within the VeriSign Trust Network. The VTN is a PKI that accommodates a worldwide, large, public, and widely distributed community of wired and wireless users with diverse needs for communications and information security. CrossCert's Subdomain of the VTN is the portion of the VTN governed by this CPS, and the CPS is the document that governs CrossCert's Subdomain of the VTN. Most of the CrossCert Subdomain Participants are located in South Korea.

1.3.1 Certification Authorities

The term Certification Authority is an umbrella term that refers to all entities issuing Certificates within the VTN. The term "CA" encompasses a subcategory of issuers called Primary Certification Authorities. PCAs act as roots of three domains, one for each class of Certificate.⁷ Each PCA is a VeriSign entity. There are currently three generations of VeriSign PCAs (G1, G2 and G3) for each class of Certificate. Subordinate to the PCAs are Certification Authorities that issue Certificates to end-user Subscribers or other CAs. CAs within CrossCert's Subdomain fall into three categories: (1) CrossCert itself, (2) Managed PKI Customers. VeriSign is a Processing Center that hosts all VTN PCAs, CrossCert is a Processing Center that hosts all of its own CAs, and certain other CAs in its secure CA facilities.

CrossCert CAs perform all CA functions (including RA functions), except for the CAs that issue Certificates following approval of Certificate Applications by Managed PKI Lite Customers, Managed PKI for SSL Customers. Managed PKI Customers become CAs within the VTN. Managed PKI Customers outsource back-end functions to a Processing Center, while retaining RA functions for themselves. .

As discussed in CP § 1.3.1, the RSA Secure Server Certification Authority, which VeriSign acquired from RSA Security Inc., issues Secure Server IDs, which are deemed to be Class 3 Organizational Certificates. VeriSign has approved and designated the RSA Secure Server Certification Authority as a Class 3 CA within CrossCert's Subdomain of the VTN. The Certificates it issues, Secure Server IDs, are considered to provide assurances of trustworthiness comparable to other Class 3 organizational Certificates.

1.3.2 Registration Authorities

Within CrossCert's Subdomain of the VTN, RAs fall into four categories: (1) Managed PKI Lite Customers, (2) Managed PKI for SSL Customers, (3) Managed PKI for SSL Premium Edition

Customers, and (4) CrossCert in its role as ASB Provider. Other types of RAs are permitted with CrossCert’s advance written consent and if these RAs meet the obligations placed on Managed PKI Customers, subject to any modifications necessary to account for any differences between Managed PKI technology and the technology used by these RAs and the terms of an appropriate agreement. RAs assist a CA by performing front-end functions of confirming identity, approving or denying Certificate Applications, requesting revocation of Certificates, and approving or denying renewal requests.

Managed PKI Lite Customers become RAs assisting a CrossCert CA to issue client Certificates to end-user Subscribers. Similarly, Managed PKI for SSL Customers become RAs using Managed PKI that assist the RSA Secure Server CA, the VeriSign International Server CA – Class 3, or similar CrossCert CA to issue Secure Server IDs or Global Server IDs.

1.3.3 End Entities

Table 4 shows the types of Subscribers for each Class and type of Certificate offered within CrossCert’s Subdomain of the VTN.

<i>Class</i>	<i>Issued to</i>	<i>Services Under Which Certificates are Available</i>	<i>Types of Subscribers</i>
<i>Class 1</i>	Individuals	Retail	Any individual, including members of the general public.
<i>Class 2</i>	Individuals	Managed PKI	Individuals who are, in relation to the Managed PKI Customer, an Affiliated Individual, except under the Two-Tier Authentication Service. Managed PKI Customers obtaining services under the Two-Tier Authentication Service delegate RA functions to another organization with which it has a relationship, and individuals obtaining Managed PKI Certificates must be affiliated with the organization that has been delegated these RA functions as an Affiliated Individual.
<i>Class 3</i>	Individuals	Administrators	Individuals serving in the role of Administrator (Trusted Persons who perform Certificate or certification service management functions on behalf of CrossCert, Managed PKI Customers, or trusted third parties).
	Organizations	Retail	Organizations that control a device include, but are not limited to: <ul style="list-style-type: none"> • Web servers or web traffic management devices (Secure Server IDs and Global Server IDs) • WTLS Servers • Electronic Data Interchange servers • OFX servers • Devices digitally signing code or other content.
		Managed PKI	Organizations that control multiple web servers, for which Managed PKI Administrator of such organization approve the issuance of Secure Server IDs and/or Global Server IDs.

Table 4 – Types of Subscribers Within CrossCert’s Subdomain of the VTN

CAs are themselves, as a technical matter, Subscribers of Certificates, either as a PCA issuing a self-signed Certificate to itself, or as a CA issued a Certificate by a superior CA. References to “Subscribers” in this CPS, however, apply only to end-user Subscribers.

1.3.4 Applicability

This CPS applies to all CrossCert Subdomain Participants, including CrossCert, Customers, Resellers, Subscribers, and Relying Parties. This CPS applies to CrossCert’s Subdomain of the VTN and CrossCert’s core infrastructure supporting the VTN. This CPS describes the practices governing the use of Certificates within CrossCert’s Subdomain in each of Classes 1-3, as described in the CP. Each Class of Certificate is generally appropriate for use with the applications set forth in CP § 1.3.4.1 and CPS § 1.1.1 (Table 2). Nonetheless, by contract or within specific environments (such as an intra-company environment), VTN Participants are permitted to use Certificates for higher security applications than the ones described in CPS §§ 1.1.1, 1.3.4.1. Any such usage, however, shall be limited to such entities and subject to CPS §§ 2.2.1.2, 2.2.2, and these entities shall be solely responsible for any harm or liability caused by such usage.

1.3.4.1 Suitable Applications

For suitable applications, *see* CP § 1.3.4.1 and CPS § 1.1.1 (Table 2). These listings, however, are not intended to be exhaustive. Individual Certificates and some organizational Certificates permit Relying Parties to verify digital signatures. CrossCert Subdomain Participants acknowledge and agree, to the extent permitted by applicable law, that where a transaction is required to be in writing, a message or other record bearing a digital signature verifiable with reference to a VTN Certificate is valid, effective, and enforceable to an extent no less than had the same message or record been written and signed on paper. Subject to applicable law, a digital signature or transaction entered into with reference to a VTN Certificate shall be effective regardless of the geographic location where the VTN Certificate is issued or the digital signature created or used, and regardless of the geographic location of the place of business of the CA or Subscriber.

1.3.4.2 Restricted Applications

In general, VTN Certificates are general-purpose Certificates. VTN Certificates may be used globally and to interoperate with diverse Relying Parties worldwide. Usage of VTN Certificates is not generally restricted to a specific business environment, such as a pilot, financial services system, vertical market environment, or virtual marketplace. Nonetheless, such use is permitted and Customers using Certificates within their own environment may place further restrictions on Certificate use within these environments. CrossCert and other CrossCert Subdomain Participants, however, are not responsible for monitoring or enforcing any such restrictions in these environments.

Nonetheless, certain VTN Certificates are limited in function. For example, CA Certificates may not be used for any functions except CA functions. Moreover, client Certificates are intended for client applications and shall not be used as server or organizational Certificates. In addition, Class 3 organizational Certificates issued to devices are limited in function to web servers or web

traffic management devices (in the case of Secure Server IDs and Global Server IDs), and object signing (in the case of object signing Certificates). Further, Administrator Certificates shall only be used to perform Administrator functions.

Also, with respect to X.509 Version 3 VTN Certificates, the key usage extension is intended to limit the technical purposes for which a private key corresponding to the public key in a Certificate may be used within the VTN. *See* CP § 6.1.9. In addition, end-user Subscriber Certificates shall not be used as CA Certificates. This restriction is confirmed by the absence of a Basic Constraints extension. *See* CP § 7.1.2.4. The effectiveness of extension-based limitations, however, is subject to the operation of software manufactured or controlled by entities other than CrossCert.

More generally, Certificates shall be used only to the extent use is consistent with applicable law, and in particular shall be used only to the extent permitted by applicable export or import laws.

1.3.4.3 Prohibited Applications

VTN Certificates are not designed, intended, or authorized for use or resale as control equipment in hazardous circumstances or for uses requiring fail-safe performance such as the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control systems, or weapons control systems, where failure could lead directly to death, personal injury, or severe environmental damage. Also, subject to CPS § 1.3.4, Class 1 Certificates shall not be used as proof of identity or as support of nonrepudiation of identity or authority.

1.4 **Contact Details**

1.4.1 **Specification Administration Organization**

The organization administering this CPS is the CrossCert Practices Development group. Inquiries to CrossCert's Practices Development group should be addressed as follows:

CrossCert
9F, Halim building, 1674-4, Seocho-dong,
Seocho-gu, Seoul, 137-725, Korea
Attn: Practices Development – CPS
CrossCert phone number (02)3019-5500
CrossCert fax number (02)3019-5678
practices@crosscert.com

1.4.2 Contact Person

Address inquiries about the CPS to cps-requests@CrossCert.com or to the following address:

CrossCert
9F, Halim building, 1674-4, Seocho-dong
, Seocho-gu, Seoul, 137-725, Korea
Attn: Practices Development – CPS
(02)3019-5563 (02)3019-5678
practices@crosscert.com

1.4.3 Person Determining CPS Suitability for the Policy

The organization identified in CPS § 1.4.2 is responsible for determining whether this CPS and other documents in the nature of certification practice statements that supplement or are subordinate to this CPS are suitable under the CP and this CPS.

2. General Provisions

2.1 Obligations

2.1.1 CA Obligations

CAs perform the specific obligations appearing throughout this CPS. The provisions of the CPS specify obligations of each category of CAs: CrossCert Processing Center, Service Center, Managed PKI Customers.

In addition, CrossCert uses commercially reasonable efforts to ensure that Subscriber Agreements and Relying Party Agreements bind Subscribers and Relying Parties within CrossCert's Subdomain. Examples of such efforts include, but are not limited to, requiring assent to a Subscriber Agreement as a condition of enrollment or requiring assent to a Relying Party Agreement as a condition of receiving Certificate status information. Similarly, Resellers (where required by contract) must use Subscriber Agreements and Relying Party Agreements in accordance with the requirements imposed by CrossCert. The Subscriber Agreements and Relying Party Agreements used by VeriSign, and Resellers must include the provisions required by CPS §§ 2.2-2.4.

Managed PKI Customers are permitted to use Subscriber Agreements specific to them, although not required to do so. Managed PKI Customers using Subscriber Agreements must include the provisions required by CP §§ 2.2-2.4. If a Managed PKI Customer, or Reseller does not use its own Subscriber Agreement, the Subscriber Agreement of CrossCert shall apply. If a Reseller has no Relying Party Agreement, the Relying Party Agreement of CrossCert shall apply.

2.1.2 RA Obligations

RAs assist a Processing Center or Service Center CA by performing validation functions, approving or rejecting Certificate Applications, requesting revocation of Certificates, and approving renewal requests. The provisions of the CPS specify obligations of each category of RAs: Managed PKI Lite Customers, Managed PKI for SSL Customers,

2.1.3 Subscriber Obligations

Subscriber obligations in the CP apply to Subscribers within CrossCert's Subdomain, through this CPS, by way of Subscriber Agreements approved by VeriSign. Certain Subscriber Agreements in force within CrossCert's Subdomain appear at: <http://www.crosscert.com/Repository>.

Within CrossCert's Subdomain, Subscriber Agreements require that Certificate Applicants provide complete and accurate information on their Certificate Applications and manifest assent to the applicable Subscriber Agreement as a condition of obtaining a Certificate.

Subscriber Agreements apply the specific obligations appearing in the CP and CPS to Subscribers in CrossCert's Subdomain. Subscriber Agreements require Subscribers to use their Certificates in accordance with CPS § 1.3.4. They also require Subscribers to protect their private keys in accordance with CPS §§ 6.1-6.2, 6.4. Under these Subscriber Agreements, if a Subscriber discovers or has reason to believe there has been a Compromise of the Subscriber's Private Key or the activation data protecting such Private Key, or the information within the Certificate is incorrect or has changed, that the Subscriber must promptly:

- Notify the entity that approved the Subscriber's Certificate Application, either a CA or an RA, in accordance with CPS § 4.4.1.1 and request revocation of the Certificate in accordance with CPS §§ 3.4, 4.4.3.1, and
- Notify any person that may reasonably be expected by the Subscriber to rely on or to provide services in support of the Subscriber's Certificate or a digital signature verifiable with reference to the Subscriber's Certificate.

Subscriber Agreements require Subscribers to cease use of their private keys at the end of their key usage periods under CPS § 6.3.2.

Subscriber Agreements state that Subscribers shall not monitor, interfere with, or reverse engineer the technical implementation of the VTN, except upon prior written approval from VeriSign, and shall not otherwise intentionally compromise the security of the VTN.

2.1.4 Relying Party Obligations

Relying Party obligations in the CP apply to Relying Parties within CrossCert's Subdomain, through this CPS, by way of CrossCert's Relying Party Agreements. Relying Party Agreements in force within CrossCert's Subdomain appear at: <http://www.crosscert.com/Repository/rpa/index.html>.

Relying Party Agreements within CrossCert’s Subdomain state that before any act of reliance, Relying Parties must independently assess the appropriateness of the use of a Certificate for any given purpose and determine that the Certificate will, in fact, be used for an appropriate purpose. They state that CrossCert, CAs, and RAs are not responsible for assessing the appropriateness of the use of a Certificate. Relying Party Agreements specifically state that Relying Parties must not use Certificates beyond the limitations in CPS § 1.3.4.2 and for purposes prohibited in CPS § 1.3.4.3.

Relying Party Agreements further state that Relying Parties must utilize the appropriate software and/or hardware to perform digital signature verification or other cryptographic operations they wish to perform, as a condition of relying on Certificates in connection with each such operation. Such operations include identifying a Certificate Chain and verifying the digital signatures on all Certificates in the Certificate Chain. Under these Agreements, Relying Parties must not rely on a Certificate unless these verification procedures are successful.

Relying Party Agreements also require Relying Parties to check the status of a Certificate on which they wish to rely, as well as all the Certificates in its Certificate Chain in accordance with CPS §§ 4.4.10, 4.4.12. If any of the Certificates in the Certificate Chain have been revoked, according to Relying Party Agreements, the Relying Party must not rely on the end-user Subscriber Certificate or other revoked Certificate in the Certificate Chain.

Finally, Relying Party Agreements state that assent to their terms is a condition of using or otherwise relying on Certificates. Relying Parties that are also Subscribers agree to be bound by Relying Party terms under this section, disclaimers of warranty, and limitations of liability when they agree to a Subscriber Agreement.

Relying Party Agreements state that if all of the checks described above are successful, the Relying Party is entitled to rely on the Certificate, provided that reliance upon the Certificate is reasonable under the circumstances. If the circumstances indicate a need for additional assurances, the Relying Party must obtain such assurances for such reliance to be deemed reasonable.

Relying Party Agreements state that Relying Parties must not monitor, interfere with, or reverse engineer the technical implementation of the VTN, except upon prior written approval from VeriSign, and shall not otherwise intentionally compromise the security of the VTN.

2.1.5 Repository Obligations

CrossCert is responsible for the repository functions for its own CAs and the CAs of its Managed PKI Customers. CrossCert publish Certificates they issue in the repository set forth in Table 5 in accordance with CPS § 2.6.

<i>CA</i>	<i>Entity Issuing the Certificate on Behalf of the CA</i>	<i>Applicable Repository</i>
All CrossCert CAs	CrossCert	CrossCert Repository
Managed PKI Customer	CrossCert	CrossCert Repository

Table 5 – Applicable Repositories by Type of CA

Upon revocation of an end-user Subscriber’s Certificate, CrossCert publishes notice of such revocation in the repository required by Table 5. CrossCert issues CRLs for its own CAs and the CAs of Service Centers, Managed PKI Customers, pursuant to CPS §§ 2.6, 4.4.9, 4.4.11. In addition, for Managed PKI Customers who have contracted for Online Certificate Status Protocol (“OCSP”) services, CrossCert provides OCSP services pursuant to CPS §§ 2.6, 4.4.9, 4.4.11.

2.2 Liability

2.2.1 Certification Authority Liability

The warranties, disclaimers of warranty, and limitations of liability among CrossCert, Resellers, and their respective Customers within CrossCert’s Subdomain are set forth and governed by the agreements among them. This CPS § 2.2.1 relates only to the warranties that certain CAs (CrossCert, and Managed PKI Customers) must make to end-user Subscribers receiving Certificates from them and to Relying Parties, the disclaimers of warranties they shall make to such Subscribers and Relying Parties, and the limitations of liability they shall place on such Subscribers and Relying Parties. CrossCert uses, and (where required) Resellers shall use, Subscriber Agreements and Relying Party Agreements in accordance with CPS § 2.1.1. Managed PKI Customers have the option of using a Subscriber Agreement. These Subscriber Agreements shall meet the requirements imposed by CrossCert (in the case of Resellers). Requirements that Subscriber Agreements contain warranties, disclaimers, and limitations of liability below apply to and those Managed PKI Customers, and Resellers that use Subscriber Agreements. CrossCert adheres to such requirements in its Subscriber Agreements. CrossCert’s practices concerning warranties, disclaimers, and limitations in Relying Party Agreements apply to {Affiliate}. Note that terms applicable to Relying Parties shall also be included in Subscriber Agreements, in addition to Relying Party Agreements, because Subscribers often act as Relying Parties as well.

2.2.1.1 Certification Authority Warranties to Subscribers and Relying Parties

CrossCert’s Subscriber Agreements include, and other Subscriber Agreements shall include, a warranty to Subscribers that:

- There are no material misrepresentations of fact in the Certificate known to or originating from the entities approving the Certificate Application or issuing the Certificate,
- There are no errors in the information in the Certificate that were introduced by the entities approving the Certificate Application or issuing the Certificate as a result of a failure to exercise reasonable care in managing the Certificate Application or creating the Certificate,
- Their Certificates meet all material requirements of this CPS, and
- Revocation services and use of a repository conform to this CPS in all material aspects.

CrossCert’s Relying Party Agreements contain a warranty to Relying Parties who reasonably rely on a Certificate that:

- All information in or incorporated by reference in such Certificate, except Nonverified Subscriber Information, is accurate,
- In the case of Certificates appearing in the CrossCert repository, that the Certificate has been issued to the individual or organization named in the Certificate as the Subscriber, and that the Subscriber has accepted the Certificate in accordance with CPS § 4.3, and
- The entities approving the Certificate Application and issuing the Certificate have substantially complied with this CPS when issuing the Certificate.

2.2.1.2 Certification Authority Disclaimers of Warranties

To the extent permitted by applicable law, CrossCert’s Subscriber Agreements and Relying Party Agreements disclaim, and other Subscriber Agreements shall disclaim, CrossCert’s possible warranties, including any warranty of merchantability or fitness for a particular purpose.

2.2.1.3 Certification Authority Limitations of Liability

To the extent permitted by applicable law, CrossCert’s Subscriber Agreements and Relying Party Agreements limit, and other Subscriber Agreements shall limit, CrossCert’s liability. Limitations of liability include an exclusion of indirect, special, incidental, and consequential damages. They also include the following liability caps limiting CrossCert’s damages concerning a specific Certificate:

<i>Class</i>	<i>Liability Caps</i>
Class 1	KRW 120,000
Class 2	KRW 6,000,000
Class 3	KRW 120,000,000

Table 6 – Liability Caps

CrossCert has purchased an insurance policy from TongYang Fire & Marine Insurance Company under which CrossCert is insured with the liability cap of \$ 1,000,000 for its liability that may arise from CrossCert’s internet and network activities.

