Certification Practice Statement **for PKIoverheid Certificates**

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Version Control

Author	Date	Version	Comment
QuoVadis PMA	10 September 2019	1.0	English version consolidating all prior Dutch versions below.
QuoVadis PMA	20 March 2020	1.1	Revisions and edits to entire CPS, including structural changes for RFC 3647, Mozilla Policy 2.7 and Ballot SC2.
QuoVadis PMA	29 April 2020	1.2	CAA Records Update and minor formatting changes.
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Previous Documents Published in Dutch

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QuoVadis PMA	12 July 2019	1.8	Certification Practice Statement PKIoverheid Domeinen Organisatie (G2), Organisatie Persoon (G3)
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QuoVadis PMA	12 July 2019	1.7	Certification Practice Statement PKIoverheid EV
QuoVadis PMA	12 July 2019	1.3	Certification Practice Statement PKIoverheid Domeinen Private Services G1

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1. INTRODUCTION

This document is the DigiCert + QuoVadis Certification Practice Statement (CPS) for PKIoverheid Certificates. QuoVadis Trustlink B.V., a subsidiary of DigiCert Inc., is a Company registered in the Netherlands, trading under the names DigiCert + QuoVadis. QuoVadis is a leading international provider of Certificates. QuoVadis was founded in 1999 and has offices in the Netherlands, Germany, Switzerland, the United Kingdom, and Bermuda. QuoVadis Trustlink B.V. is certified as a Trust Service Provider ("TSP") for the issuance of Certificates under the Staat der Nederlanden/PKIoverheid Roots.

1.1. OVERVIEW

This CPS describes the practices and procedures that are employed in the life-cycle management, including the generation, issuance, and revocation, of PKIoverheid Certificates.

The Dutch Government provides the Policy Authority (PKIo PA) for PKIoverheid Certificates and impose strict requirements on TSPs to issue PKIoverheid Certificates under their hierarchies. The requirements are known as the "Programma van Eisen" (PvE) which means Program of Requirements. These are maintained and managed by Logius. *See* more at https://www.logius.nl/.

This document is structured per RFC 3647 and divided into 9 parts which cover all aspects of the issuance and management of Certificates. To preserve the outline specified by RFC 3647, section headings that do not apply are accompanied with the statement "Not applicable" or "No stipulation".

In addition a *QuoVadis PKI Disclosure Statement for PKIoverheid,* which summarises this document, may be found in the QuoVadis Repository.

Personal Certificates and Personal Certificates for Registered Professionals are EU Qualified Certificates issued to natural persons according to Regulation (EU) No 910/2014. The Certificate Policy for Qualified Certificates is in this case aligned with the Qualified Certificate Policy for natural persons (QCP-n-qscd).

QuoVadis conforms to the current version of the *Baseline Requirements for the Issuance and Management of Publicly Trusted Certificates* published at https://www.cabforum.org/. In the event of any inconsistency between this document and the normative provisions of those Applicable Requirements, those Applicable Requirements take precedence over this document.

QuoVadis is evaluated against multiple requirements, including PKIoverheid PvE parts 3a (Organisatie & Organisatie Persoon), 3b (Service), 3c (Burger), 3g (Private Service), 3h (Server - Private Services), 3i (Private Persoon), 3j (Domain Server 2020), ETSI 319 411-, and 319 411-2. *See* https://www.quovadisglobal.nl/ for details.

Trust service components for EU Qualified Certificates may only be performed by QuoVadis-approved entities that have the relevant certifications. When trust service components are provided by another party QuoVadis maintains overall responsibility and undertakes procedures to ensure that security and functionality of the trust service meet the appropriate requirements.

QuoVadis is also assessed against the Root distribution policies of Application Software Vendors including Mozilla and Microsoft.