2.2.1.4 Force Majeure

To the extent permitted by applicable law, CrossCert’s Subscriber Agreements and Relying Party Agreements include, and other Subscriber Agreements shall include, a force majeure clause protecting CrossCert.

2.2.2 Registration Authority Liability

The warranties, disclaimers of warranty, and limitations of liability between an RA and the CA it is assisting to issue Certificates, or the applicable Reseller, are set forth and governed by the agreements between them. CrossCert, in its role as , uses Subscriber Agreements and Relying

Party Agreements in accordance with CPS §§ 2.1.1-2.1.2, which have their own warranties, disclaimers, and limitations.

Managed PKI Lite Customers, Managed PKI for SSL Customers do not use Subscriber Agreements or Relying Party Agreements. Thus, the practices disclosed in this section do not apply to them. Rather, the Subscriber Agreement of CrossCert shall apply.

2.2.3 Subscriber Liability

2.2.3.1 Subscriber Warranties

CrossCert's Subscriber Agreements require Subscribers to warrant that:

- Each digital signature created using the private key corresponding to the public key listed in the Certificate is the digital signature of the Subscriber and the Certificate has been accepted and is operational (not expired or revoked) at the time the digital signature is created,
- No unauthorized person has ever had access to the Subscriber's private key,
- All representations made by the Subscriber in the Certificate Application the Subscriber submitted are true,
- All information supplied by the Subscriber and contained in the Certificate is true,
- The Certificate is being used exclusively for authorized and legal purposes, consistent with this CPS, and
- The Subscriber is an end-user Subscriber and not a CA, and is not using the private key corresponding to any public key listed in the Certificate for purposes of digitally signing any Certificate (or any other format of certified public key) or CRL, as a CA or otherwise.

Other Subscriber Agreements shall also contain these requirements.

Where a Subscriber's Certificate Application was approved by a Managed PKI Customer using the Managed PKI Key Manager offering, however, the Subscriber warrants only that no unauthorized person has ever had access to the copy of the Subscriber's private key on the Subscriber's hardware/software platform. These Subscribers make no warranty concerning the copies of their private keys in the possession of the Managed PKI Customers using Managed PKI Key Manager.

2.2.3.2 Private Key Compromise

The CP sets forth VTN Standards for the protection of the private keys of Subscribers, which are included by virtue of CPS § 6.2.7.1 in Subscriber Agreements. Subscriber Agreements state that Subscribers failing to meet these VTN Standards are solely responsible for any loss or damage resulting from such failure.

2.2.4 Relying Party Liability

Subscriber Agreements and Relying Party Agreements require Relying Parties to acknowledge that they have sufficient information to make an informed decision as to the extent to which they choose to rely on the information in a Certificate, that they are solely responsible for deciding whether or not to rely on such information, and that they shall bear the legal consequences of their failure to perform the Relying Party obligations in CPS § 2.1.4.

2.3 Financial Responsibility

2.3.1 Indemnification by Subscribers and Relying Parties

2.3.1.1 Indemnification by Subscribers

To the extent permitted by applicable law, CrossCert's Subscriber Agreement require, and other Subscriber Agreements shall require, Subscribers to indemnify CrossCert and any non-CrossCert CAs or RAs for:

- Falsehood or misrepresentation of fact by the Subscriber on the Subscriber's Certificate Application,
- Failure by the Subscriber to disclose a material fact on the Certificate Application, if the misrepresentation or omission was made negligently or with intent to deceive any party,
- The Subscriber's failure to protect the Subscriber's private key, to use a Trustworthy System, or to otherwise take the precautions necessary to prevent the compromise, loss, disclosure, modification, or unauthorized use of the Subscriber's private key, or
- The Subscriber's use of a name (including without limitation within a common name, domain name, or e-mail address) that infringes upon the Intellectual Property Rights of a third party.

2.3.1.2 Indemnification by Relying Parties

To the extent permitted by applicable law, CrossCert's Subscriber Agreements and Relying Party Agreements require, and other Subscriber Agreements shall require, Relying Parties to indemnify CrossCert and any non-CrossCert CAs or RAs for:

- The Relying Party's failure to perform the obligations of a Relying Party,
- The Relying Party's reliance on a Certificate that is not reasonable under the circumstances, or
- The Relying Party's failure to check the status of such Certificate to determine if the Certificate is expired or revoked.

2.3.2 Fiduciary Relationships

To the extent permitted by applicable law, CrossCert's Subscriber Agreements and Relying Party Agreements disclaim, and other Subscriber Agreements shall disclaim, any fiduciary relationship between CrossCert or a non-CrossCert CA or RA on one hand and a Subscriber or Relying Party on the other hand.

2.3.3 Administrative Processes

Managed PKI Customers shall have sufficient financial resources to maintain their operations and perform their duties, and they must be reasonably able to bear the risk of liability to Subscribers and Relying Parties. Managed PKI Customers shall also maintain a commercially reasonable level of insurance coverage for errors and omissions, either through an errors and omissions insurance program with an insurance carrier or a self-insured retention. This insurance requirement does not apply to governmental entities. CrossCert maintains such errors and omissions insurance coverage.

2.4 Interpretation and Enforcement

2.4.1 Governing Law

Subject to any limits appearing in applicable law, the laws of South Korea, shall govern the enforceability, construction, interpretation, and validity of this CPS, irrespective of contract or other choice of law provisions and without the requirement to establish a commercial nexus in South Korea. This choice of law is made to ensure uniform procedures and interpretation for all CrossCert Subdomain Participants, no matter where they are located.

This governing law provision applies only to this CPS. Agreements incorporating the CPS by reference may have their own governing law provisions, provided that this CPS § 2.4.1 governs the enforceability, construction, interpretation, and validity of the terms of the CPS separate and apart from the remaining provisions of any such agreements, subject to any limitations appearing in applicable law.

This CPS is subject to applicable national, state, local and foreign laws, rules, regulations, ordinances, decrees, and orders including, but not limited to, restrictions on exporting or importing software, hardware, or technical information.

2.4.2 Severability, Survival, Merger, Notice

To the extent permitted by applicable law, CrossCert's Subscriber Agreements and Relying Party Agreements contain, and other Subscriber Agreements shall contain, severability, survival, merger, and notice clauses. A severability clause in an agreement prevents any determination of the invalidity or unenforceability of a clause in the agreement from impairing the remainder of the agreement. A survival clause specifies the provisions of an agreement that continue in effect despite the termination or expiration of the agreement. A merger clause states that all understandings concerning the subject matter of an agreement are incorporated in the agreement. A notice clause in an agreement sets forth how the parties are to provide notices to each other.

2.4.3 Dispute Resolution Procedures

2.4.3.1 Disputes Among CrossCert and Customers

Disputes between CrossCert and one of its Customers shall be resolved pursuant to provisions in the applicable agreement between the parties.

2.4.3.2 Disputes with End-User Subscribers or Relying Parties

To the extent permitted by applicable law, CrossCert's Subscriber Agreements and Relying Party Agreements contain, and other Subscriber Agreements shall contain, a dispute resolution clause. The clause states that dispute resolution procedures require an initial negotiation period of sixty (60) days followed by litigation in the Seoul Civil District Court, in the case of claimants who are Korean residents, or, in the case of all other claimants, arbitration administered by the International Chamber of Commerce ("ICC") in accordance with the ICC Rules of Conciliation and Arbitration

2.5 Fees

2.5.1 Certificate Issuance or Renewal Fees

CrossCert and Customers are entitled to charge end-user Subscribers for the issuance, management, and renewal of Certificates.

2.5.2 Certificate Access Fees

CrossCert and Customers do not charge a fee as a condition of making a Certificate available in a repository or otherwise making Certificates available to Relying Parties.

2.5.3 Revocation or Status Information Access Fees

CrossCert does not charge a fee as a condition of making the CRLs required by CPS § 4.4.9 available in a repository or otherwise available to Relying Parties. CrossCert does, however, charge a fee for providing customized CRLs, OCSP services, or other value-added revocation and status information services. CrossCert does not permit access to revocation information, Certificate status information, or time stamping in its repository by third parties that provide products or services that utilize such Certificate status information without CrossCert's prior express written consent.

2.5.4 Fees for Other Services Such as Policy Information

CrossCert does not charge a fee for access to the CP or this CPS. Any use made for purposes other than simply viewing the document, such as reproduction, redistribution, modification, or creation of derivative works, is subject to a license agreement with the entity holding the copyright to the document.

2.5.5 Refund Policy

Within CrossCert's Subdomain, the following refund policy (reproduced at <http://www.crosscert.com/Repository/refund/>) is in effect:

CrossCert adheres to, and stands behind, rigorous practices and policies in undertaking certification operations and in issuing certificates. Nevertheless, if for any reason a subscriber is not completely satisfied with the certificate issued to him, her, or it, the subscriber may request that CrossCert revoke the certificate within thirty (30) days of issuance and provide the subscriber with a refund. Following the initial thirty (30) day period, a subscriber may request that CrossCert revoke the certificate and provide a refund if CrossCert has breached a warranty or other material obligation under this CPS relating to the subscriber or the subscriber's certificate. After CrossCert revokes the subscriber's certificate, CrossCert will promptly credit the subscriber's credit card account (if the certificate was paid for via credit card) or otherwise reimburse the subscriber via check, for the full amount of the applicable fees paid for the certificate. To request a refund, please call customer service at (02)3019-5500. This refund policy is not an exclusive remedy and does not limit other remedies that may be available to subscribers.

2.6 Publication and Repository

2.6.1 Publication of CA Information

VeriSign is responsible for the repository function for:

- VeriSign's Public Primary Certification Authorities (PCAs) and VeriSign Infrastructure/Administrative CAs supporting the VTN, and
- CrossCert is responsible for the repository function for CrossCert's Infrastructure, Administrative CA's, and
- CrossCert's CAs, Managed PKI Customers' CAs, which issue Certificates within CrossCert's Subdomain of the VTN.

CrossCert publishes certain CA information in the repository section of CrossCert's web site at <http://www.crosscert.com/Repository> as described below.

CrossCert publishes the VeriSign VTN CP, this CPS, Subscriber Agreements, and Relying Party Agreements in the repository section of CrossCert's web site.

CrossCert publishes Certificates in accordance with Table 7 below.

<i>Certificate Type</i>	<i>Publication Requirements</i>
VeriSign PCA and VeriSign Issuing Root CA Certificates	Available to Relying Parties through inclusion in current browser software and as part of a Certificate Chain that can be obtained with the end-user Subscriber Certificate through the query functions described below.

<i>Certificate Type</i>	<i>Publication Requirements</i>
CrossCert Issuing CA Certificates	Available to Relying Parties as part of a Certificate Chain that can be obtained with the end-user Subscriber Certificate through the query functions described below.
Certificate of the CrossCert CA supporting Managed PKI Lite Certificates and CA Certificates of Managed PKI Customers	Available through query of the CrossCert LDAP directory server at directory.crosscert.com .
VeriSign OCSP Responder Certificates	Available through query of the CrossCert LDAP directory server at directory.crosscert.com .
End-User Subscriber Certificates	Available to relying parties through query functions in the CrossCert repository at: <ul style="list-style-type: none"> • https://digitalid.crosscert.com/Repository • Also available through query of the VeriSign LDAP directory server at directory.verisign.com.
End-User Subscriber Certificates issued through Managed PKI Customers	Made available through the query functions listed above, although at the discretion of the Managed PKI Customer, the Certificate may be accessible only via a search using the Certificate's serial number.

Table 7 – Certificate Publication Requirements

CrossCert publishes Certificate status information in accordance with CPS § 4.4.11.

2.6.2 Frequency of Publication

Updates to this CPS are published in accordance with CPS § 8. Updates to Subscriber Agreements and Relying Party Agreements are published as necessary. Certificates are published upon issuance. Certificate status information is published in accordance with CPS §§ 4.4.9 and 4.4.11.

2.6.3 Access Controls

Information published in the repository portion of the CrossCert web site is publicly-accessible information. Read only access to such information is unrestricted. CrossCert requires persons to agree to a Relying Party Agreement as a condition to accessing Certificates, Certificate status information, or CRLs. CrossCert has implemented logical and physical security measures to prevent unauthorized persons from adding, deleting, or modifying repository entries.

2.6.4 Repositories

See CPS § 2.1.5.

2.7 Compliance Audit

An annual SAS 70 Type II or comparable audit is performed for CrossCert's data center operations and key management operations supporting CrossCert's public and Managed PKI CA services. In addition, an annual WebTrust for Certification Authorities examination is performed for the VTN Root CAs, Class 3 Organizational CAs, Class 2 Organizational and Individual CAs, and Class 1 Individual CAs specified in CPS § 1.3.1. maintained by VeriSign Customer-specific CAs are not specifically audited as part of the audit of CrossCert's operations unless required by the Customer. CrossCert shall be entitled to require that Managed PKI Customers undergo a compliance audit under this CPS § 2.7 and audit programs for these types of Customers.

In addition to compliance audits, CrossCert shall be entitled to perform other reviews and investigations to ensure the trustworthiness of CrossCert's Subdomain of the VTN, which include, but are not limited to:

- CrossCert or its authorized representative shall be entitled, within its sole and exclusive discretion, to perform at any time an "Exigent Audit/Investigation" on itself or a Customer in the event CrossCert or its authorized representative has reason to believe that the audited entity has failed to meet VTN Standards, has experienced an incident or Compromise, or has acted or failed to act, such that the audited entity's failure, the incident or Compromise, or the act or failure to act poses an actual or potential threat to the security or integrity of the VTN.
- CrossCert or its authorized representative shall be entitled to perform "Supplemental Risk Management Reviews" on itself or a Customer following incomplete or exceptional findings in a Compliance Audit or as part of the overall risk management process in the ordinary course of business.

CrossCert or its authorized representative shall be entitled to delegate the performance of these audits, reviews, and investigations to a third party audit firm. Entities that are subject to an audit, review, or investigation shall provide reasonable cooperation with CrossCert and the personnel performing the audit, review, or investigation.

2.7.1 Frequency of Entity Compliance Audit

Compliance audits are performed on an annual basis at the sole expense of the audited entity.

2.7.2 Identity/ Qualifications of Auditor

CrossCert's CA compliance audits are performed by a public accounting firm that:

- Demonstrates proficiency in public key infrastructure technology, information security tools and techniques, security auditing, and the third-party attestation function, and
- Is accredited by the American Institute of Certified Public Accountants (AICPA) or similar entity, which requires the possession of certain skill sets, quality assurance measures such as peer review, competency testing, standards with respect to proper assignment of staff to engagements, and requirements for continuing professional education.

2.7.3 Auditor's Relationship to Audited Party

Compliance audits of CrossCert's operations are performed by a public accounting firm that is independent of CrossCert.

2.7.4 Compliance audits of CrossCert's operations are performed by a public accounting firm (or equivalent) that is independent of CrossCert. Topics Covered by Audit

The scope of CrossCert's annual SAS 70 Type II audit or comparable audit includes CA environmental controls, key management operations and Infrastructure/Administrative CA controls.

2.7.5 Actions Taken as a Result of Deficiency

With respect to compliance audits of CrossCert's operations, significant exceptions or deficiencies identified during the Compliance Audit will result in a determination of actions to be taken. This determination is made by CrossCert management with input from the auditor. CrossCert management is responsible for developing and implementing a corrective action plan. If CrossCert determines that such exceptions or deficiencies pose an immediate threat to the security or integrity of the VTN, a corrective action plan will be developed within 30 days and implemented within a commercially reasonable period of time. For less serious exceptions or deficiencies, CrossCert Management will evaluate the significance of such issues and determine the appropriate course of action.

2.7.6 Communications of Results

Results of the compliance audit of CrossCert's operations may be released at the discretion of CrossCert management.

2.8 Confidentiality and Privacy

CrossCert has implemented a privacy policy, which is located at: <http://www.CrossCert.com/privacy>, in compliance with CP § 2.8.

2.8.1 Types of Information to be Kept Confidential and Private

The following records of Subscribers are, subject to CPS § 2.8.2, kept confidential and private ("Confidential/Private Information"):

- CA application records, whether approved or disapproved,
- Certificate Application records (subject to CPS § 2.8.2),
- Private keys held by Managed PKI Customers using Managed PKI Key Manager and information needed to recover such private keys,
- Transactional records (both full records and the audit trail of transactions),
- VTN audit trail records created or retained by VeriSign, an Affiliate, or a Customer,
- CrossCert audit reports created by CrossCert or their respective auditors (whether internal or public).

- Contingency planning and disaster recovery plans, and
- Security measures controlling the operations of CrossCert hardware and software and the administration of Certificate services and designated enrollment services.

2.8.2 Types of Information Not Considered Confidential or Private

CrossCert Subdomain Participants acknowledge that Certificates, Certificate revocation and other status information, CrossCert's repository, and information contained within them are not considered Confidential/Private Information. Information not expressly deemed Confidential/Private Information under CPS § 2.8.1 shall be considered neither confidential nor private. This section is subject to applicable privacy laws.

2.8.3 Disclosure of Certificate Revocation/Suspension Information

See CPS § 2.8.2.

2.8.4 Release to Law Enforcement Officials

CrossCert Subdomain Participants acknowledge that CrossCert shall be entitled to disclose Confidential/Private Information if, in good faith, CrossCert believes disclosure is necessary in response to subpoenas and search warrants. This section is subject to applicable privacy laws.

2.8.5 Release as Part of Civil Discovery

CrossCert Subdomain Participants acknowledge that CrossCert shall be entitled to disclose Confidential/Private Information if, in good faith, CrossCert believes disclosure is necessary in response to judicial, administrative, or other legal process during the discovery process in a civil or administrative action, such as subpoenas, interrogatories, requests for admission, and requests for production of documents. This section is subject to applicable privacy laws.

2.8.6 Disclosure Upon Owner's Request

CrossCert's privacy policy contains provisions relating to the disclosure of Confidential/Private Information to the person disclosing it to CrossCert. This section is subject to applicable privacy laws.

2.8.7 Other Information Release Circumstances

No stipulation.

2.9 Intellectual Property Rights

The allocation of Intellectual Property Rights among CrossCert Subdomain Participants other than Subscribers and Relying Parties is governed by the applicable agreements among such CrossCert Subdomain Participants. The following subsections of CPS § 2.9 apply to the Intellectual Property Rights in relation to Subscribers and Relying Parties.

2.9.1 Property Rights in Certificates and Revocation Information

CAs retain all Intellectual Property Rights in and to the Certificates and revocation information that they issue. CrossCert and Customers grant permission to reproduce and distribute Certificates on a nonexclusive royalty-free basis, provided that they are reproduced in full and that use of Certificates is subject to the Relying Party Agreement referenced in the Certificate. CrossCert and Customers shall grant permission to use revocation information to perform Relying Party functions subject to the applicable Relying Party Agreement, or any other applicable agreements.

2.9.2 Property Rights in the CP

CrossCert Subdomain Participants acknowledge that CrossCert retains all Intellectual Property Rights in and to this CPS.

2.9.3 Property Rights in Names

A Certificate Applicant retains all rights it has (if any) in any trademark, service mark, or trade name contained in any Certificate Application and distinguished name within any Certificate issued to such Certificate Applicant.

2.9.4 Property Rights in Keys and Key Material

Key pairs corresponding to Certificates of CAs and end-user Subscribers are the property of the CAs and end-user Subscribers that are the respective Subjects of these Certificates, subject to the rights of Managed PKI Customers using Managed PKI Key Manager, regardless of the physical medium within which they are stored and protected, and such persons retain all Intellectual Property Rights in and to these key pairs. Notwithstanding the foregoing, VeriSign's root public keys and the root Certificates containing them, including all PCA public keys and self-signed Certificates, are the property of VeriSign. VeriSign licenses software and hardware manufacturers to reproduce such root Certificates to place copies in trustworthy hardware devices or software. Finally, without limiting the generality of the foregoing, Secret Shares of a CA's private key are the property of the CA, and the CA retains all Intellectual Property Right in and to such Secret Shares.

3. Identification and Authentication

3.1 Initial Registration

3.1.1 Types of Names

CrossCert CA Certificates contain X.501 Distinguished Names in the Issuer and Subject fields. CrossCert CA Distinguished Names consist of the components specified in Table 8 below.

<i>Attribute</i>	<i>Value</i>
Country (C) =	[“KR”],“US”, or not used.
Organization (O) =	“VeriSign, Inc.” or CrossCert except for the Secure Server CA, which indicates “RSA Data Security, Inc.,” but is now a VeriSign CA.
Organizational Unit (OU) =	CrossCert CA Certificates may contain multiple OU attributes. Such attributes may contain one or more of the following: <ul style="list-style-type: none"> • CA Name • VeriSign Trust Network • A statement referencing the applicable Relying Party Agreement governing terms of use of the Certificate and • A copyright notice.
State or Province (S) =	Not used.
Locality (L) =	Not used except for the VeriSign Commercial Software Publishers CA, which uses “Internet.”
Common Name (CN) =	This attribute includes the CA Name (if the CA Name is not specified in an OU attribute) or is not used.

Table 8 – Distinguished Name Attributes in CA Certificates

End-user Subscriber Certificates contain an X.501 distinguished name in the Subject name field and consist of the components specified in Table 9 below.

<i>Attribute</i>	<i>Value</i>
Country (C) =	“[KR]” or not used.
Organization (O) =	The Organization attribute is used as follows: <ul style="list-style-type: none"> • “CrossCert.” for CrossCert OCSP Responder and individual Certificates. • Subscriber organizational name for web server Certificates. • Not used for code/object signing Certificates.
Organizational Unit (OU) =	CrossCert end-user Subscriber Certificates may contain multiple OU attributes. Such attributes may contain one or more of the following: <ul style="list-style-type: none"> • Subscriber organizational unit (for organizational Certificates) • VeriSign Trust Network • A statement referencing the applicable Relying Party Agreement governing terms of use of the Certificate • A copyright notice • “Authenticated by CrossCert” and “Member, VeriSign Trust Network” in Certificates whose applications were authenticated by CrossCert • “Persona Not Validated” for Class 1 Individual Certificates

<i>Attribute</i>	<i>Value</i>
	<ul style="list-style-type: none"> • Text to describe the type of Certificate.
State or Province (S) =	Indicates the Subscriber's State or Province or not used.
Locality (L) =	Indicates the Subscriber's Locality or not used.
Common Name (CN) =	This attribute includes: <ul style="list-style-type: none"> • The OCSP Responder Name (for OCSP Responder Certificates) • Domain name (for web server Certificates) • Organization name (for code/object signing Certificates) • Name (for individual Certificates).
E-Mail Address (E) =	E-mail address for Class 1 individual Certificates

Table 9 – Distinguished Name Attributes in End User Subscriber Certificates

The Common Name (CN=) component of the Subject distinguished name of end-user Subscriber Certificates is authenticated in the case of Class 2-3 Certificates.

- The authenticated common name value included in the Subject distinguished names of organizational Certificates is a domain name (in the case of Secure Server IDs and Global Server IDs) or the legal name of the organization or unit within the organization.
- The common name value included in the Subject distinguished name of individual Certificates represents the individual's generally accepted personal name.

3.1.2 Need for Names to be Meaningful

Class 2 and 3 end-user Subscriber Certificates contain names with commonly understood semantics permitting the determination of the identity of the individual or organization that is the Subject of the Certificate. For such Certificates, pseudonyms of end-user Subscribers (names other than a Subscriber's true personal or organizational name) are not permitted.

The use of pseudonyms is permitted only for Class 1 end-user Subscriber Certificates.

CrossCert CA certificates contain names with commonly understood semantics permitting the determination of the identity of the CA that is the Subject of the Certificate.

3.1.3 Rules for Interpreting Various Name Forms

No stipulation.

3.1.4 Uniqueness of Names

CrossCert ensures that Subject Distinguished Names are unique within the domain of a specific CA through automated components of the Subscriber enrollment process.

3.1.5 Name Claim Dispute Resolution Procedure

Certificate Applicants are prohibited from using names in their Certificate Applications that infringe upon the Intellectual Property Rights of others. CrossCert, however, does not verify

whether a Certificate Applicant has Intellectual Property Rights in the name appearing in a Certificate Application or arbitrate, mediate, or otherwise resolve any dispute concerning the ownership of any domain name, trade name, trademark, or service mark. CrossCert is entitled, without liability to any Certificate Applicant, to reject or suspend any Certificate Application because of such dispute.

3.1.6 Recognition, Authentication, and Role of Trademarks

See CPS § 3.1.5.

3.1.7 Method to Prove Possession of Private Key

CrossCert verifies the Certificate Applicant's possession of a private key through the use of a digitally signed certificate request pursuant to PKCS #10, another cryptographically-equivalent demonstration, or another CrossCert-approved method.

Where a key pair is generated by CrossCert on behalf of a Subscriber (e.g., where pre-generated keys are placed on smart cards), this requirement is not applicable.

3.1.8 Authentication of Organization Identity

CrossCert confirms the identity of Class 3 organizational end-user Subscribers and other enrollment information provided Certificate Applicants (except for Nonverified Subscriber Information) in accordance with the procedures set forth in the subsections that follow. In addition to the procedures below, the Certificate Applicant must demonstrate that it rightfully holds the private key corresponding to the public key to be listed in the Certificate in accordance with CPS § 3.1.7.

3.1.8.1 Authentication of the Identity of Organizational End-User Subscribers

3.1.8.1.1 Authentication for Retail Organizational Certificates

CrossCert confirms the identity of a Certificate Applicant for a Retail organizational Certificate by:

- Verifying that the organization exists through the use of at least one third party identity proofing service or database, or alternatively, organizational documentation issued by or filed with the applicable government that confirms the existence of the organization and
- Confirming with an appropriate Organizational contact by telephone, postal mail, or a comparable procedure certain information about the organization, that the organization has authorized the Certificate Application, and that the person submitting the Certificate Application on behalf of the Organization is authorized to do so.

Additional procedures are performed for specific types of Certificates as described in Table 10 below.

<i>Certificate Type</i>	<i>Additional Procedures</i>
All Server Certificates	CrossCert verifies that the Certificate Applicant is the record owner of the domain name of the server that is the Subject of the Certificate or is otherwise authorized to use the domain.
Global Server IDs	CrossCert performs performing the additional checks necessary to satisfy United States export regulations and licenses issued by the United States Department of Commerce Bureau of Information and Science (“BIS”).

Table 10 – Specific Authentication Procedures

3.1.8.1.2 Authentication for Managed PKI for SSL

With respect to Managed PKI for SSL Customers, the identity confirmation process begins with CrossCert’s confirmation of the identity of the Managed PKI for SSL Customer itself in accordance with CPS § 3.1.8.2. Following such confirmation, the Managed PKI for SSL Customer is responsible for approving the issuance of Certificates to servers within its own organization by:

- Ensuring that the server designated as the Subject of a Secure Server ID or Global Server ID actually exists, and
- Ensuring the organization has authorized the issuance of a Secure Server ID or Global Server ID to the server.

3.1.8.1.3 Not offered by CrossCert

3.1.8.2 Authentication of the Identity of CAs and RAs

For CrossCert CA Certificate Applications, certificate requests are created, processed and approved by authorized CrossCert personnel using a controlled process that requires the participation of multiple trusted CrossCert employees.

Managed PKI Customers, enter into an agreement with CrossCert before becoming CAs or RAs. CrossCert authenticates the identity of the prospective Managed PKI Customer, or ASB Customer before final approval of its status as CA or RA by performing the checks required for the confirmation of the identity of organizational end-user Subscribers specified in CPS § 3.1.8.1, except that instead of a Certificate Application, the validation is of an application to become an Managed PKI Customer, . In addition, in the case of Managed PKI Customers VeriSign confirms that the person identified as Managed PKI Administrator is authorized to act in the capacity. Optionally, CrossCert may require the personal appearance of an authorized representative of the organization before authorized CrossCert personnel.

In some cases, CrossCert may delegate responsibility for authentication of a prospective Managed PKI Customer,. Resellers’ procedures for the authentication of the such an organizational identity must be submitted to CrossCert for approval, and such approval is a condition of a Reseller beginning its operations as a provider of Managed PKI, as the case may be. Such procedures must meet the requirement specified in the previous paragraph.

3.1.9 Authentication of Individual Identity

For all Classes of individual Certificates, CrossCert (on behalf of its own CA), a Managed PKI Customer confirms that:

- the Certificate Applicant is the person identified in the Certificate Application (except for Certificate Applicants for Class 1 Certificates),
- the Certificate Applicant rightfully holds the private key corresponding to the public key to be listed in the Certificate in accordance with CPS § 3.1.7, and
- the information to be included in the Certificate is accurate, except for Nonverified Subscriber Information.

In addition, CrossCert performs the more detailed procedures described below for each Class of Certificate.

3.1.9.1 Class 1 Individual Certificates

Authentication of individuals for Class 1 Certificates consists of a check to ensure that the Subject distinguished name is a unique and unambiguous Subject name within the CrossCert Class 1 CA Subdomain. Class 1 authentication does not provide assurances of identity (i.e., that a Subscriber is who he or she claims to be). The common name of the Subscriber is Nonverified Subscriber Information. Class 1 authentication also includes a limited confirmation of the Certificate Applicant's e-mail address.

3.1.9.2 Class 2 Individual Certificates

Authentication of Class 2 Certificates takes place in one of two ways. For Class 2 Managed PKI Certificates, Managed PKI Customers and Managed PKI Lite Customers use business records or databases of business information to approve or deny Certificate Applications in accordance with CPS § 3.1.9.2.1. .

3.1.9.2.1 Class 2 Managed PKI Certificates

For Class 2 Managed PKI Certificates, the Managed PKI Customer approves Certificate Applications using manual or automated authentication procedures or passcodes as discussed below.

Managed PKI Customers and Managed PKI Lite Customers confirm the identity of individuals by comparing enrollment information against their own business records or databases of business information. For example, they may check enrollment information against employee or independent contractor records in a human resources department database. The Managed PKI Customer or Managed PKI Lite Customer may approve the Certificate Application manually using the Managed PKI Control Center if the enrollment information matches the records or database used for authentication. This process is known as "Manual Authentication."

Managed PKI's Automated Administration Software Module and other similar CrossCert software give Managed PKI Customers the option of automatic approval and revocation of users or devices directly from pre-existing administrative systems or databases, rather than requiring

Manual Authentication for each Certificate Application. Managed PKI Customers using the Managed PKI Automated Administration Software Module authenticate the identity of potential Certificate Applications before placing their information in a database. When a Certificate Applicant submits a Certificate Application, then, the Automated Administration Software Module compares information in the Certificate Application with the database and, if the information matches, automatically approves the Certificate Application for immediate issuance by CrossCert. This process is called “Automated Administration.”

VeriSign Managed PKI “Passcode” offered by CrossCert authentication (“Passcode Authentication”) involves the automatic approval or rejection of Certificate Applications by comparing a Certificate Applicant’s enrollment data with pre-configured authentication data that are provided by a Managed PKI Customer’s Managed PKI Administrator. With Passcode Authentication, the Managed PKI Customer uses an offline process to distribute “passcodes” to prospective Certificate Applicants that have satisfied the appropriate level of authentication. The Certificate Applicant then provides this passcode when submitting a Certificate Application, along with other authentication information. The passcode and additional authentication information are compared to the passcode database previously configured by the Managed PKI Administrator, and if all the fields match, a Certificate is issued.

Managed PKI Customers not using Automated Administration or Passcode Authentication and all Managed PKI Lite Customers must use Manual Authentication.

3.1.9.2.2 Not offered at this time by CrossCert

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3.1.9.3 Class 3 Individual Certificates

3.1.9.3.1 Not offered at this time by CrossCert

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3.1.9.3.2 Class 3 Administrator Certificates

Various Administrator Certificates are used to control access to CrossCert CA systems and for authorizing certain actions within the VTN. The specific types of Class 3 Administrator Certificates are listed in CPS §1.3.1.

CrossCert authenticates Class 3 Administrator Certificate Applications for Managed PKI Customer and trusted fourth party employees as follows:

- CrossCert authenticates the existence and identity of the entity employing or retaining the Administrator pursuant to CPS § 3.1.8.2
- CrossCert confirms the employment and authorization of the person named as Administrator in the Certificate Application to act as Administrator.

CrossCert also approves Certificate Applications for its own Administrators. Administrators are “Trusted Persons” within their respective organization (see CPS § 5.2.1). In this case,

authentication of their Certificate Applications is based on confirmation of their identity in connection with their employment or retention as an independent contractor (see CPS § 5.2.3), background checking procedures (see CPS § 5.3.2), and authorization to act as Administrator.

3.2 Routine Rekey and Renewal

Prior to the expiration of an existing Subscriber’s Certificate, it is necessary for the Subscriber to obtain a new certificate to maintain continuity of Certificate usage. CrossCert generally requires that the Subscriber generate a new key pair to replace the expiring key pair (technically defined as “rekey”). However, in certain cases (i.e., for web server certificates) CrossCert permits Subscribers to request a new certificate for an existing key pair (technically defined as “renewal”). Table 11 below describes CrossCert’s requirements for routine rekey (issuance of a new certificate for a new key pair that replaces an existing key pair) and renewal (issuance of a new certificate for an existing key pair).

Generally speaking, both “Rekey” and “Renewal” are commonly described as “Certificate Renewal,” focusing on the fact that the old Certificate is being replaced with a new Certificate and not emphasizing whether or not a new key pair is generated. For all Classes and Types of CrossCert Certificates, except for Class 3 Server Certificates, this distinction is not important as a new key pair is always generated as part of CrossCert’s end-user Subscriber Certificate replacement process.

However, for Class 3 Server Certificates, because the Subscriber key pair is generated on the web server and most web server key generation tools permit the creation of a new Certificate Request for an existing key pair, there is a distinction between “rekey” and “renewal.” In addition, new CA Certificates may be issued for existing CrossCert CA key pairs subject to the constraints specified in Table 11 below.

<i>Certificate Class and Type</i>	<i>Routine Rekey and Renewal Requirements</i>
Class 1, Class 2, Class 3 Code and Object Signing, and Class 3 Administrator Certificates	For these types of Certificates, Subscriber key pairs are browser generated as part of the online enrollment process. The Subscriber does not have the option to submit an existing key pair for “renewal.” Accordingly, for these types of Certificates, rekey is supported and Certificate renewal is not.
Class 3 Server Certificates	For Secure Server IDs or Global Server IDs, Subscriber key pairs are generated outside of the online enrollment process (i.e., generated on a web server). Most server key generation tools, permit the Subscriber to create a new Certificate Signing Request (CSR) for a previously-used key pair. Accordingly, for Secure Server IDs and Global Server IDs, both rekey and Certificate renewal are supported.
CA Certificates	Renewal of CA Certificates is permitted as long as the cumulative certified lifetime of the CA key pair does not exceed the applicable maximum CA key pair lifetime specified in CPS § 6.3.2. CrossCert CAs may also be rekeyed in accordance with CPS § 4.7. Accordingly,

<i>Certificate Class and Type</i>	<i>Routine Rekey and Renewal Requirements</i>
	for CrossCert CA Certificates both rekey and certificate renewal are supported.

Table 11 – Routine Rekey and Renewal Requirements

3.2.1 Routine Rekey and Renewal for End-User Subscriber Certificates

Subscriber Certificates, which have not been revoked, may be replaced (i.e., rekeyed or renewed) in accordance with the Table 12 below.

<i>Timing</i>	<i>Requirement</i>
Within 30 days before and 30 days after Certificate expiration	For all CrossCert Certificates, CrossCert or the Managed PKI Customer authenticates Subscribers seeking Certificate replacement through the use of a Challenge Phrase. As part of the initial registration process, Subscribers choose and submit a Challenge Phrase with their enrollment information. Upon rekey or renewal of a Certificate within the specified timeframe, if a Subscriber correctly submits the Subscriber’s Challenge Phrase with the Subscriber’s reenrollment information, and the enrollment information (other than contact information) has not changed, a new Certificate is automatically issued. After rekeying or renewal in this fashion, and on at least alternative instances of subsequent rekeying or renewal thereafter, the CA or RA shall reconfirm the identity of the Subscriber in accordance with the requirements specified in CPS § 3.1.8.1 for the authentication of an original Certificate Application.
Beyond 30 days after Certificate expiration	In this scenario, the requirements specified in CPS § 3.1.8.1 and 3.1.9 for the authentication of an original Certificate Application are used for replacing an end-user Subscriber Certificate.

Table 12 – Routine Rekey and Renewal Requirements for End-User Subscriber Certificates

3.2.2 Routine Rekey and Renewal for CA Certificates

CrossCert CAs may be rekeyed periodically in accordance with CPS § 4.7.

CrossCert CA Certificates may be renewed within the parameters specified in CPS § 6.3.2. For example, if an initial PCA certificate was issued with a lifetime of 10 years, renewed certificates may be issued to extend the validity period of the CA’s key pair for an additional 20 years, reaching the maximum permitted validity period of 30 years. CA Certificate Renewal is not permitted after Certificate Expiration.

For VeriSign self-signed PCA Certificates, other CrossCert root CAs, and CrossCert CA Certificates, renewal requests are created and approved by authorized VeriSign personnel through a controlled process that requires the participation of multiple trusted individuals.

For non-CrossCert CA Certificates which chain to the VeriSign PCAs, CrossCert performs appropriate procedures to verify that the Managed PKI Customer, is in fact the Subscriber of the CA Certificate. Authentication procedures are the same as original enrollment pursuant to CPS § 3.1.8.3.

3.3 Rekey After Revocation

Rekey after revocation is not be permitted if:

- revocation occurred because the Certificate (other than a Class 1 Certificate) was issued to a person other than the one named as the Subject of the Certificate,
- the Certificate (other than a Class 1 Certificate) was issued without the authorization of the person named as the Subject of such Certificate, or
- the entity approving the Subscriber’s Certificate Application discovers or has reason to believe that a material fact in the Certificate Application is false.

Subject to the foregoing paragraph, Subscriber Certificates, which have been revoked, may be replaced (i.e., rekeyed) in accordance with Table 13 below.

<i>Timing</i>	<i>Requirement</i>
Prior to Certificate expiration	For replacement of an organizational or individual Certificate following revocation of the Certificate, CrossCert verifies that the person seeking certificate replacement is, in fact, the Subscriber (for individuals) or an authorized organizational representative (for organizations) through the use of a Challenge Phrase, as described in CPS § 3.2.1. Other than this procedure, the requirements for the validation of an original Certificate Application in CPS §§ 3.1.8.1, 3.1.9 are used for replacing a Certificate following revocation. Such Certificates contain the same Subject distinguished name as the Subject distinguished name of the Certificate being replaced.
After Certificate expiration	In this scenario, the requirements specified in CPS §§ 3.1.8.1, § 3.1.9 for the authentication of an original Certificate Application shall be used for replacing an end-user Subscriber Certificate..