1.1.1. Intended Audience

- Certificate Manager;
- Subscriber;
- Organisations of Registered Professionals;
- Authorities/regulators who are involved in the regulation of PKIo activities (e.g., Logius);
- Application Software Vendors; and
- Relying Parties or other third parties submitting Certificate Problem Reports informing QuoVadis of reasonable cause to revoke the Certificate

1.2. DOCUMENT NAME AND IDENTIFICATION

This document is the QuoVadis Trustlink B.V. "Certificate Practice Statement for PKIoverheid Certificates". QuoVadis issues Subscriber Certificates in the following PKIoverheid hierarchies:

Root CA: Staat der Nederlanden Root CA – G3 **Domain CA: Staat der Nederlanden Organisatie Persoon CA - G3**		
Issuing CA	**Profile Name**	**OID**
QuoVadis PKIoverheid Organisatie Persoon CA - G3	Personal Organisation Authentication G3	2.16.528.1.1003.1.2.5.1
QuoVadis PKIoverheid Organisatie Persoon CA - G3	Personal Organisation Non-Repudiation G3	2.16.528.1.1003.1.2.5.2
QuoVadis PKIoverheid Organisatie Persoon CA - G3	Personal Organisation Encryption G3	2.16.528.1.1003.1.2.5.3

Root CA: Staat der Nederlanden Root CA – G3 **Domain CA: Staat der Nederlanden Burger CA - 2021**		
Issuing CA	**Profile Name**	**OID**
QuoVadis PKIoverheid Burger CA - G3	Personal Citizen Authentication G3	2.16.528.1.1003.1.2.3.1
QuoVadis PKIoverheid Burger CA - G3	Personal Citizen Non-Repudiation G3	2.16.528.1.1003.1.2.3.2
QuoVadis PKIoverheid Burger CA - G3	Personal Citizen Encryption G3	2.16.528.1.1003.1.2.3.3

Root CA: Staat der Nederlanden EV Root CA **Intermediate CA: Staat der Nederlanden Domein Server CA 2020**		
Issuing CA	**Profile Name**	**OID**
QuoVadis PKIoverheid Server CA 2020	PKIoverheid Server CA 2020	2.16.528.1.1003.1.2.5.9

Root CA: Staat der Nederlanden Private Root CA - G1 **Domain CA: Staat der Nederlanden Private Personen CA – G1**		
Issuing CA	**Profile Name**	**OID**
QuoVadis PKIoverheid Private Personen CA - G1	Private Personal Authentication	2.16.528.1.1003.1.2.8.1
QuoVadis PKIoverheid Private Personen CA - G1	Private Personal Non-Repudiation	2.16.528.1.1003.1.2.8.2
QuoVadis PKIoverheid Private Personen CA - G1	Private Personal Encryption	2.16.528.1.1003.1.2.8.3

Root CA: Staat der Nederlanden Private Root CA - G1 Intermediate CA: QuoVadis PKIoverheid Private Services CA – G1		
Issuing CA	**Profile Name**	**OID**
QuoVadis PKIoverheid Private Services CA – G1	Private Services – Authentication	2.16.528.1.1003.1.2.8.4
QuoVadis PKIoverheid Private Services CA – G1	Private Services – Encryption	2.16.528.1.1003.1.2.8.5
QuoVadis PKIoverheid Private Services CA – G1	Private Services – Server	2.16.528.1.1003.1.2.8.6

QuoVadis may include other OIDs as appropriate. OIDs in this list and in QuoVadis certificates belong to their respective owners.

1.3. PKI PARTICIPANTS

Participants within the QuoVadis PKIo include:

- Certification Authorities (CA) and Registration Authorities (RA);
- Subscribers including Applicants for Certificates prior to Certificate issuance;
- Relying Parties; and
- Subcontractors.

1.3.1. Certification Authorities

Trusted Root and Intermediate CAs are owned and operated by the Staat der Nederlanden/Government of the Netherlands under the PKIoverheid scheme. PKIoverheid is the name for the PKI designed for trustworthy electronic communication within and with the Dutch government. This national PKI hierarchy consists of Root CAs and multiple domain CAs (sub-CAs) that issue Trust Service Providers (TSP) CA Certificates. TSPs like QuoVadis are responsible for issuing Certificates to end-user Subscribers.

1.3.1.1. Issuing CAs and Their Obligations

QuoVadis operates CAs that issue digital certificates. As the operator of CAs, QuoVadis performs functions associated with Public Key operations, including receiving certificate requests, issuing, revoking, rekeying, and renewing a digital Certificate, and maintaining, issuing, and publishing CRLs and OCSP responses.

Issuing CAs are operated by QuoVadis as authorised by the PKIo PA to participate within the PKIoverheid. Issuing CAs are required to act in accordance with their respective Issuing CA Agreements and to be bound by the terms of this CPS.

1.3.2. Registration Authorities

A Registration Authority (RA) is an entity that performs Identification and Authentication of Certificate Applicants, and initiates, passes along revocation requests for end user Subscriber Certificates, and approves applications for renewal or re-keying Certificates on behalf of an Issuing CA. QuoVadis and Issuing CAs may act as RAs for Certificates they issue.

RAs may be authorised by QuoVadis to delegate the performance of certain functions to third parties if it meets the requirements of this CPS. QuoVadis contractually obligates each RA and delegated third party to abide by the policies and industry standards that are applicable to their responsibilities.

In certain cases, QuoVadis uses the services provided by the AMP Group, based in Houten in the Netherlands, or uses appropriately trained employees from other QuoVadis group companies to establish identities of the Applicant.

Validation of Domains and IP Addresses for TLS and of email addresses included in Certificate Subject fields cannot be delegated and may only be only validated by the RA of the Issuing CA.

1.3.3. Subscribers

Subscribers are required to act in accordance with this CPS, Subscriber Agreement, and Terms of Use. Subscribers can be a natural person, a natural person with a registered profession, or a natural person in association with a legal person (e.g., an Authorised Representative of an organisation).

The Subscriber is the entity stated in the subject field of the Certificate, and the holder of the Private Key. Holders of Personal Certificates are natural persons. Subscribers of Server Certificates are organisations. The Certificate Manager is a Representative of an organisation and is also the holder of the Private Key.

1.3.4. Relying Parties

Relying Parties are entities that act in Reasonable Reliance on a Certificate and/or Digital Signature issued by QuoVadis. A Relying Party may, or may not, also be a Subscriber of the QuoVadis PKI. Relying parties must check the appropriate CRL or OCSP response prior to relying on information featured in a Certificate. The location of the Certificate Status service is detailed within the Certificate.

Relying Parties are required to act in accordance with this CPS and the Relying Party Agreement. *See* also Section 9.6.4.

1.3.5. Other Participants

Other Participants in the QuoVadis PKIo are required to act in accordance with this CPS and/or applicable agreements. Other participants include Accreditation Authorities such as Policy Management Authorities, Application Software Vendors, and applicable Community-of-Interest sponsors. Accreditation Authorities are granted an unlimited right to re-distribute QuoVadis CA Certificates and related information in connection with the accreditation.

1.4. CERTIFICATE USAGE

At all times, participants in the QuoVadis PKIo are required to utilise Certificates in accordance with this CPS and all applicable laws and regulations.

1.4.1. Appropriate Certificate Uses

Certificates issued pursuant to this QuoVadis PKIo CPS may be used for all legal authentication, encryption, access control, and digital signature purposes, as designated by the key usage and extended key usage fields found within the Certificate. However, the sensitivity of the information processed or protected by a Certificate varies greatly, and each Relying Party must evaluate the application environment and associated risks before deciding on whether to use a Certificate issued under this CPS. Reference is made below to the relevant *programma van eisen* (PVE) sections (https://www.logius.nl/english/pkioverheid):

3a: Personal and Professional Certificates (including Certificates for Registered Professionals)

- Authentication Certificate: can be used to reliably authenticate the identity of a user.
- Digital Signatures: can be used to digitally sign documents.
- Encryption: can be used for securing trusted information/details which are exchanged in electronic form. This can be both exchanges between people and people exchanging with automated systems.

3b: Organisation / Organisation Services

- Authentication Certificate: can be used to reliably authenticate the identity of a device or service.
- Encryption can be used for securing trusted information/details which are exchanged in electronic form. This can be both exchanges between device or service and device or service exchanging with automated systems.
- Non-repudiation Certificate: can be used to digitally sign documents as a Legal person.