Table 13 – Requirements for Certificate Replacement After Revocation

3.4 Revocation Request

Prior to the revocation of a Certificate, CrossCert verifies that the revocation has been requested by the Certificate’s Subscriber, the entity that approved the Certificate Application,. Acceptable procedures for authenticating Subscriber revocation requests include:

- Having the Subscriber submit the Subscriber’s Challenge Phrase and revoking the Certificate automatically if it matches the Challenge Phrase on record,

- Receiving a message purporting to be from the Subscriber that requests revocation and contains a digital signature verifiable with reference to the Certificate to be revoked, and
- Communication with the Subscriber providing reasonable assurances in light of the Class of Certificate that the person or organization requesting revocation is, in fact the Subscriber. Depending on the circumstances, such communication may include one or more of the following: telephone, facsimile, e-mail, postal mail, or courier service.

CrossCert Administrators are entitled to request the revocation of end-user Subscriber Certificates within CrossCert's Subdomain. CrossCert authenticates the identity of Administrators via access control using SSL and client authentication before permitting them to perform revocation functions. .

Managed PKI Customers using the Automated Administration Software Module may submit bulk revocation requests to VeriSign. Such requests are authenticated via a request digitally signed with the private key in the Managed PKI Customer's Automated Administration hardware token.

The requests of Managed PKI Customers to revoke a CA Certificate are authenticated by CrossCert to ensure that the revocation has in fact been requested by the CA.

4. Operational Requirements

4.1 Certificate Application

4.1.1 Certificate Applications for End-User Subscriber Certificates

For CrossCert Certificates, all end-user Certificate Applicants shall undergo an enrollment process consisting of:

- completing a Certificate Application and providing the required information,
- generating, or arranging to have generated, a key pair in accordance with CPS § 6.1,
- the Certificate Applicant delivering his, her, or its public key, directly or through an Managed PKI Customer, to CrossCert, in accordance with CPS § 6.1.3,
- demonstrating to CrossCert pursuant to CPS § 3.1.7 that the Certificate Applicant has possession of the private key corresponding to the public key delivered to CrossCert, and
- manifesting assent to the relevant Subscriber Agreement.

Web Hosts may submit Certificate Applications on behalf of their customers pursuant to the Web Host Program (see CPS § 1.1.2.6).

Certificate Applications are submitted either to CrossCert, or Managed PKI Customer for processing, either approval or denial. The entity processing the Certificate Application and the entity issuing the Certificate pursuant to CPS § 4.2 may be two different entities as shown in the following table.

<i>Certificate Class/Category</i>	<i>Entity Processing Certificate Applications</i>	<i>Entity Issuing Certificate</i>
Class 1 individual Retail Certificate	CrossCert	CrossCert
Class 2 individual Managed PKI Certificate	Class 2 Managed PKI Customer or Managed PKI Lite Customer	CrossCert
Class 3 Administrator Certificate	CrossCert	CrossCert
Class 3 organizational Retail Certificates	CrossCert	CrossCert
Class 3 organizational Managed PKI Certificates (Managed PKI for SSL)	Managed PKI for SSL Customer	VeriSign
CA, Infrastructure and CrossCert Employee Certificates	CrossCert	CrossCert

Table 14 – Entities Receiving Certificate Applications

4.1.2 Certificate Applications for CA, RA, Infrastructure and Employee Certificates

4.1.2.1 CA Certificates

The VeriSign PCAs issue certificates only to CAs subordinate to them, including VeriSign, Affiliate, and Managed PKI Customer. For CrossCert CAs, which are subscribers of CA Certificates, certificate requests are created and approved by authorized CrossCert personnel through a controlled process that requires the participation of multiple trusted individuals.

Managed PKI Customers, which are subscribers of CA Certificates, are not required to complete formal Certificate Applications. Instead, they enter into a contract with CrossCert. CA Certificate Applicants are required to provide their credentials as required by CPS § 3.1.8.2 to demonstrate their identity and provide contact information during the contracting process. During this contracting process or, at the latest, prior to the Key Generation Ceremony to create a Managed PKI Customer's, , the applicant shall cooperate with CrossCert to determine the appropriate distinguished name and the content of the Certificates to be issued to the applicant. For these CAs, certificate requests are created and approved by authorized CrossCert personnel through a controlled process that requires the participation of multiple trusted individuals.

4.1.2.2 RA Certificates

CrossCert operates several Administrative CAs, which issue certificates to RAs and RA systems including:

- CrossCert personnel (CrossCert RA Administrators) who process Certificate Applications on behalf of CrossCert CAs,

- Managed PKI Customer personnel (Managed PKI Administrators) who process Certificate Applications on behalf of the Managed PKI Customer within their organization and servers within their Subdomain, and
- Automated Administration servers, which process Certificate Applications for Managed PKI Customers where an Automated Administration authentication process has been established.

For all of these RAs, as subscribers to the relevant Administrative CA, the requirements for Class 3 Administrator Certificates specified in CPS § 4.1.1 apply.

4.1.2.3 Infrastructure Certificates

CrossCert also operates several Infrastructure CAs which issue Certificates to CrossCertinfrastructure components (e.g., OCSP Responders providing Certificate status information and Roaming Servers, which support the CrossCert Roaming Service).

4.1.2.4 VeriSign Employee Certificates

CrossCert issues Class 2 certificates to its employees upon the successful submission and processing of a Certificate Application.

4.2 Certificate Issuance

4.2.1 Issuance of End-User Subscriber Certificates

After a Certificate Applicant submits a Certificate Application, CrossCert, an Managed PKI Administrator (see CPS § 4.1.1) attempts to confirm the information in the Certificate Application (other than Non-Verified Subscriber Information) pursuant to CPS §§ 3.1.8.1, 3.1.9. Upon successful performance of all required authentication procedures pursuant to CPS § 3.1, CrossCert, an Managed PKI Administrator approves the Certificate Application. If authentication is unsuccessful, CrossCert, a Managed PKI Administrator denies the Certificate Application.

A Certificate is created and issued following the approval of a Certificate Application or following receipt of an RA's request to issue the Certificate. CrossCert creates and issues to a Certificate Applicant a Certificate based on the information in a Certificate Application following approval of such Certificate Application. When a Managed PKI Customer approves a Certificate Application and communicates the approval to CrossCert, CrossCert creates a Certificate and issues it to the Certificate Applicant. The procedures of this section are also used for the issuance of Certificates in connection with the submission of a request to replace (i.e., renew or rekey) a Certificate.

4.2.2 Issuance of CA, RA and Infrastructure Certificates

CrossCert authenticates the identity of entities wishing to become Customers in accordance with CPS § 3.1.8.2 and, upon approval, issues the Certificates needed to perform their CA or RA

functions. Before CrossCert enters into a contract with Customer applicant under CPS § 4.1.2, the identity of the potential Customer is confirmed based on the credentials presented. The execution of such a contract indicates the complete and final approval of the application by CrossCert. The decision to approve or reject Customer application is solely at the discretion of CrossCert. Following such approval, CrossCert issues the Certificate to the Customer CA or RA in accordance with CPS § 6.1.

For CrossCert infrastructure components (e.g., OCSP Responders), Certificate requests are created and approved by authorized CrossCert personnel through a controlled process that requires the participation of multiple Trusted Persons.

4.3 Certificate Acceptance

Upon Certificate generation, CrossCert notifies Subscribers that their Certificates are available and notifies them of the means for obtaining such Certificates. For Managed PKI Customers, Subscribers are notified through the Managed PKI Administrator.

Upon issuance, Certificates are made available to end-user Subscribers, either by allowing them to download them from a web site or via a message sent to the Subscriber containing the Certificate. For example, CrossCert may send the Subscriber a PIN, which the Subscriber enters into an enrollment web page to obtain the Certificate. The Certificate may also be sent to the Subscriber in an e-mail message. Downloading a Certificate, or installing a Certificate from a message attaching it constitutes the Subscriber's acceptance of the Certificate.

4.4 Certificate Suspension and Revocation

4.4.1 Circumstances for Revocation

4.4.1.1 Circumstances for Revoking End-User Subscriber Certificates

An end-user Subscriber Certificate is revoked if:

- CrossCert, a Customer, or a Subscriber has reason to believe or strongly suspects that there has been a Compromise of a Subscriber's private key,
- CrossCert or a Customer has reason to believe that the Subscriber has materially breached a material obligation, representation, or warranty under the applicable Subscriber Agreement,
- The Subscriber Agreement with the Subscriber has been terminated,
- The affiliation between an Managed PKI Customer, is terminated or has otherwise ended,

- CrossCert or a Customer has reason to believe that the Certificate was issued in a manner not materially in accordance with the procedures required by the applicable CPS, the Certificate (other than a Class 1 Certificate) was issued to a person other than the one named as the Subject of the Certificate, or the Certificate (other than a Class 1 Certificate) was issued without the authorization of the person named as the Subject of such Certificate,

- CrossCert or a Customer has reason to believe that a material fact in the Certificate Application is false,
- CrossCert or a Customer determines that a material prerequisite to Certificate Issuance was neither satisfied nor waived,
- In the case of Class 3 organizational Certificates, the Subscriber's organization name changes,
- The information within the Certificate, other than Nonverified Subscriber Information, is incorrect or has changed, or
- The Subscriber requests revocation of the Certificate in accordance with CPS § 3.4.

CrossCert may also revoke an Administrator Certificate if the Administrator's authority to act as Administrator has been terminated or otherwise has ended.

CrossCert Subscriber Agreements require end-user Subscribers to immediately notify CrossCert of a known or suspected compromise of its private key in accordance with the procedures in CPS § 4.4.3.1.

4.4.1.2 Circumstances for Revoking CA, RA, or Infrastructure Certificates

CrossCert will revoke CA, RA, or infrastructure Certificates if:

- CrossCert discovers or has reason to believe that there has been a compromise of the CA, RA, or infrastructure private key,
- The agreement between the CA or RA with CrossCert has been terminated,
- CrossCert discovers or has reason to believe that the Certificate was issued in a manner not materially in accordance with the procedures required by this CPS, the Certificate was issued to an entity other than the one named as the Subject of the Certificate, or the Certificate was issued without the authorization of the entity named as the Subject of such Certificate,
- CrossCert determines that a material prerequisite to Certificate issuance was neither satisfied nor waived, or
- The CA or RA requests revocation of the Certificate.

CrossCert requires that Managed PKI Customers when revocation is required in accordance with the procedures in CPS § 4.4.3.1.

4.4.2 Who Can Request Revocation

4.4.2.1 Who Can Request Revocation of an End-User Subscriber Certificate

The following entities may request revocation of an end-user Subscriber Certificate:

- CrossCert or the Customer that approved the Subscriber's Certificate Application may request the revocation of any end-user Subscriber or Administrator Certificates in accordance with CPS § 4.4.1.1.
- Individual Subscribers may request revocation of their own individual Certificates.

- In the case of organizational Certificates, only a duly authorized representative of the organization is entitled to request the revocation of Certificates issued to the organization.
- A duly authorized representative of CrossCert or a Managed PKI Customer whose Administrator received an Administrator Certificate is entitled to request the revocation of an Administrator's Certificate.

4.4.2.2 Who Can Request Revocation of a CA, RA, or Infrastructure Certificate

The following entities may request revocation of a CA, RA, or infrastructure Certificate:

- Only CrossCert is entitled to request or initiate the revocation of the Certificates issued to its own CAs, RAs, or infrastructure components.
- VeriSign and where subordinate too CrossCert, CrossCert may initiate the revocation of any Processing Center, Service Center, Managed PKI Customer, RA, or infrastructure Certificate in accordance with CPS § 4.4.1.2.
- Processing Centers, Service Centers, Managed PKI Customers, are entitled, through their duly authorized representatives, to request the revocation of their own CA, RA, and infrastructure Certificates.

4.4.3 Procedure for Revocation Request

4.4.3.1 Procedure for Requesting the Revocation of an End-User Subscriber Certificate

An end-user Subscriber requesting revocation is required to communicate the request to the CrossCert or the Customer approving the Subscriber's Certificate Application, who in turn will initiate revocation of the certificate promptly. For Managed PKI customers, the Subscriber is required to communicate the request to the Managed PKI Administrator who will communicate the revocation request to CrossCert for processing. Communication of such revocation request shall be in accordance with CPS § 3.4.

Where an Managed PKI Customer initiates revocation of an end-user Subscriber Certificate upon its own initiative, the Managed PKI Customer or instructs CrossCert to revoke the Certificate.

4.4.3.2 Procedure for Requesting the Revocation of a CA or RA Certificate

A CA or RA requesting revocation of its CA or RA Certificate is required to communicate the request to CrossCert. CrossCert will then revoke the Certificate. CrossCert may also initiate CA or RA Certificate revocation.

4.4.4 Revocation Request Grace Period

Revocation requests must be submitted as promptly as possible within a commercially reasonable period of time.

4.4.5 Circumstances for Suspension

CrossCert does not generally offer suspension services for CA or end-user Subscriber Certificates.

4.4.6 Who Can Request Suspension

Not applicable.

4.4.7 Procedure for Suspension Request

Not applicable.

4.4.8 Limits on Suspension Period

Not applicable.

4.4.9 CRL Issuance Frequency

CrossCert publishes CRLs showing the revocation of CrossCert Certificates and offers status checking services. CRLs for CAs that issue end-user Subscriber Certificates are published daily. CRLs for CAs that only issue CA Certificates are published quarterly and also whenever a CA Certificate is revoked. Expired Certificates are removed from the CRL starting thirty (30) days after the Certificate's expiration.

4.4.10 Certificate Revocation List Checking Requirements

Relying Parties must check the status of Certificates on which they wish to rely. One method by which Relying Parties may check Certificate status is by consulting the most recent CRL published by the CA that issued the Certificate on which the Relying Party wishes to rely.

- For VeriSign PCAs and Class 1-3 Certification Authorities, CRLs are posted in the VeriSign repository at <http://crl.crosscert.com>.
- For Managed PKI Lite Customer CAs, CRLs are posted at <http://onsitecrl.crosscert.com/OnSitePublic/>.
- For Managed PKI Customer CAs, CRLs are posted in customer-specific repositories, the location of which is communicated to the Managed PKI customer.

A "CRL reference Table" is also posted in the Repository to enable Relying Parties to determine the location of the CRL for the relevant CA.

4.4.11 On-Line Revocation/Status Checking Availability

In addition to publishing CRLs, CrossCert provides Certificate status information through query functions in the CrossCert repository.

Certificate status information is available through web-based query functions accessible through the CrossCert Repository at

- <https://www.crosscert.com/Repository> (for Individual Certificates) and
- <https://www.crosscert.com/Repository> (for Server and Developer Certificates).

CrossCert also provides OCSP Certificate status information. Managed PKI Customers who contract for OCSP services may check Certificate status through the use of OCSP. The URL for the relevant OCSP Responder is communicated to the Managed PKI Customer.

4.4.12 On-Line Revocation Checking Requirements

If a Relying Party does not check the status of a Certificate on which the Relying Party wishes to rely by consulting the most recent relevant CRL, the Relying Party must check Certificate status using one of the applicable methods specified in CPS § 4.4.11.

4.4.13 Other Forms of Revocation Advertisements Available

No stipulation.

4.4.14 Checking Requirements for Other Forms of Revocation Advertisements

No stipulation.

4.4.15 Special Requirements Regarding Key Compromise

In addition to the procedures described in CPS §§ 4.4.9 – 4.4.14, CrossCert uses commercially reasonable efforts to notify potential Relying Parties if CrossCert discovers, or has reason to believe, that there has been a Compromise of the private key of a CrossCert CA.

4.5 Security Audit Procedures

4.5.1 Types of Events Recorded

CrossCert manually or automatically logs the following significant events:

- CA key life cycle management events, including:
 - Key generation, backup, storage, recovery, archival, and destruction
 - Cryptographic device life cycle management events.
- CA and Subscriber certificate life cycle management events, including:
 - Certificate Applications, renewal, rekey, and revocation
 - Successful or unsuccessful processing of requests
 - Generation and issuance of Certificates and CRLs.
- Security-related events including:
 - Successful and unsuccessful PKI system access attempts
 - PKI and security system actions performed by CrossCert personnel
 - Security sensitive files or records read, written or deleted
 - Security profile changes
 - System crashes, hardware failures and other anomalies
 - Firewall and router activity
 - CA facility visitor entry/exit.

Log entries include the following elements:

- Date and time of the entry
- Serial or sequence number of entry, for automatic journal entries
- Identity of the entity making the journal entry

- Kind of entry.

CrossCert RAs and Managed PKI Administrators log Certificate Application information including:

- Kind of identification document(s) presented by the Certificate Applicant
- Record of unique identification data, numbers, or a combination thereof (e.g., Certificate Applicant's drivers license number) of identification documents, if applicable
- Storage location of copies of applications and identification documents
- Identity of entity accepting the application
- Method used to validate identification documents, if any
- Name of receiving CA or submitting RA, if applicable.

4.5.2 Frequency of Processing Log

Audit logs are examined on at least a weekly basis for significant security and operational events. In addition, CrossCert reviews its audit logs for suspicious or unusual activity in response to alerts generated based on irregularities and incidents within CrossCert CA and RA systems.

Audit log processing consists of a review of the audit logs and documentation for all significant events in an audit log summary. Audit log reviews include a verification that the log has not been tampered with, a brief inspection of all log entries, and a more thorough investigation of any alerts or irregularities in the logs. Actions taken based on audit log reviews are also be documented.

4.5.3 Retention Period for Audit Log

Audit logs are retained onsite at least two (2) months after processing and thereafter archived in accordance with CPS § 4.6.2.

4.5.4 Protection of Audit Log

Electronic and manual audit log files are protected from unauthorized viewing, modification, deletion, or other tampering through the use of physical and logical access controls.

4.5.5 Audit Log Backup Procedures

Incremental backups of audit logs are created daily and full backups are performed weekly.

4.5.6 Audit Collection System

Automated audit data is generated and recorded at the application, network and operating system level. Manually generated audit data is recorded by CrossCert personnel.

4.5.7 Notification to Event-Causing Subject

Where an event is logged by the audit collection system, no notice is required to be given to the individual, organization, device, or application that caused the event.

4.5.8 Vulnerability Assessments

Events in the audit process are logged, in part, to monitor system vulnerabilities. Logical security vulnerability assessments (“LSVAs”) are performed, reviewed, and revised following an examination of these monitored events. LSVAs are based on real-time automated logging data and are performed on a daily, monthly, and annual basis in accordance with the requirements of the Security and Audit Requirements Guide. An annual LSVAs serves as an input into the annual Compliance Audit.

4.6 Records Archival

4.6.1 Types of Events Recorded

In addition to the audit logs specified in CPS § 4.5, CrossCert maintains records that include documentation of:

- CrossCert’s compliance with the CPS and other obligations under its agreements with their Subscribers, and
- actions and information that are material to each Certificate Application and to the creation, issuance, use, revocation, expiration, and rekey or renewal of all Certificates it issues from the CrossCert Processing/Service Center.

CrossCert’s records of Certificate life cycle events include:

- the identity of the Subscriber named in each Certificate (except for Class 1 Certificates, for which only a record of the Subscriber’s unambiguous name is maintained),
- the identity of persons requesting Certificate revocation (except for Class 1 Certificates, for which only a record of the Subscriber’s unambiguous name is maintained),
- other facts represented in the Certificate,
- time stamps, and
- certain foreseeable material facts related to issuing Certificates including, but not limited to, information relevant to successful completion of a Compliance Audit under CPS § 2.7.

Records may be maintained electronically or in hard copy, provided that such records are accurately and completely indexed, stored, preserved, and reproduced.

4.6.2 Retention Period for Archive

Records associated with a Certificate are retained for at least the time periods set forth below following the date the Certificate expires or is revoked:

- Five (5) years for Class 1 Certificates,
- Ten (10) years for Class 2 Certificates, and
- Thirty (30) years for Class 3 Certificates.

If necessary, CrossCert may implement longer retention periods in order to comply with applicable laws.

4.6.3 Protection of Archive

CrossCert protects its archived records compiled under CPS § 4.6.1 so that only authorized Trusted Persons are permitted to access archived data. Electronically archived data is protected against unauthorized viewing, modification, deletion, or other tampering through the implementation of appropriate physical and logical access controls. The media holding the archive data and the applications required to process the archive data are maintained to ensure that the archived data can be accessed for the time period set forth in CPS § 4.6.2.

4.6.4 Archive Backup Procedures

CrossCert incrementally backs up electronic archives of its issued Certificate information on a daily basis and performs full backups on a weekly basis. Copies of paper-based records compiled under CPS § 4.6.1 are maintained in an off-site disaster recovery facility in accordance with CPS § 4.8.

4.6.5 Requirements for Time-Stamping of Records

Certificates, CRLs, and other revocation database entries contain time and date information. It should be noted that, in contrast with the CrossCert's Digital Notarization Service, such time information is not cryptographic-based (*see* CPS § 1.1.2.2.2).

4.6.6 Procedures to Obtain and Verify Archive Information

See CPS § 4.6.3.

4.7 Key Changeover

CrossCert CA key pairs are retired from service at the end of their respective maximum lifetimes as defined in CPS § 6.3.2. CrossCert CA Certificates may be renewed as long as the cumulative certified lifetime of the CA key pair does not exceed the maximum CA key pair lifetime. New CA key pairs will be generated as necessary, for example to replace CA key pairs that are being retired, to supplement existing, active key pairs and to support new services in accordance with CPS § 6.1.

Prior to the expiration of the CA Certificate for a Superior CA, key changeover procedures are enacted to facilitate a smooth transition for entities within the Superior CA's hierarchy from the old Superior CA key pair to new CA key pair(s). CrossCert's CA key changeover process requires that:

- A Superior CA ceases to issue new Subordinate CA Certificates no later than 60 days before the point in time ("Stop Issuance Date") where the remaining lifetime of the Superior CA key pair equals the approved Certificate Validity Period for the specific type(s) of Certificates issued by Subordinate CAs in the Superior CA's hierarchy.
- Upon successful validation of Subordinate CA (or end-user Subscriber) Certificate requests received after the "Stop Issuance Date," Certificates will be signed with a new CA key pair.

- The Superior CA continues to issue CRLs signed with the original Superior CA private key until the expiration date of the last Certificate issued using the original key pair has been reached.

4.8 Disaster Recovery and Key Compromise

CrossCert has implemented a robust combination of physical, logical, and procedural controls to minimize the risk and potential impact of a key Compromise or disaster. In addition, CrossCert has implemented disaster recovery procedures described in CPS § 4.8.2 and Key Compromise response procedures described in CPS § 4.8.3. CrossCert's Compromise and disaster recovery procedures have been developed to minimize the potential impact of such an occurrence and restore CrossCert's operations within a commercially reasonable period of time.

4.8.1 Corruption of Computing Resources, Software, and/or Data

In the event of the corruption of computing resources, software, and/or data, such an occurrence is reported to CrossCert Security and CrossCert's incident handling procedures are enacted. Such procedures require appropriate escalation, incident investigation, and incident response. If necessary, CrossCert's key compromise or disaster recovery procedures will be enacted.

4.8.2 Disaster Recovery

4.8.2.1 VeriSign

For services where the entity issuing Certificates is VeriSign (see CPS §1.1.2.1.2), VeriSign has implemented a disaster recovery site more than 1000 miles from VeriSign's principal secure facilities. VeriSign has developed, implemented and tested a disaster recovery plan to mitigate the effects of any kind of natural or man-made disaster. This plan is regularly tested, verified, and updated to be operational in the event of a disaster.

Detailed disaster recovery plans are in place to address the restoration of information systems services and key business functions. VeriSign's disaster recovery site has implemented the physical security protections and operational controls required by the Security and Audit Requirements Guide to provide for a secure and sound backup operational setup.

In the event of a natural or man-made disaster requiring temporary or permanent cessation of operations from VeriSign's primary facility, VeriSign's disaster recovery process is initiated by the VeriSign Emergency Response Team (VERT).

VeriSign has the capability to restore or recover operations within twenty four (24) hours following a disaster with, at a minimum, support for the following functions:

- Certificate issuance,
- Certificate revocation,
- publication of revocation information, and
- provision of key recovery information for Managed PKI Customers using Managed PKI Key Manager.

VeriSign's disaster recovery database is synchronized regularly with the production database within the time limits set forth in the Security and Audit Requirements Guide. VeriSign's disaster recovery equipment is protected by physical security protections comparable to the physical security tiers specified in the VeriSign Certificate Practices Statement § 5.1.1.

VeriSign's disaster recovery plan has been designed to provide full recovery within one week following disaster occurring at VeriSign's primary site. VeriSign tests its equipment at its primary site to support CA/RA functions following all but a major disaster that would render the entire facility inoperable. Results of such tests are reviewed and kept for audit and planning purposes. Where possible, operations are resumed at VeriSign's primary site as soon as possible following a major disaster.

VeriSign maintains redundant hardware and backups of its CA and infrastructure system software at its disaster recovery facility. In addition, CA private keys are backed up and maintained for disaster recovery purposes in accordance with the VeriSign Certificate Practices Statement § 6.2.4.

4.8.2.2 CrossCert.

For services where the entity issuing Certificates is CrossCert (see CPS §1.1.2.1.2), a disaster recovery plan will be developed, implemented and tested by CrossCert by the end of 2004. This plan will be regularly tested, verified, and updated to be operational in the event of a disaster. Detailed disaster recovery plans will be in place to address the restoration of information systems services and key business functions. In the event of a natural or man-made disaster requiring temporary or permanent cessation of operations from CrossCert's facility, CrossCert's disaster recovery process will be initiated by the CrossCert Emergency Response Team (CERT).

CrossCert will have the capability to restore or recover operations within twenty four (24) hours following a disaster with, at a minimum, support for the following functions:

- Certificate issuance,
- Certificate revocation,
- publication of revocation information, and
- provision of key recovery information for Managed PKI Customers using Managed PKI Key Manager.

CrossCet has implemented back-up and archive procedures:

- Data-backed-up nightly
- Full back-ups archived off site(in our local bank) weekly

CrossCert will maintain redundant hardware and backup of its CA and infrastructure system software at its disaster recovery facility. In addition, CA private keys will be backed up and maintained for disaster recovery purposes in accordance with the CPS § 6.2.4.

4.8.3 Key Compromise

Upon the suspected or known Compromise of a CrossCert CA, CrossCert infrastructure or Customer CA private key, CrossCert's Key Compromise Response procedures are enacted by the Compromise Incident Response Team (CIRT). This team, which includes Security, Cryptographic Business Operations, Production Services personnel, and other CrossCert management representatives, assesses the situation, develops an action plan, and implements the action plan with approval from CrossCert executive management.

If CA Certificate revocation is required, the following procedures are performed:

- The Certificate's revoked status is communicated to Relying Parties through the CrossCert repository in accordance with CPS § 4.4.9,
- Commercially reasonable efforts will be made to provide additional notice of the revocation to all affected VTN Participants, and
- The CA will generate a new key pair in accordance with CPS § 4.7, except where the CA is being terminated in accordance with CPS § 4.9.

4.9 CA Termination

In the event that it is necessary for a CrossCert CA, Managed PKI Customer CA, to cease operation, CrossCert makes a commercially reasonable effort to notify Subscribers, Relying Parties, and other affected entities of such termination in advance of the CA termination. Where CA termination is required, CrossCert and, in the case of a Customer CA, the applicable Customer, will develop a termination plan to minimize disruption to Customers, Subscribers, and Relying Parties. Such termination plans may address the following, as applicable:

- Provision of notice to parties affected by the termination, such as Subscribers, Relying Parties, and Customers, informing them of the status of the CA,
- Handling the cost of such notice,
- The revocation of the Certificate issued to the CA by CrossCert,
- The preservation of the CA's archives and records for the time periods required in CPS § 4.6,
- The continuation of Subscriber and customer support services,
- The continuation of revocation services, such as the issuance of CRLs or the maintenance of online status checking services,
- The revocation of unexpired unrevoked Certificates of end-user Subscribers and subordinate CAs, if necessary,
- The payment of compensation (if necessary) to Subscribers whose unexpired unrevoked Certificates are revoked under the termination plan or provision, or alternatively, the issuance of replacement Certificates by a successor CA,
- Disposition of the CA's private key and the hardware tokens containing such private key, and
- Provisions needed for the transition of the CA's services to a successor CA.

5. Physical, Procedural, and Personnel Security Controls

CrossCert has implemented the CrossCert Security Policy, which supports the security requirements of this CPS.

5.1 Physical Controls

5.1.1 Site Location and Construction

CrossCert's CA and RA operations are conducted within CrossCert's facilities in Seoul, South Korea, which meet the requirements of Security and Audit Requirements. All CrossCert CA and RA operations are conducted within a physically protected environment designed to deter, prevent, and detect covert or overt penetration.

CrossCert's primary facilities have up to seven physical security tiers as described in CPS § 5.1.2 with:

- RA validation operations performed within Tier 3
- CA functions performed within Tier 4
- Sensitive servers, including the VeriSign Roaming Server, located in Tier 4
- Online CA cryptographic modules stored in Tier 5
- Offline CA cryptographic modules stored in Tier 7.

Managed PKI Customers must ensure that their secure facilities meet the requirements in the Enterprise Security Guide.

5.1.2 Physical Access

CrossCert CA systems are protected by four tiers of physical security, with access to the lower tier required before gaining access to the higher tier. In addition, the physical security system includes three additional tiers for key management security. The characteristics and requirements of each tier are described in Table 15 below.

<i>Tier</i>	<i>Description</i>	<i>Access Control Mechanisms</i>
Physical Security Tier 1	Physical security tier one refers to the outermost physical security barrier for the facility.	Access to this tier requires the use of a proximity card employee badge. Physical access to tier one is automatically logged and video recorded.
Physical Security Tier 2	Tier two includes common areas including restrooms and common hallways.	Tier two enforces individual access control for all persons entering the common areas of the CA facility through the use of a proximity card employee badge. Physical access to tier two is automatically logged.

<i>Tier</i>	<i>Description</i>	<i>Access Control Mechanisms</i>
Physical Security Tier 3	Tier three is the first tier at which sensitive CA operational activity takes place. Sensitive CA operational activity is any activity related to the lifecycle of the certification process such as authentication, verification, and issuance.	Tier three enforces individual access control through the use of two factor authentication including biometrics. Unescorted personnel, including untrusted employees or visitors, are not allowed into a tier-three secured area. Physical access to tier three is automatically logged.
Physical Security Tier 4	Tier four is the tier at which especially sensitive CA operations occur. There are two distinct tier four areas: the online tier 4 data center and the offline tier 4 key ceremony room.	The tier four data center enforces individual access control and the key ceremony room enforces dual control, each through the use of two factor authentication including biometrics. Individuals approved for unescorted tier four access must satisfy the Trusted Employee Policy. Physical access to tier four is automatically logged.
Key Management Tiers 5-7	Key Management tiers five through seven serve to protect both online and offline storage of CSUs and keying material.	Online CSUs are protected through the use of locked cabinets. Offline CSUs are protected through the use of locked safes, cabinets and containers. Access to CSUs and keying material is restricted in accordance with CrossCert's segregation of duties requirements. The opening and closing of cabinets or containers in these tiers is logged for audit purposes. Progressively restrictive physical access privileges control access to each tier.

Table 15 – Physical Security Tiers

5.1.3 Power and Air Conditioning

CrossCert's secure facilities are equipped with primary and backup:

- power systems to ensure continuous, uninterrupted access to electric power and
- heating/ventilation/air conditioning systems to control temperature and relative humidity.

5.1.4 Water Exposures

CrossCert has taken reasonable precautions to minimize the impact of water exposure to CrossCert systems.

5.1.5 Fire Prevention and Protection

CrossCert has taken reasonable precautions to prevent and extinguish fires or other damaging exposure to flame or smoke. CrossCert's fire prevention and protection measures have been designed to comply with local fire safety regulations.

5.1.6 Media Storage

All media containing production software and data, audit, archive, or backup information is stored within CrossCert facilities or in a secure off-site storage facility with appropriate physical and logical access controls designed to limit access to authorized personnel and protect such media from accidental damage (e.g., water, fire, and electromagnetic).

5.1.7 Waste Disposal

Sensitive documents and materials are shredded before disposal. Media used to collect or transmit sensitive information are rendered unreadable before disposal. Cryptographic devices are physically destroyed or zeroized in accordance the manufacturers' guidance prior to disposal. Other waste is disposed of in accordance with CrossCert's normal waste disposal requirements.

5.1.8 Off-Site Backup

CrossCert performs routine backups of critical system data, audit log data, and other sensitive information.

5.2 Procedural Controls

5.2.1 Trusted Roles

Trusted Persons include all employees, contractors, and consultants that have access to or control authentication or cryptographic operations that may materially affect:

- the validation of information in Certificate Applications;
- the acceptance, rejection, or other processing of Certificate Applications, revocation requests, or renewal requests, or enrollment information;
- the issuance, or revocation of Certificates, including personnel having access to restricted portions of its repository;
- or the handling of Subscriber information or requests.

Trusted Persons include, but are not limited to:

- customer service personnel,
- cryptographic business operations personnel,
- security personnel,
- system administration personnel,
- designated engineering personnel, and
- executives that are designated to manage infrastructural trustworthiness.

CrossCert considers the categories of personnel identified in this section as Trusted Persons having a Trusted Position. Persons seeking to become Trusted Persons by obtaining a Trusted Position must successfully complete the screening requirements of CPS § 5.3.

5.2.2 Number of Persons Required Per Task

CrossCert maintains a policy and rigorous control procedures to ensure segregation of duties based on job responsibilities. The most sensitive tasks, such as access to and management of CA cryptographic hardware (cryptographic signing unit or CSU) and associated key material, require multiple Trusted Persons.

These internal control procedures are designed to ensure that at a minimum, two trusted personnel are required to have either physical or logical access to the device. Access to CA cryptographic hardware is strictly enforced by multiple Trusted Persons throughout its lifecycle, from incoming receipt and inspection to final logical and/or physical destruction. Once a module is activated with operational keys, further access controls are invoked to maintain split control over both physical and logical access to the device. Persons with physical access to modules do not hold “Secret Shares” and vice versa. Requirements for CA private key activation data and Secret Shares are specified in CPS § 6.2.7.

Other operations such as the validation and issuance of Class 3 Certificates require the participation of at least 2 Trusted Persons.

5.2.3 Identification and Authentication for Each Role

For all personnel seeking to become Trusted Persons, verification of identity is performed through the personal (physical) presence of such personnel before Trusted Persons performing CrossCert Human Resources or security functions and a check of well-recognized forms of identification (e.g., passports and driver’s licenses). Identity is further confirmed through the background checking procedures in CPS § 5.3.1.

CrossCert ensures that personnel have achieved Trusted Status and departmental approval has been given before such personnel are:

- issued access devices and granted access to the required facilities;
- issued electronic credentials to access and perform specific functions on CrossCert CA, RA, or other IT systems.

5.3 Personnel Controls

5.3.1 Background, Qualifications, Experience, and Clearance Requirements

Personnel seeking to become Trusted Persons must present proof of the requisite background, qualifications, and experience needed to perform their prospective job responsibilities competently and satisfactorily, as well as proof of any government clearances, if any, necessary

to perform certification services under government contracts. Background checks are repeated at least every 5 years for personnel holding Trusted Positions.

5.3.2 Background Check Procedures

Prior to commencement of employment in a Trusted Role, CrossCert conducts background checks which include the following:

- confirmation of previous employment,
- check of professional reference,
- confirmation of the highest or most relevant educational degree obtained,
- search of criminal records (local, state or provincial, and national),
- check of credit/financial records,
- search of driver's license records, and
- search of Social Security Administration records.

To the extent that any of the requirements imposed by this section cannot be met due to a prohibition or limitation in local law or other circumstances, CrossCert will utilize a substitute investigative technique permitted by law that provides substantially similar information, including but not limited to obtaining a background check performed by the applicable governmental agency.

The factors revealed in a background check that may be considered grounds for rejecting candidates for Trusted Positions or for taking action against an existing Trusted Person generally include the following:

- Misrepresentations made by the candidate or Trusted Person,
- Highly unfavorable or unreliable personal references,
- Certain criminal convictions, and
- Indications of a lack of financial responsibility.

Reports containing such information are evaluated by human resources and security personnel, who determine the appropriate course of action in light of the type, magnitude, and frequency of the behavior uncovered by the background check. Such actions may include measures up to and including the cancellation of offers of employment made to candidates for Trusted Positions or the termination of existing Trusted Persons.

The use of information revealed in a background check to take such actions is subject to the applicable federal, state, and local laws.

5.3.3 Training Requirements

CrossCert provides its personnel with training upon hire and the requisite on-the-job training needed for personnel to perform their job responsibilities competently and satisfactorily. CrossCert periodically reviews and enhances its training programs as necessary.

CrossCert's training programs are tailored to the individual's responsibilities and include the following as relevant:

- Basic PKI concepts,
- Job responsibilities,
- CrossCert security and operational policies and procedures,
- Use and operation of deployed hardware and software,
- Incident and Compromise reporting and handling, and
- Disaster recovery and business continuity procedures.

5.3.4 Retraining Frequency and Requirements

CrossCert provides refresher training and updates to its personnel to the extent and frequency required to ensure that such personnel maintain the required level of proficiency to perform their job responsibilities competently and satisfactorily. Periodic security awareness training is provided on an ongoing basis.

5.3.5 Job Rotation Frequency and Sequence

No stipulation.

5.3.6 Sanctions for Unauthorized Actions

Appropriate disciplinary actions are taken for unauthorized actions or other violations of CrossCert policies and procedures. Disciplinary actions may include measures up to and including termination and are commensurate with the frequency and severity of the unauthorized actions.

5.3.7 Contracting Personnel Requirements

In limited circumstances, independent contractors or consultants may be used to fill Trusted Positions. Any such contractor or consultant is held to the same functional and security criteria that apply to a CrossCert employees in a comparable position.

Independent contractors and consultants who have not completed the background check procedures specified in CPS § 5.3.2 are permitted access to CrossCert's secure facilities only to the extent they are escorted and directly supervised by Trusted Persons.

5.3.8 Documentation Supplied to Personnel

CrossCert personnel involved in the operation of CrossCert's PKI services are required to read this CPS, the VTN CP, and the CrossCert Security Policy. CrossCert provides its employees the requisite training and other documentation needed to perform their job responsibilities competently and satisfactorily.