3c: Citizen

- Authentication Certificate: can be used to reliably authenticate the identity of a user.
- Digital Signatures: can be used to digitally sign documents.
- Encryption: can be used for securing trusted information/details which are exchanged in electronic form. This can be both exchanges between people and people exchanging with automated systems.

3g: Private Services

- Authentication Certificate: can be used to reliably authenticate the identity of a device or service.
- Encryption can be used for securing trusted information/details which are exchanged in electronic form. This can be both exchanges between device or service and device or service exchanging with automated systems.

3h: Private Server

- Server Certificate: can be used to identify a website and secure communication between a browser and the webserver. It can also be used to secure communication between two devices or services.

3i: Private Person

- Authentication Certificate: can be used to reliably authenticate the identity of a user.
- Digital Signatures: can be used to digitally sign documents.
- Encryption: can be used for securing trusted information/details which are exchanged in electronic form. This can be both exchanges between people and people exchanging with automated systems.

3j: Domain Server 2020

- Can be used to secure a connection between a specific client and a server that is part of the organisational entity listed as the Subscriber in the relevant Certificate.

1.4.2. Prohibited Certificate Usage

Certificates issued under this CPS may not be used other than as described above.

QuoVadis Certificates shall be used only to the extent the use is consistent with applicable law or regulation, and in particular shall be used only to the extent permitted by applicable export or import laws. CA Certificates subject to the Mozilla Root Store Policy will not be used for any functions except CA functions. In addition, end-user Subscriber Certificates cannot be used as CA Certificates.

QuoVadis may periodically re-key Intermediate CAs. Third party applications or platforms that have an Intermediate CA embedded as a root certificate may not operate as designed after the Intermediate CA has been rekeyed.

QuoVadis strongly discourages key pinning and does not consider it a sufficient reason to delay revocation. Customers should also take care in not mixing Certificates trusted for the web with non-web PKI. Any Certificates trusted by Application Software Vendors must comply with all requirements of all applicable root distribution policies, including revocation periods described in Section 4.9.

1.5. POLICY ADMINISTRATION

1.5.1. Organisation Administering the Document

This CPS and related agreements and security policy documents referenced within this document are administered by the QuoVadis Policy Management Authority (PMA).

1.5.2. Contact Person

Enquiries or other communications about this CPS should be addressed to the QuoVadis PMA.

QuoVadis Trustlink B.V. attn. Policy Management Authority
Nevelgaarde 56 Noord
3436 ZZ Nieuwegein
The Netherlands

Tel: +31 30 232 4320 Fax: +31 30 232 4329
Website: http://www.quovadisglobal.nl PMA e-mail: compliance@quovadisglobal.com
Support (non revocation) requests: nl.support@digicert.com
Customer complaints: qvcomplaints@digicert.com

1.5.2.1. Certificate Problem Reports and Revocation

QuoVadis provides additional information for entities requiring assistance with revocation or an investigative report at https://www.quovadisglobal.com/certificate-revocation.

For anyone listed in Section 4.9.2 of this CPS and the CA/Browser Baseline Requirements that requires assistance with revocation or investigative reports, QuoVadis provides this page for reporting and submitting requests with all of the necessary information as outlined in Section 4.9: https://problemreport.digicert.com/

If the problem reporting page is unavailable, there is a system outage, or you believe our findings are incorrect please contact revoke@digicert.com.

Subscribers may revoke their own Certificates 24x7 via the QuoVadis Portal at https://tl.quovadisglobal.com/.