6. Technical Security Controls

6.1 Key Pair Generation and Installation

6.1.1 Key Pair Generation

CA key pair generation is performed by multiple pre-selected, trained and trusted individuals using Trustworthy Systems and processes that provide for the security and required cryptographic strength for the generated keys. For PCA and Issuing Root CAs, the cryptographic modules used for key generation meet the requirements of FIPS 140-1 level 3. For other CAs (including CrossCert CAs and Managed PKI Customer CAs), the cryptographic modules used meet the requirements of at least FIPS 140-1 level 2.

All CA key pairs are generated in pre-planned Key Generation Ceremonies in accordance with the requirements of the Key Ceremony Reference Guide, the CA Key Management Tool User's Guide, and the Security and Audit Requirements Guide. The activities performed in each key generation ceremony are recorded, dated and signed by all individuals involved. These records are kept for audit and tracking purposes for a length of time deemed appropriate by CrossCert Management.

Generation of RA key pairs is generally performed by the RA using a FIPS 140-1 level 1 certified cryptographic module provided with their browser software.

Managed PKI Customers generate the key pair used by their Automated Administration servers. CrossCert recommends that Automated Administration server key pair generation be performed using a FIPS 140-1 level 2 certified cryptographic module.

Generation of end-user Subscriber key pairs is generally performed by the Subscriber. For Class 1 Certificates, Class 2 Certificates, and Class 3 code/object signing Certificates, the Subscriber typically uses a FIPS 140-1 level 1 certified cryptographic module provided with their browser software for key generation. For server Certificates, the Subscriber typically uses the key generation utility provided with the web server software.

6.1.2 Private Key Delivery to Entity

End-user Subscriber key pairs are typically generated by the end-user Subscriber; therefore in such cases, private key delivery to a Subscriber is not applicable.

Where RA or end-user Subscriber key pairs are pre-generated by CrossCert on hardware tokens or smart cards, such devices are distributed to the RA or end-user Subscriber using a commercial delivery service and tamper evident packaging. The required activation data required to activate the device is communicated to the RA or end-user Subscriber using an out of band process. The distribution of such devices is logged by CrossCert.

For Managed PKI Customers using Managed PKI Key Manager for key recovery services, the Customer may generate encryption key pairs (on behalf of Subscribers whose Certificate Applications they approve) and transmit such key pairs to Subscribers via a password protected PKCS # 12 file.

6.1.3 Public Key Delivery to Certificate Issuer

End-user Subscribers and RAs submit their public key to CrossCert for certification electronically through the use of a PKCS#10 Certificate Signing Request (CSR) or other digitally signed package in a session secured by Secure Sockets Layer (SSL). Where CA, RA, or end-user Subscriber key pairs are generated by CrossCert, this requirement is not applicable.

6.1.4 CA Public Key Delivery to Users

CrossCert makes the CA Certificates for its PCAs and root CAs available to Subscribers and Relying Parties through their inclusion in Microsoft and Netscape web browser software. As new PCA and root CA Certificates are generated, CrossCert provides such new Certificates to the browser manufacturers for inclusion in new browser releases and updates.

CrossCert generally provides the full certificate chain (including the issuing CA and any CAs in the chain) to the end-user Subscriber upon Certificate issuance. CrossCert CA Certificates may also be downloaded from the CrossCert LDAP Directory at directory.CrossCert.com.

6.1.5 Key Sizes

CrossCert CA key pairs are at least 1024 bit RSA, except for the legacy RSA Secure Server CA whose key pair is 1000 bit RSA. VeriSign's third generation (G3) PCAs have 2048 bit RSA key pairs. CrossCert recommends that Registration Authorities and end-user Subscribers generate 1024 bit RSA key pairs, but currently permits the use of 512 bit RSA key pairs to support certain legacy applications and web servers.

6.1.6 Public Key Parameters Generation

Not applicable.

6.1.7 Parameter Quality Checking

Not applicable.

6.1.8 Hardware/Software Key Generation

CrossCert generates its CA pairs keys in appropriate hardware cryptographic modules in accordance with CPS § 6.2.1. RA and end-user Subscriber key pairs may be generated in hardware or software.

6.1.9 Key Usage Purposes

For X.509 Version 3 Certificates, CrossCert generally populates the KeyUsage extension of Certificates in accordance with RFC 2459: Internet X.509 Public Key Infrastructure Certificate and CRL Profile, January 1999. The KeyUsage extension in VeriSign X.509 Version 3 Certificates is populated in accordance with Table 16 below with the following exceptions:

- The Key Usage extension is not used for Global Server IDs, Class 1 individual Certificates and Class 2 individual Certificates.
- The criticality of the KeyUsage extension is set to TRUE for the CrossCert Class 3 Managed PKI Authentication Services Bureau CA.
- Setting the nonrepudiation bit for dual key pair signature Certificates through Managed PKI Key Manager is permissible.
- The criticality of the KeyUsage extension may be set to TRUE for other Certificates in the future.

		<i>CAs</i>	<i>Class 3 Server and Code/Object Signing End-User Subscribers; Automated Administration tokens</i>	<i>Dual Key Pair Signature (Managed PKI Key Manager)</i>	<i>Dual Key Pair Encipherment (Managed PKI Key Manager)</i>
Criticality		FALSE	FALSE	FALSE	FALSE
0	digitalSignature	Clear	Set	Set	Clear
1	nonRepudiation	Clear	Clear	Clear	Clear
2	keyEncipherment	Clear	Set	Clear	Set
3	dataEncipherment	Clear	Clear	Clear	Clear
4	keyAgreement	Clear	Clear	Clear	Clear
5	keyCertSign	Set	Clear	Clear	Clear
6	CRLSign	Set	Clear	Clear	Clear
7	encipherOnly	Clear	Clear	Clear	Clear
8	decipherOnly	Clear	Clear	Clear	Clear

Table 16 – Settings for KeyUsage Extension

Certain CA and end-user Subscriber Certificates are X.509 Version 1 Certificates (see CPS § 7.1.1) and thus do not support the use of the Key Usage extension. In addition, CrossCert does not currently use the Key Usage extension for WTLS Certificates.

6.2 Private Key Protection

CrossCert has implemented a combination of physical, logical, and procedural controls to ensure the security of CrossCert, Managed PKI Customer, private keys. Logical and procedural controls are described in CPS § 6.2. Physical access controls are described in CPS § 5.1.2.

Subscribers are required by contract to take necessary precautions to prevent the loss, disclosure, modification, or unauthorized use of private keys.

6.2.1 Standards for Cryptographic Modules

For PCA and Issuing Root CA key pair generation and CA private key storage, VeriSign and CrossCert use hardware cryptographic modules that are certified at or materially meet the requirements of FIPS 140-1 Level 3. For other CAs, CrossCert uses hardware cryptographic modules that are certified to at least FIPS 140-1 Level 2.

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

CrossCert has implemented technical and procedural mechanisms that require the participation of multiple trusted individuals to perform sensitive CA cryptographic operations. CrossCert uses “Secret Sharing” to split the activation data needed to make use of a CA private key into separate parts called “Secret Shares” which are held by trained and trusted individuals called “Shareholders.” A threshold number of Secret Shares (n) out of the total number of Secret Shares created and distributed for a particular hardware cryptographic module (m) is required to activate a CA private key stored on the module.

Table 17 below shows the threshold number of shared required and the total number of shares distributed for the different types of CrossCert CAs. It should be noted that the number of shares distributed for disaster recovery tokens is less than the number distributed for operational tokens, while the threshold number of required shares remains the same. Secret Shares are protected in accordance with CPS § 6.4.2.

<i>Entity</i>	<i>Required Secret Shares to Enable CA’s Private Key to Sign End-User Subscriber Certificates</i>	<i>Required Secret Shares to Sign CA’s Certificate</i>	<i>Total Secret Shares Distributed</i>	<i>Disaster Recovery Shares N/A for CrossCert</i>	
				<i>Shares Needed</i>	<i>Total Shares</i>
Class 1 PCA	n/a	n/a for CrossCert	n/a for CrossCert		
Class 2 PCA	n/a	n/a for CrossCert	n/a for CrossCert		
Class 3 PCA	n/a	n/a for CrossCert	n/a for CrossCert		
Class 1 CA and subordinate CAs	3	3	4		
Class 2 CA and subordinate CAs	3	3	4		
Class 3 CA and subordinate CAs	3	3	4		

Table 17 – Secret Share Distribution And Thresholds

6.2.3 Private Key Escrow

CrossCert does not escrow CA, RA or end-user Subscriber private keys with any third party for purposes of access by law enforcement.

Managed PKI Customers using Managed PKI Key Manager can escrow copies of the private keys of Subscribers whose Certificate Applications they approve. CrossCert does not store copies of Subscriber private keys but plays an important role in the Subscriber key recovery process as described below.

- For each end user key pair backed up, the Managed PKI Key Manager randomly generates a symmetric key used to encrypt the backed up private key at the Customer site. This encrypted private key is then stored in the local database at the Customer site. The symmetric key is also encrypted, using a public key belonging to the CrossCert key recovery service, and stored in the local database at the Customer site.
- When an end user's backed up private key must be recovered, the Managed PKI administrator identifies the appropriate key using the key history stored by the Key Manager at the Customer site, and sends the corresponding encrypted symmetric key to the CrossCert Recovery Service. The CrossCert Key Recovery Service decrypts and returns the symmetric key, which is then used locally to decrypt the end user's private key from the database. This key and the corresponding certificate can then be redistributed to the end user.

6.2.4 Private Key Backup

CrossCert creates backup copies of CA private keys for routine recovery and disaster recovery purposes. Such keys are stored in encrypted form within hardware cryptographic modules and associated key storage devices. Cryptographic modules used for CA private key storage meet the requirements of CPS § 6.2.1. CA private keys are copied to backup hardware cryptographic modules in accordance with CPS § 6.2.6.

Modules containing onsite backup copies of CA private keys are subject to the requirements of CPS §§ 5.1, 6.2.1. Modules containing disaster recovery copies of CA private keys are subject to the requirements of CPS § 4.8.2.

CrossCert does not store copies of RA private keys. For the backup of end-user Subscriber private keys, see CPS § 6.2.3.

6.2.5 Private Key Archival

When CrossCert CA key pairs reach the end of their validity period, such CA key pairs will be archived for a period of at least 5 years. Archived CA key pairs will be securely stored using hardware cryptographic modules that meet the requirements of CPS § 6.2.1. Procedural controls prevent archived CA key pairs from being returned to production use. Upon the end of the archive period, archived CA private keys will be securely destroyed in accordance with CPS § 6.2.9.

CrossCert does not archive copies of RA and Subscriber private keys.

6.2.6 Private Key Entry into Cryptographic Module

CrossCert generates CA key pairs on the hardware cryptographic modules in which the keys will be used. In addition, CrossCert makes copies of such CA key pairs for routine recovery and disaster recovery purposes. Where CA key pairs are backed up to another hardware cryptographic module, such key pairs are transported between modules in encrypted form.

6.2.7 Method of Activating Private Key

All CrossCert Subdomain Participants are required to protect the activation data for their private keys against loss, theft, modification, unauthorized disclosure, or unauthorized use.

6.2.7.1 End-User Subscriber Private Keys

This section applies the VTN Standards for protecting activation data for end-user Subscribers' private keys to CrossCert's Subdomain. In addition, Subscribers have the option of using enhanced private key protection mechanisms available today including the use of smart cards, biometric access devices, and other hardware tokens to store private keys. The use of two factor authentication mechanisms (e.g., token and passphrase, biometric and token, or biometric and passphrase) is encouraged.

6.2.7.1.1 Class 1 Certificates

The VTN Standard for Class 1 private key protection is for Subscribers to take commercially reasonable measures for the physical protection of the Subscriber's workstation to prevent use of the workstation and its associated private key without the Subscriber's authorization. In addition, CrossCert recommends that Subscribers use a password in accordance with CPS § 6.4.1 or security of equivalent strength to authenticate the Subscriber before the activation of the private key, which includes, for instance, a password to operate the private key, a Windows logon or screen saver password, or a network logon password.

6.2.7.1.2 Class 2 Certificates

The VTN Standard for Class 2 Private Key protection is for Subscribers to:

- Use a password in accordance with CPS § 6.4.1 or security of equivalent strength to authenticate the Subscriber before the activation of the private key, which includes, for instance, a password to operate the private key, a Windows logon or screen saver password, a network logon password, or a password in conjunction with the CrossCert Roaming Service; and
- Take commercially reasonable measures for the physical protection of the Subscriber's workstation to prevent use of the workstation and its associated private key without the Subscriber's authorization.

When deactivated, private keys shall be kept in encrypted form only.

6.2.7.1.3 Class 3 Certificates Other Than Administrator Certificates

The VTN Standard for Class 3 private key protection (other than Administrators) is for Subscribers to:

- Use a smart card, other cryptographic hardware device, biometric access device, password (in conjunction with the CrossCert Roaming Service), or security of equivalent strength to authenticate the Subscriber before the activation of the private key; and
- Take commercially reasonable measures for the physical protection of the Subscriber's workstation to prevent use of the workstation or server and its associated private key without the Subscriber's authorization.

Use of a password along with a smart card, other cryptographic hardware device, or biometric access device in accordance with CPS § 6.4.1 is recommended. When deactivated, private keys shall be kept in encrypted form only.

6.2.7.2 Administrators' Private Keys

6.2.7.2.1 Administrators

The VTN Standard for Administrators' private key protection requires them to:

- Use a smart card, biometric access device, or password in accordance with CPS § 6.4.1, or security of equivalent strength to authenticate the Administrator before the activation of the private key, which includes, for instance, a password to operate the private key, a Windows logon or screen saver password, or a network logon password; and
- Take commercially reasonable measures for the physical protection of the Administrator's workstation to prevent use of the workstation and its associated private key without the Administrator's authorization.

Use of a password along with a smart card, biometric access device, in accordance with CPS § 6.4.1 is recommended to authenticate the Administrator before the activation of the private key.

When deactivated, private keys shall be kept in encrypted form only.

6.2.7.2.2 Managed PKI Administrators using a Cryptographic Module (with Automated Administration or with Managed PKI Key Manager Service)

The VTN Standard for private key protection for Administrators using such a cryptographic module requires them to:

- Use the cryptographic module along with a password in accordance with CPS § 6.4.1 to authenticate the Administrator before the activation of the private key; and
- Take commercially reasonable measures for the physical protection of the workstation housing the cryptographic module reader to prevent use of the workstation and the private key associated with the cryptographic module without the Administrator's authorization.

6.2.7.3 Private Keys Held by CrossCert

CrossCert CA private keys are activated by a threshold number of Shareholders supplying their activation data (tokens or passphrases) in accordance with CPS § 6.2.2. For CrossCert's offline CAs, the CA private key is activated for one session (e.g., for the certification of a Subordinate CA or an instance where a PCA signs a CRL) after which it is deactivated and the module is returned to secure storage. For CrossCert's online CAs, the CA private key is activated for an indefinite period and the module remains online in the production data center until the CA is taken offline (e.g., for system maintenance). CrossCert Shareholders are required to safeguard their Secret Shares and sign an agreement acknowledging their Shareholder responsibilities.

6.2.8 Method of Deactivating Private Key

CrossCert CA private keys are deactivated upon removal from the token reader. CrossCert RA private keys (used for authentication to the RA application) are deactivated upon system log off. CrossCert RAs are required to log off their workstations when leaving their work area.

Client Administrators, RA, and end-user Subscriber private keys may be deactivated after each operation, upon logging off their system, or upon removal of a smart card from the smart card reader depending upon the authentication mechanism employed by the user. In all cases, end-user Subscribers have an obligation to adequately protect their private key(s) in accordance with CPS §§ 2.1.3, 6.4.1.

6.2.9 Method of Destroying Private Key

At the conclusion of a CrossCert's CA's operational lifetime, one or more copies of the CA private key are archived in accordance with CPS § 6.2.5. Remaining copies of the CA private key are securely destroyed. In addition, archived CA private keys are securely destroyed at the conclusion of their archive periods. CA key destruction activities require the participation of multiple trusted individuals.

Where required, CrossCert destroys CA private keys in a manner that reasonably ensures that there are no residuals remains of the key that could lead to the reconstruction of the key. CrossCert utilizes the zeroization function of its hardware cryptographic modules and other appropriate means to ensure the complete destruction of CA private keys. When performed, CA key destruction activities are logged.

6.3 Other Aspects of Key Pair Management

6.3.1 Public Key Archival

CrossCert CA, RA and end-user Subscriber Certificates are backed up and archived as part of CrossCert's routine backup procedures.

6.3.2 Usage Periods for the Public and Private Keys

The Operational Period of a Certificate ends upon its expiration or revocation. The Operational Period for key pairs is the same as the Operational Period for the associated Certificates, except that private keys may continue to be used for decryption and public keys may continue to be used for signature verification. The maximum Operational Periods for CrossCert Certificates for Certificates issued on or after the effective date of this CPS are set forth in Table 18 below.

In addition, CrossCert CAs stop issuing new Certificates at an appropriate date prior to the expiration of the CA's Certificate such that no Certificate issued by a Subordinate CA expires after the expiration of any Superior CA Certificates.

<i>Certificate Issued By:</i>	<i>Class 1</i>	<i>Class 2</i>	<i>Class 3</i>
n/a for CrossCert			
n/a for CrossCert			
Self-signed Issuing Root CAs	N/A	N/A	Up to 10 years
n/a for CrossCert			
CA to Subordinate CA	Up to 5 years	Up to 5 years	Up to 5 years
CA to end-user Subscriber	Up to 2 years	Normally up to 2 years, but up to 5 years under the conditions described below	Normally up to 2 years, but up to 5 years under the conditions described below

Table 18 – Certificate Operational Periods

Except as noted in this section, CrossCert Subdomain Participants shall cease all use of their key pairs after their usage periods have expired.

Certificates issued by CAs to end-user Subscribers may have Operational Periods longer than two years, up to five years, if the following requirements are met:

- The Certificates are individual Certificates,
- Subscribers' key pairs reside on a hardware token, such as a smart card,
- Subscribers are annually required to undergo reauthentication procedures under CPS § 3.1.9,
- Subscribers shall annually prove possession of the private key corresponding to the public key within the Certificate,
- If a Subscriber is unable to complete reauthentication procedures under CPS § 3.1.9 successfully or is unable to prove possession of such private key when required by the foregoing, the CA shall automatically revoke the Subscriber's Certificate.

CrossCert also operates several legacy self-signed issuing root CAs which are part of the VeriSign Trust Network. End-user Subscriber Certificates issued by these CAs meet the requirements for CA to end-user Subscriber Certificates specified in Table 18 above.

Not offered by CrossCert		

6.4 Activation Data

6.4.1 Activation Data Generation and Installation

Activation data (Secret Shares) used to protect tokens containing CrossCert CA private keys is generated in accordance with the requirements of CPS § 6.2.2 and the Key Ceremony Reference Guide. The creation and distribution of Secret Shares is logged.

CrossCert RAs are required to select strong passwords to protect their private keys. CrossCert’s password selection guidelines require that passwords:

- be generated by the user;
- have at least eight characters;
- have at least one alphabetic and one numeric character;
- have at least one lower-case letter;
- not contain many occurrences of the same character;
- not be the same as the operator’s profile name; and
- not contain a long substring of the user’s profile name.

CrossCert strongly recommends that Managed PKI Administrators, RAs, and end-user Subscribers choose passwords that meet the same requirements. CrossCert also recommends the use of two factor authentication mechanisms (e.g., token and passphrase, biometric and token, or biometric and passphrase) for private key activation.

6.4.2 Activation Data Protection

CrossCert Shareholders are required to safeguard their Secret Shares and sign an agreement acknowledging their Shareholder responsibilities.

CrossCert RAs are required to store their Administrator/RA private keys in encrypted form using password protection and their browser’s “high security” option.

CrossCert strongly recommends that Client Administrators, RAs and end-user Subscribers store their private keys in encrypted form and protect their private keys through the use of a hardware token and/or strong passphrase. The use of two factor authentication mechanisms (e.g., token and passphrase, biometric and token, or biometric and passphrase) is encouraged.

6.4.3 Other Aspects of Activation Data

See CPS § 6.4.1 and 6.4.2.

6.5 Computer Security Controls

CrossCert performs all CA and RA functions using Trustworthy Systems that meet the requirements of CrossCert's Security and Audit Requirements Guide. Managed PKI Customers must use Trustworthy Systems that meet the requirements of the Enterprise Security Guide.

6.5.1 Specific Computer Security Technical Requirements

CrossCert ensures that the systems maintaining CA software and data files are Trustworthy Systems secure from unauthorized access. In addition, CrossCert limits access to production servers to those individuals with a valid business reason for such access. General application users do not have accounts on production servers.

CrossCert's production network is logically separated from other components. This separation prevents network access except through defined application processes. CrossCert use firewalls to protect the production network from internal and external intrusion and limit the nature and source of network activities that may access production systems.

CrossCert require the use of passwords that have a minimum character length and a combination of alphanumeric and special characters. CrossCert requires that passwords be changed on a periodic basis.

Direct access to CrossCert databases supporting the CrossCert repository is limited to Trusted Persons in CrossCert's operations group having a valid business reason for such access.

6.5.2 Computer Security Rating

Not offered by CrossCert

6.6 Life Cycle Technical Controls

6.6.1 System Development Controls

Applications are developed and implemented by the CrossCert in accordance with CrossCert systems development and change management standards. CrossCert also provides software to its Managed PKI Customers for performing RA and certain CA functions. Such software is developed in accordance with CrossCert system development standards.

VeriSign developed software, when first loaded, provides a method for to verify that the software on the system originated from VeriSign or CrossCert, has not been modified prior to installation, and is the version intended for use.

6.6.2 Security Management Controls

CrossCert has mechanisms and/or policies in place to control and monitor the configuration of its CA systems. CrossCert creates a hash of all software packages and CrossCert software updates.

This hash is used to verify the integrity of such software manually. Upon installation and periodically thereafter, CrossCert validates the integrity of its CA systems.

6.6.3 Life Cycle Security Ratings

No stipulation.

6.7 Network Security Controls

CrossCert performs all its CA and RA functions using networks secured in accordance with the Security and Audit Requirements Guide to prevent unauthorized access and other malicious activity. CrossCert protects its communications of sensitive information through the use of encryption and digital signatures.

6.8 Cryptographic Module Engineering Controls

Cryptographic modules used by CrossCert and VeriSign meet the requirements specified in CPS § 6.2.1.

7. Certificate and CRL Profile

7.1 Certificate Profile

CPS § 7.1 defines CrossCert’s Certificate Profile and Certificate content requirements for VTN Certificates issued under this CPS.

Except for WTLS Certificates, CrossCert Certificates conform to (a) ITU-T Recommendation X.509 (1997): Information Technology - Open Systems Interconnection - The Directory: Authentication Framework, June 1997 and (b) RFC 2459: Internet X.509 Public Key Infrastructure Certificate and CRL Profile, January 1999 (“RFC 2459”).

WTLS Certificates conform to the Wireless Application Protocol: WAP Certificate and CRL Profiles Specification, Proposed Version dated March 9, 2000. CrossCert will conform to the finalized version of the specification when approved by the WAP Forum within one year of its publication.

At a minimum, CrossCert X.509 and WTLS Certificates contain the basic X.509 Version 1 fields and indicated prescribed values or value constraints in Table 20 below:

Field	Value or Value constraint
Version	See CPS §7.1.1. Not applicable for WTLS Certificates.
Serial Number	Unique value per Issuer DN
Signature Algorithm	Name of the algorithm used to sign the certificate (See CPS § 7.1.3)
Issuer DN	See CPS § 7.1.4

Field	Value or Value constraint
Valid From	Universal Coordinate Time base. Synchronized to Master Clock of U.S. Naval Observatory. Encoded in accordance with RFC 2459.
Valid To	Universal Coordinate Time base. Synchronized to Master Clock of U.S. Naval Observatory. Encoded in accordance with RFC 2459. The validity period will be set in accordance with the constraints specified in CPS § 6.3.2.
Subject DN	See CPS § 7.1.4
Subject Public Key	Encoded in accordance with RFC 2459 using algorithms specified in CPS § 7.1.3 and key lengths specified in CPS § 6.1.5.
Signature	Generated and encoded in accordance with RFC 2459

Table 20 – Certificate Profile Basic Fields

7.1.1 Version Number(s)

CrossCert CA and end-user Subscriber Certificates are X.509 Version 3 Certificates with the following exceptions:

- VeriSign root CA certificates, including the VeriSign PCAs and other VeriSign root CAs, are X.509 Version 1 Certificates.
- Certain legacy VeriSign Issuing CA certificates are X.509 Version 1 Certificates, including.
- Certain Secure Server Certificates are X.509 Version 1 Certificates where the specific web server does not support the use of X.509 Version 3 Certificates.
- VeriSign G2 PCA Certificates where issued in WAP format to support CrossCert’s wireless PKI services.
- WTLS User and WTLS Server Certificates which are issued in WAP format.

7.1.2 Certificate Extensions

Where X.509 Version 3 Certificates are used, CrossCert populates Certificates with the extensions required by CPS §§ 7.1.2.1-7.1.2.8. Private extensions are permissible as long as their use is consistent with the VTN CP and this CPS.

CrossCert currently does not use extensions for WTLS Certificates.

7.1.2.1 Key Usage

Where X.509 Version 3 Certificates are used, CrossCert populates the KeyUsage extension of in accordance with CPS § 6.1.9. The criticality field of this extension is set to FALSE.

7.1.2.2 Certificate Policies Extension

CrossCert X.509 Version 3 end-user Subscribers Certificates use the Certificate Policies extension. The CertificatePolicies extension is populated with the applicable object identifier for the VTN CP in accordance with CP § 7.1.6 and with policy qualifiers set forth in CP § 7.1.8. The criticality field of this extension is set to FALSE.

7.1.2.3 Subject Alternative Names

No stipulation.

7.1.2.4 Basic Constraints

CrossCert populates X.509 Version 3 CA Certificates with a BasicConstraints extension with the Subject Type set to CA. End-user Subscriber Certificates are also populated with a BasicConstraints extension with the Subject Type equal to End Entity. The criticality of the Basic Constraints extension is generally set to FALSE, except for the CrossCert Class 3 Managed PKI Authentication Services Bureau CA. The criticality of this extension may be set to TRUE for other Certificates in the future.

CrossCert X.509 Version 3 CA Certificates issued to have a “pathLenConstraint” field of the BasicConstraints extension set to the maximum number of CA certificates that may follow this Certificate in a certification path. CA Certificates issued to the online CAs of Managed PKI Customers and CrossCert CAs, issuing end-user Subscriber Certificates have a “pathLenConstraint” field set to a value of “0” indicating that only an end-user Subscriber Certificate may follow in the certification path.

7.1.2.5 Extended Key Usage

CrossCert makes use of the ExtendedKeyUsage extension for the specific types of CrossCert X.509 Version 3 Certificates listed in Table 21 below. For other types of Certificates, CrossCert does not use the Extended Key Usage extension.

<i>Certificate Type</i>	<i>Certificate Type</i>
Certification Authority (CA)	Class 3 International Server CA
OCSP Responder	Class 1-3 Public Primary OCSP Responders Secure Server OCSP Responder
Class 3 Web Server Certificates	Secure Server IDs Global Server IDs

Table 21 – Certificates Using the Extended Key Usage Extension

For the Certificates, CrossCert populates the ExtendedKeyUsage extension in accordance with Table 22 below.

		<i>Class 3 International Server CA</i>	<i>OCSP Responders</i>	<i>Secure Server IDs</i>	<i>Global Server IDs</i>
Criticality		FALSE	FALSE	FALSE	FALSE
0	ServerAuth	Clear	Clear	Set	Clear
1	ClientAuth	Clear	Set	Set	Clear
2	CodeSigning	Clear	Clear	Clear	Clear
3	EmailProtection	Clear	Set	Clear	Clear

		<i>Class 3 International Server CA</i>	<i>OCSP Responders</i>	<i>Secure Server IDs</i>	<i>Global Server IDs</i>
4	ipsecEndSystem	Clear	Clear	Clear	Clear
5	ipsecTunnel	Clear	Clear	Clear	Clear
6	ipsecUser	Clear	Clear	Clear	Clear
7	TimeStamping	Clear	Clear	Clear	Clear
8	OCSP Signing	Clear	Set	Clear	Clear
-	Microsoft Server Gated Crypto (SGC) OID: 1.3.6.1.4.1.311.10.3.3	Clear	Clear	Clear	Set
-	Netscape SGC - OID: 2.16.840.1.113730.4.1	Set	Clear	Clear	Set
-	TBD – OID: 2.16.840.1.113733.1.8.1	Set	Clear	Clear	Clear

Table 22 – Settings for ExtendedKeyUsage Extension

7.1.2.6 CRL Distribution Points

CrossCert X.509 Version 3 Secure Server and Class 1 Individual end-user Subscriber Certificates use the cRLDistributionPoints extension containing the URL of the location where a Relying Party can obtain a CRL to check the CA Certificate’s status. The criticality field of this extension is set to FALSE. The use of CRL Distribution Points will be supported for other CrossCert CAs in the future.

7.1.2.7 Authority Key Identifier

VeriSign populates the Authority Key Identifier extension of X.509 Version 3 end user Subscriber Certificates issued by the VeriSign Commercial Software Publishers CA. The Authority Key Identifier is composed of the 160-bit SHA-1 hash of the public key of the CA issuing the Certificate. The criticality field of this extension is set to FALSE. The use of Authority Key Identifier extension may be supported for other VeriSign CAs in the future.

7.1.2.8 Subject Key Identifier

Where CrossCert populates X.509 Version 3 VTN Certificates with a subjectKeyIdentifier extension, the keyIdentifier based on the public key of the Subject of the Certificate is generated. Where this extension is used, the criticality field of this extension is set to FALSE.

7.1.3 Algorithm Object Identifiers

CrossCert X.509 Certificates are signed with sha1RSA (OID: 1.2.840.113549.1.1.5) or md5RSA (OID: 1.2.840.113549.1.1.4) in accordance with RFC 2459. VeriSign signed certain legacy CA and end user Subscriber Certificates with md2RSA (OID: 1.2.840.113549.1.1.2).

CrossCert WTLS Certificates are signed with sha1RSA (OID: 1.2.840.113549.1.1.5) or ecDSA-with-SHA1 (OID: 1.2.840.10045.1).

7.1.4 Name Forms

CrossCert populates VTN Certificates with an Issuer and Subject Distinguished Name in accordance with CPS § 3.1.1.

In addition, CrossCert includes within end-user Subscriber Certificates an additional Organizational Unit field that contains a notice stating that the terms of use of the Certificate are set forth in a URL which is a pointer to the applicable Relying Party Agreement. Exceptions to the foregoing requirement are permitted only when space, formatting, or interoperability limitations within Certificates make such an Organizational Unit impossible to use in conjunction with the application for which the Certificates are intended.

7.1.5 Name Constraints

No stipulation.

7.1.6 Certificate Policy Object Identifier

Where the Certificate Policies extension is used, Certificates contain the object identifier for the Certificate Policy corresponding to the appropriate Class of Certificate as set forth in CPS § 1.2. For legacy Certificates issued prior to the publication of the VTN CP which include the Certificate Policies extension, Certificates refer to the VeriSign CPS.

7.1.7 Usage of Policy Constraints Extension

No stipulation.

7.1.8 Policy Qualifiers Syntax and Semantics

CrossCert populates X.509 Version 3 VTN Certificates with a policy qualifier within the CertificatePolicies extension. Generally, such Certificates contain a CPS pointer qualifier that points to the applicable Relying Party Agreement or the VeriSign CPS. In addition, some Certificates contain a User Notice Qualifier which points to the applicable Relying Party Agreement.

7.1.9 Processing Semantics for the Critical Certificate Policy Extension

No stipulation.

7.2 CRL Profile

CrossCert issues CRLs that conform to RFC 2459. At a minimum, CrossCert CRLs contain the basic fields and contents specified in Table 23 below:

<i>Field</i>	<i>Value or Value constraint</i>
Version	See CPS §7.2.1.
Signature Algorithm	Algorithm used to sign the CRL. VeriSign CRLs are signed using md5RSA (OID: 1.2.840.113549.1.1.4) or md2RSA (OID: 1.2.840.113549.1.1.2) in

Field	Value or Value constraint
	accordance with RFC 2459.
Issuer	Entity who has signed and issued the CRL. The CRL Issuer Name is in accordance with the Issuer Distinguished Name requirements specified in CPS § 7.1.4.
Effective Date	Issue date of the CRL. CrossCert CRLs are effective upon issuance.
Next Update	Date by which the next CRL will be issued. The Next Update date for CrossCert CRLs is set as follows: 3 months from the Effective Date for VeriSign PCAs and 10 days from the Effective Date for other CrossCert CAs. CRL issuance frequency is in accordance with the requirements of CPS § 4.4.9.
Revoked Certificates	Listing of revoked certificates, including the Serial Number of the revoked Certificate and the Revocation Date.

Table 23 – CRL Profile Basic Fields

7.2.1 Version Number(s)

CrossCert currently issues X.509 Version 1 CRLs.

7.2.2 CRL and CRL Entry Extensions

No stipulation.

8. Specification Administration

8.1 Specification Change Procedures

Amendments to this CPS shall be made by CrossCert and approved by the VeriSign Practices Development group. Amendments shall either be in the form of a document containing an amended form of the CPS or an update. Amended versions or updates shall be linked to the Practices Updates and Notices section of the CrossCert Repository located at:

<https://www.crosscert.com/Repository/updates>. Updates supersede any designated or conflicting provisions of the referenced version of the CPS.

8.1.1 Items that Can Change Without Notification

CrossCert reserves the right to amend the CPS without notification for amendments that are not material, including without limitation corrections of typographical errors, changes to URLs, and changes to contact information. CrossCert’s decision to designate amendments as material or non-material shall be within CrossCert’s sole discretion.

8.1.2 Items that Can Change with Notification

CrossCert shall make material amendments to the CPS in accordance with this CPS § 8.1.2.

8.1.2.1 List of Items

Material amendments are those changes that CrossCert, under CPS § 8.1.1, considers to be material.

8.1.2.2 Notification Mechanism

CrossCert's Practices Development group will post proposed amendments to the CPS in the Practices Updates and Notices section of the CrossCert Repository, which is located at: <https://www.crosscert.com/Repository/updates>. CrossCert solicits proposed amendments to the CPS from other CrossCert Subdomain Participants. If CrossCert considers such an amendment desirable and proposes to implement the amendment, CrossCert shall provide notice of such amendment in accordance with this section.

Notwithstanding anything in the CPS to the contrary, if CrossCert believes that material amendments to the CPS are necessary immediately to stop or prevent a breach of the security of the VTN, CrossCert's Subdomain, or any portion of the VTN, CrossCert shall be entitled to make such amendments by publication in the CrossCert Repository. Such amendments will be effective immediately upon publication.

8.1.2.3 Comment Period

Except as noted under CPS § 8.1.2.2, the comment period for any material amendments to the CPS shall be fifteen (15) days, starting on the date on which the amendments are posted on the CrossCert Repository. Any CrossCert Subdomain Participant shall be entitled to file comments with CrossCert's Practices Development group up until the end of the comment period.

8.1.2.4 Mechanism to Handle Comments

CrossCert's Practices Development group will consider any comments on the proposed amendments. CrossCert will either (a) allow the proposed amendments to become effective without amendment, (b) amend the proposed amendments and republish them as a new amendment under CPS § 8.1.2.2, or (c) withdraw the proposed amendments. CrossCert is entitled to withdraw proposed amendments by providing notice in the Practices Updates and Notices section of the CrossCert Repository. Unless proposed amendments are amended or withdrawn, they shall become effective upon the expiration of the comment period under CPS § 8.1.2.3.

8.1.3 Changes Requiring Changes in the Certificate Policy OID or CPS Pointer

See CP § 8.1.3.

8.2 Publication and Notification Policies

8.2.1 Items Not Published in the CPS

Security documents considered confidential by VeriSign and the Affiliates are not disclosed to the public. Confidential security documents include the documents identified in CPS § 1.1(a) Table 1 as documents that are not available to the public.

8.2.2 Distribution of the CP

This CPS is published in electronic form within the CrossCert Repository at <https://www.crosscert.com/CPS>. The CPS is available in the CrossCert Repository in Word format, Adobe Acrobat pdf, and HTML. CrossCert also makes the CPS available in Adobe Acrobat pdf or Word format upon request sent to CPS-requests@crosscert.com. The CPS is available in paper form from CrossCert's Practices Development group upon requests sent to: CrossCert., 9F, Halim building, 1674-4, Seocho-dong, Seocho-gu, Seoul, 137-725, Korea Attn: CPS.

8.3 CPS Approval Procedures

Not applicable.

Acronyms and Definitions

Table of Acronyms

Acronym	Term
ANSI	The American National Standards Institute.
ASB	Authentication Service Bureau.
B2B	Business-to-business.
BXA	The United States Bureau of Export Administration of the United States Department of Commerce.
CA	Certification Authority.
CP	Certificate Policy.
CPS	Certification Practice Statement.
CRL	Certificate Revocation List.
EAL	Evaluation assurance level (pursuant to the Common Criteria).
EDI	Electronic Data Interchange.
EDIFACT	EDI for Administration, Commerce, and Transport (standards established by the United Nations Economic Commission for Europe).
FIPS	United State Federal Information Processing Standards.
ICC	International Chamber of Commerce.
KRB	Key Recovery Block.

Acronym	Term
LSVA	Logical security vulnerability assessment.
OCSP	Online Certificate Status Protocol.
OFX	Open Financial Exchange.
PCA	Primary Certification Authority.
PIN	Personal identification number.
PKCS	Public-Key Cryptography Standard.
PKI	Public Key Infrastructure.
PMA	Policy Management Authority.
RA	Registration Authority.
RFC	Request for comment.
SAS	Statement on Auditing Standards (promulgated by the American Institute of Certified Public Accountants).
S/MIME	Secure multipurpose Internet mail extensions.
SSL	Secure Sockets Layer.
VTN	VeriSign Trust Network.
WAP	Wireless Application Protocol.
WTLS	Wireless Transport Layer Security.

Definitions

Term	Definition
<i>Administrative Certification Authority (Administrative CA)</i>	A type of CrossCert CA that issues Certificates to CrossCert RAs, Managed PKI Customer personnel (Managed PKI Administrators), Affiliate Administrators, and Automated Administration servers.
<i>Administrator</i>	A Trusted Person within the organization of a Processing Center, Service Center, Managed PKI Customer, that performs validation and other CA or RA functions.
<i>Administrator Certificate</i>	A Certificate issued to an Administrator that may only be used to perform CA or RA functions.
<i>Affiliate</i>	A leading trusted third party, for example in the technology, telecommunications, or financial services industry, that has entered into an agreement with VeriSign to be a VTN distribution and services channel within a specific territory.
<i>Affiliated Individual</i>	A natural person that is related to a given entity (i) as an officer, director, employee, partner, contractor, intern, or other person within the entity, (ii) as a member of a VeriSign registered community of interest, or (iii) as a person maintaining a relationship with the entity where the entity has business or other records providing appropriate assurances of the identity of such person.
<i>Automated Administration</i>	A procedure whereby Certificate Applications are approved automatically if enrollment information matches information contained in a database.

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<i>Automated Administration Software Module</i>	Software provided by VeriSign that performs Automated Administration.
<i>Certificate</i>	A message that, at least, states a name or identifies the CA, identifies the Subscriber, contains the Subscriber's public key, identifies the Certificate's Operational Period, contains a Certificate serial number, and is digitally signed by the CA.
<i>Certificate Applicant</i>	An individual or organization that requests the issuance of a Certificate by a CA.
<i>Certificate Application</i>	A request from a Certificate Applicant (or authorized agent of the Certificate Applicant) to a CA for the issuance of a Certificate.
<i>Certificate Chain</i>	An ordered list of Certificates containing an end-user Subscriber Certificate and CA Certificates, which terminates in a root Certificate.
<i>Certificate Management Control Objectives</i>	Criteria that an entity must meet in order to satisfy a Compliance Audit.
<i>Certificate Policies (CP)</i>	The document entitled "VeriSign Trust Network Certificate Policies" and is the principal statement of policy governing the VTN.
<i>Certificate Revocation List (CRL)</i>	A periodically (or exigently) issued list, digitally signed by a CA, of identified Certificates that have been revoked prior to their expiration dates. The list generally indicates the CRL issuer's name, the date of issue, the date of the next scheduled CRL issue, the revoked Certificates' serial numbers, and the specific times and reasons for revocation.
<i>Certificate Signing Request</i>	A message conveying a request to have a Certificate issued.
<i>Certification Authority (CA)</i>	An entity authorized to issue, manage, revoke, and renew Certificates in the VTN.
<i>Certification Practice Statement (CPS)</i>	A statement of the practices that VeriSign or an Affiliate employs in approving or rejecting Certificate Applications and issuing, managing, and revoking Certificates, and requires its Managed PKI Customers to employ. In the context of this CPS, "CPS" refers to this document.
<i>Challenge Phrase</i>	A secret phrase chosen by a Certificate Applicant during enrollment for a Certificate. When issued a Certificate, the Certificate Applicant becomes a Subscriber and a CA or RA can use the Challenge Phrase to authenticate the Subscriber when the Subscriber seeks to revoke or renew the Subscriber's Certificate.
<i>Class</i>	A specified level of assurances as defined within the CP. See CP § 1.1.1. The distinctions are summarized in CPS § 1.1.1.
<i>Client OnSite Customer</i>	See Managed PKI Customer.
<i>Client OnSite Lite Customer</i>	See Managed PKI Lite Customer.

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<i>Client Service Center</i>	A Service Center that is an Affiliate providing client Certificates either in the Consumer or Enterprise line of business.
<i>Compliance Audit</i>	A periodic audit that a Processing Center, Service Center, or Managed PKI Customer undergoes to determine its conformance with VTN Standards that apply to it.
<i>Compromise</i>	A violation (or suspected violation) of a security policy, in which an unauthorized disclosure of, or loss of control over, sensitive information may have occurred. With respect to private keys, a Compromise is a loss, theft, disclosure, modification, unauthorized use, or other compromise of the security of such private key.
<i>Confidential/Private Information</i>	Information required to be kept confidential and private pursuant to CPS § 2.8.1.
<i>Consumer, as in Consumer Service Center</i>	A line of business that an Affiliate enters to provide client Retail Certificates to Certificate Applicants.
<i>CRL Usage Agreement</i>	An agreement setting forth the terms and conditions under which a CRL or the information in it can be used.
<i>Customer</i>	An organization that is either a Managed PKI Customer, or ASB Customer.
<i>Digital Receipt</i>	A data object created in connection with the VeriSign Digital Notarization Service offered by CrossCert and digitally signed by the Time-Stamping Authority that includes the hash of a document or set of data and a time-stamp showing that the document or data existed at a certain time.
<i>Electronic Data Interchange (EDI)</i>	The computer-to-computer exchange of business transactions, such as purchase orders, invoices, and payment advices in accordance with applicable standards.
<i>Electronic Data Interchange Certificate (EDI Certificate)</i>	A Class 3 organizational Certificate that allows for digital signatures on Electronic Data Interchange messages and for the encryption of EDI messages.
<i>Enterprise, as in Enterprise Service Center</i>	A line of business that an Affiliate enters to provide Managed PKI services to Managed PKI Customers.
<i>Enterprise Roaming Server</i>	A server residing at the site of a Managed PKI Customer used in conjunction with the VeriSign Roaming Service offered by CrossCert to hold Roaming Subscribers' encrypted private keys and portions of symmetric keys used to encrypt and decrypt Roaming Subscribers' private keys.
<i>Enterprise Security Guide</i>	A document setting forth security requirements and practices for Managed PKI Customers.
<i>Exigent Audit/Investigation</i>	An audit or investigation by VeriSign where VeriSign has reason to believe that an entity's failure to meet VTN Standards, an incident or Compromise relating to the entity, or an actual or potential threat to the security of the VTN posed by the entity has occurred.
<i>Global Server ID</i>	A Class 3 organizational Certificate used to support SSL sessions

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	between web browsers and web servers that are encrypted using strong cryptographic protection consistent with applicable export laws.
Global Server OnSite	See Managed PKI for SSL Premium Edition.
Global Server OnSite Customer	See Managed PKI for SSL Premium Edition Customer.
Go Secure!	A suite of plug-and-play services building on Managed PKI services and designed to accelerate e-commerce applications.
Infrastructure Certification Authority (Infrastructure CA)	A type of CrossCert CA that issues Certificates to components of the CrossCert infrastructure supporting certain CrossCert services. Infrastructure CAs do not issue CA, RA, or end-user Subscriber Certificates.
Intellectual Property Rights	Rights under one or more of the following: any copyright, patent, trade secret, trademark, and any other intellectual property rights.
Intermediate Certification Authority (Intermediate CA)	A Certification Authority whose Certificate is located within a Certificate Chain between the Certificate of the root CA and the Certificate of the Certification Authority that issued the end-user Subscriber's Certificate.
Key Ceremony Reference Guide	A document describing Key Generation Ceremony requirements and practices.
Key Generation Ceremony	A procedure whereby a CA's or RA's key pair is generated, its private key is transferred into a cryptographic module, its private key is backed up, and/or its public key is certified.
Key Manager Administrator	An Administrator that performs key generation and recovery functions for a Managed PKI Customer using Managed PKI Key Manager.
Key Recovery Block (KRB)	A data structure containing a Subscriber's private key that is encrypted using an encryption key. KRBs are generated using Managed PKI Key Manager software.
Key Recovery Service	A VeriSign service provided by CrossCert that provides encryption keys needed to recover a Key Recovery Block as part of a Managed PKI Customer's use of Managed PKI Key Manager to recover a Subscriber's private key.
Managed PKI	VeriSign's fully integrated Managed PKI service offered by CrossCert that allows enterprise Customers of CrossCert to distribute Certificates to individuals, such as employees, partners, suppliers, and customers, as well as devices, such as servers, routers, and firewalls. Managed PKI permits enterprises to secure messaging, intranet, extranet, virtual private network, and e-commerce applications.
Managed PKI Administrator	An Administrator that performs validation or other RA functions for a Managed PKI Customer.
Managed PKI	A CrossCert document setting forth the operational requirements and

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<i>Administrator Handbook</i>	practices for Managed PKI Customers.
<i>Managed PKI Agreement</i>	An agreement under which an organization becomes an Managed PKI Customer and agrees to be bound by this CPS.
<i>Managed PKI Certificate</i>	A Certificate whose Certificate Application was approved by a Managed PKI Customer.
<i>Managed PKI Control Center</i>	A web-based interface that permits Managed PKI Administrators to perform Manual Authentication of Certificate Applications
<i>Managed PKI Customer</i>	An organization that has obtained Managed PKI services from CrossCert, whereby the organization becomes a CA within the VTN to issue client Certificates. Managed PKI Customers outsource back-end functions of issuance, management, and revocation to CrossCert, but retain for themselves the RA functions of approving or rejecting Certificate Applications and initiating revocations and renewals of Certificates.
<i>Managed PKI Key Manager</i>	A key recovery solution for those Managed PKI Customers choosing to implement key recovery under a special Managed PKI Agreement.
<i>Managed PKI Key Management Service Administrator's Guide</i>	A document setting forth the operational requirements and practices for Managed PKI Customers using Managed PKI Key Manager.
<i>Managed PKI for SSL</i>	A type of Managed PKI service that permits an organization to become an RA within the VTN to assist a VeriSign or Affiliate CA to issue Secure Server IDs within designated domains. This CA delegates to Managed PKI Customers the RA functions of approving or rejecting Certificate Applications and initiating revocations and renewals of Secure Server IDs.
<i>Managed PKI for SSL Customer</i>	An organization that has obtained Managed PKI services from VeriSign or an Affiliate.
<i>Managed PKI Lite Customer</i>	An organization that has obtained Managed PKI Lite services from VeriSign or an Affiliate, whereby the organization becomes a Registration Authority within the VTN to assist a VeriSign or Affiliate CA to issue client Certificates. This CA delegates to Managed PKI Lite Customers the RA functions of approving or rejecting Certificate Applications and initiating revocations and renewals of Certificates.
<i>Manual Authentication</i>	A procedure whereby Certificate Applications are reviewed and approved manually one-by-one by an Administrator using a web-based interface.
<i>Nonverified Subscriber Information</i>	Information submitted by a Certificate Applicant to a CA or RA, and included within a Certificate, that has not been confirmed by the CA or RA and for which the applicable CA and RA provide no assurances other than that the information was submitted by the

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	Certificate Applicant.
Non-repudiation	An attribute of a communication that provides protection against a party to a communication falsely denying its origin, denying that it was submitted, or denying its delivery. Denial of origin includes the denial that a communication originated from the same source as a sequence of one or more prior messages, even if the identity associated with the sender is unknown. Note: only an adjudication by a court, arbitration panel, or other tribunal can ultimately prevent repudiation. For example, a digital signature verified with reference to a VTN Certificate may provide proof in support of a determination of Non-repudiation by a tribunal, but does not by itself constitute Non-repudiation.
Online Certificate Status Protocol (OCSP)	A protocol for providing Relying Parties with real-time Certificate status information.
OnSite	See Managed PKI.
OnSite Administrator	See Managed PKI Administrator.
OnSite Administrator's Handbook	See Managed PKI Administrator Handbook.
OnSite Agreement	See Managed PKI Agreement.
OnSite Certificate	See Managed PKI Certificate.
OnSite Control Center	See Managed PKI Control Center.
OnSite Key Manager	See Managed PKI Key Manager.
OnSite Key Management Service Administrator's Guide	See Managed PKI Management Service Administrator's Guide.
OnSite Lite	See Managed PKI Lite.
Operational Period	The period starting with the date and time a Certificate is issued (or on a later date and time certain if stated in the Certificate) and ending with the date and time on which the Certificate expires or is earlier revoked.
PKCS #10	Public-Key Cryptography Standard #10, developed by RSA Security Inc., which defines a structure for a Certificate Signing Request.
PKCS #12	Public-Key Cryptography Standard #12, developed by RSA Security Inc., which defines a secure means for the transfer of private keys.
Policy Management Authority (PMA)	The organization within VeriSign responsible for promulgating this policy throughout the VTN.
Primary Certification Authority (PCA)	A CA that acts as a root CA for a specific Class of Certificates, and issues Certificates to CAs subordinate to it.
Processing Center	An organization (VeriSign or certain Affiliates) that creates a secure

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	facility housing, among other things, the cryptographic modules used for the issuance of Certificates. In the Consumer and Web Site lines of business, Processing Centers act as CAs within the VTN and perform all Certificate lifecycle services of issuing, managing, revoking, and renewing Certificates. In the Enterprise line of business, Processing Centers provide lifecycle services on behalf of their Managed PKI Customers or the Managed PKI Customers of the Service Centers subordinate to them.
Public Key Infrastructure (PKI)	The architecture, organization, techniques, practices, and procedures that collectively support the implementation and operation of a Certificate-based public key cryptographic system. The VTN PKI consists of systems that collaborate to provide and implement the VTN.
Registration Authority (RA)	An entity approved by a CA to assist Certificate Applicants in applying for Certificates, and to approve or reject Certificate Applications, revoke Certificates, or renew Certificates.
Relying Party	An individual or organization that acts in reliance on a certificate and/or a digital signature.
Relying Party Agreement	An agreement used by a CA setting forth the terms and conditions under which an individual or organization acts as a Relying Party.
Retail Certificate	A Certificate issued by CrossCert, acting as CA, to individuals or organizations applying one by one to CrossCert on its web site.
Roaming Subscriber	A Subscriber using the VeriSign Roaming Service whose private key is encrypted and decrypted with a symmetric key that is split between the VeriSign Roaming Server and an Enterprise Roaming Server.
RSA	A public key cryptographic system invented by Rivest, Shamir, and Adelman.
RSA Secure Server Certification Authority (RSA Secure Server CA)	The Certification Authority that issues Secure Server IDs.
RSA Secure Server Hierarchy	The PKI hierarchy comprised of the RSA Secure Server Certification Authority.
Secret Share	A portion of a CA private key or a portion of the activation data needed to operate a CA private key under a Secret Sharing arrangement.
Secret Sharing	The practice of splitting a CA private key or the activation data to operate a CA private key in order to enforce multi-person control over CA private key operations under CPS § 6.2.2.
Secure Server ID	A Class 3 organizational Certificate used to support SSL sessions between web browsers and web servers.
Secure Sockets Layer (SSL)	The industry-standard method for protecting Web communications developed by Netscape Communications Corporation. The SSL

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	security protocol provides data encryption, server authentication, message integrity, and optional client authentication for a Transmission Control Protocol/Internet Protocol connection.
Security and Audit Requirements Guide	A VeriSign document that sets forth the security and audit requirements and practices for Processing Centers and Service Centers.
Security and Practices Review	A review of an Affiliate performed by VeriSign before an Affiliate is permitted to become operational.
Server Gated Cryptography	A technology that permits web servers that have been issued a Global Server ID to create an SSL session with a browser that is encrypted using strong cryptographic protection.
Server OnSite	See Managed PKI for SSL.
Server OnSite Customer	See Managed PKI for SSL Customer.
Server Service Center	A Service Center that is an Affiliate providing Secure Server IDs and Global Server IDs either in the Web Site or Enterprise line of business.
Service Center	An Affiliate that does not house Certificate signing units for the issuance of Certificates for the purpose of issuing Certificates of a specific Class or type, but rather relies on a Processing Center to perform issuance, management, revocation, and renewal of such Certificates.
Subdomain	The portion of the VTN under control of an entity and all entities subordinate to it within the VTN hierarchy.
Subject	The holder of a private key corresponding to a public key. The term "Subject" can, in the case of an organizational Certificate, refer to the equipment or device that holds a private key. A Subject is assigned an unambiguous name, which is bound to the public key contained in the Subject's Certificate.
Subscriber	In the case of an individual Certificate, a person who is the Subject of, and has been issued, a Certificate. In the case of an organizational Certificate, an organization that owns the equipment or device that is the Subject of, and that has been issued, a Certificate. A Subscriber is capable of using, and is authorized to use, the private key that corresponds to the public key listed in the Certificate.
Subscriber Agreement	An agreement used by a CA or RA setting forth the terms and conditions under which an individual or organization acts as a Subscriber.
Superior Entity	An entity above a certain entity within a VTN hierarchy (the Class 1, 2, or 3 hierarchy).
Supplemental Risk Management Review	A review of an entity by VeriSign following incomplete or exceptional findings in a Compliance Audit of the entity or as part of the overall risk management process in the ordinary course of

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	business.
Reseller	An entity marketing services on behalf of VeriSign or an Affiliate to specific markets.
Time-Stamping Authority	The VeriSign entity that signs Digital Receipts as part of the VeriSign Digital Notarization Service.
Time-Stamping Authority CA	The VeriSign CA that issued a special Class 3 organizational Certificate to the Time-Stamping Authority used to verify the digital signatures on Digital Receipts.
Trusted Person	An employee, contractor, or consultant of an entity within the VTN responsible for managing infrastructural trustworthiness of the entity, its products, its services, its facilities, and/or its practices as further defined in CPS § 5.2.1.
Trusted Position	The positions within a VTN entity that must be held by a Trusted Person.
Trustworthy System	Computer hardware, software, and procedures that are reasonably secure from intrusion and misuse; provide a reasonable level of availability, reliability, and correct operation; are reasonably suited to performing their intended functions; and enforce the applicable security policy. A trustworthy system is not necessarily a “trusted system” as recognized in classified government nomenclature.
VeriSign Digital Notarization Service offered by CrossCert	A service offered to Managed PKI Customers that provides a digitally signed assertion (a Digital Receipt) that a particular document or set of data existed at a particular point in time.
CrossCert Repository	CrossCert’s database of Certificates and other relevant VeriSign Trust Network information accessible on-line.
VeriSign Roaming Server offered by CrossCert	A server residing at CrossCert’s Processing Center used in conjunction with the VeriSign Roaming Service offered by CrossCert to hold portions of symmetric keys used to encrypt and decrypt Roaming Subscribers’ private keys.
VeriSign Roaming Service offered by CrossCert	The service offered by CrossCert that enables a Subscriber to download his or her private key and perform private key operations on different client terminals.
CrossCert Security Policy	The highest-level document describing CrossCert’s security policies.
CrossCert Subdomain Participants	An individual or organization that is one or more of the following within the CrossCert’s Subdomain of the VTN: CrossCert, a Customer, a Reseller, a Subscriber, or a Relying Party.
VeriSign Trust Network (VTN)	The Certificate-based Public Key Infrastructure governed by the VeriSign Trust Network Certificate Policies, which enables the worldwide deployment and use of Certificates by VeriSign and its Affiliates, and their respective Customers, Subscribers, and Relying Parties.
CrossCertVTN Participant	An individual or organization that is one or more of the following within the VTN: VeriSign, an Affiliate, a Customer, a Reseller, a

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	Subscriber, or a Relying Party.
<i>VTN Standards</i>	The business, legal, and technical requirements for issuing, managing, revoking, renewing, and using Certificates within the VTN.
<i>Web Host</i>	An entity hosting the web site of another, such as an Internet service provider, a systems integrator, a Reseller, a technical consultant, and application service provider, or similar entity.
<i>Web Host Program</i>	A program that allows Web Hosts to enroll for Secure Server IDs and Global Server IDs on behalf of end-user Subscribers who are customers of the Web Hosts.
<i>Web Site, as in Web Site Service Center</i>	A line of business that an Affiliate enters to provide Secure Server ID and Global Server ID Retail Certificates one by one to Certificate Applicants.
<i>Wireless Application Protocol (WAP)</i>	A standard for the presentation and delivery of wireless information and telephony services on mobile phones and other wireless terminals.
<i>Wireless Transport Layer Security (WTLS)</i>	A protocol that protects the communication of applications that operate using the Wireless Application Protocol, such as communications between a wireless handset and a server.
<i>Wireless Transport Layer Security Certificate (WTLS Certificate)</i>	A Class 3 organizational Certificate whose format is defined as part of the Wireless Application Protocol, which authenticates a Wireless Transport Layer Security server to a WTLS client and facilitates encrypted communication between the WTLS server and the WTLS client.