For other types of PKIoverheid revocation requests, please email info.nl@quovadisglobal.com. During Central European Time office hours, revocation requests may be made using the QuoVadis RA and support line +31 (0) 30 232 4320. Outside of office hours, critical revocation requests may be made to +1 651 2293456. Typically the following is required for revocation:

- Common Name
- Certificate serial number
- E-mail address of the Subject

Entities submitting Certificate revocation requests must explain the reason for requesting revocation. QuoVadis or an RA will authenticate and log each revocation request according to Section 4.9 of this CPS. QuoVadis will always revoke a Certificate if the request is authenticated as originating from the Subscriber or an authorised representative of the Organisation listed in the Certificate. If revocation is requested by someone other than an authorised representative of the Subscriber or Affiliated Organisation, QuoVadis or an RA will investigate the alleged basis for the revocation request prior to taking action. *See also* Section 4.9.1 and 4.9.3.

QuoVadis will revoke a Certificate following a valid request to do so from the Subscriber or other third parties (including organisations of Registered Professionals or PKIoverheid regulators such as Logius). *See* Section 4.9.

1.5.3. Person Determining The CPS Suitability

The QuoVadis Policy Management Authority (PMA) determines the suitability and applicability of this CPS based on the results and recommendations received from an independent auditor, (*see* Section 8). The PMA is also responsible for evaluating and acting upon the results of compliance audits.

1.5.4. CPS Approval Procedures

This CPS is reviewed and approved at least on an annual basis by the QuoVadis PMA, and if any significant change in the provision of PKIoverheid Certificates occurs. The QuoVadis PMA, at its sole discretion, determines whether changes to this CPS require notice.

1.6. DEFINITIONS AND ACRONYMS

1.6.1. Definitions

Applicant: The Applicant is an entity applying for a Certificate.

Application Software Vendors: Means a software developer whose software displays or uses QuoVadis or PKIoverheid Certificates and distributes Root Certificates.

Authority Letter: The Authority Letter is a signed by a Confirming Person acting for the Applicant for EV Certificates to establish the authority of individuals to act as the Subscriber's agents.

Certificate Approver: A Certificate Approver is a natural person who is employed by the Applicant, or an authorised agent who has express authority to represent the Applicant to: (i) act as a Certificate Requester and to authorise other employees or third parties to act as a Certificate Requesters, and (ii) to approve Certificate Requests submitted by other Certificate Requesters.

Certificate Application: Any of several forms completed by Applicant or QuoVadis and used to process the request for an EV Certificate, including but not limited to agreements signed by Contract Signers and online forms submitted by Certificate Requesters.

Certificate Manager: A Certificate Manager is an authorised representative of an organisation and is also the holder of the Private Key.

Certificate Requester: A Certificate Requester is a natural person who is employed by the Applicant, or an authorised agent who has express authority to represent the Applicant or a third party (such as an ISP or hosting company), and who completes and submits a Certificate Request on behalf of the Applicant.

Confirming Person: A confirming Person is a natural person who must be a senior officer of the Applicant (e.g., Secretary, President, CEO, CFO, COO, CIO, CSO, Director, etc.) who has express authority to sign the QV Authority Letter on behalf of the Applicant.

Contract Signer: A Contract Signer is a natural person who is employed by the Applicant and who has express authority to sign Subscriber Agreements on behalf of the Applicant.

Internal Server Name: A Server Name (which may or may not include an Unregistered Domain Name) that is not resolvable using the public DNS.

Participants: A Participant is an individual or entity within the QuoVadis PKI and may include: CAs and their Subsidiaries and Holding Companies; Subscribers including Applicants; and Relying Parties.

Qualified Certificate: A Digital Certificate whose primary purpose is to identify a person with a high level of assurance, where the Digital Certificate meets the qualification requirements defined by the applicable legal framework of Regulation (EU) No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market (the “eIDAS Regulation”). A Qualified Website Authentication Certificate is a TLS Certificate.

Reliable Data Source: An identification document or source of data used to verify Subject Identity Information that is generally recognized among commercial enterprises and governments as reliable, and which was created by a third party for a purpose other than the Applicant obtaining a Certificate.

Relying Party: The Relying Party is an individual or entity that relies upon the information contained within the Certificate.

Relying Party Agreement: The Relying Party Agreement is an agreement which must be read and accepted by a Relying Party prior to validating, relying on or using a Certificate or accessing or using the QuoVadis Repository.

Repository: The Repository refers to the CRL, OCSP, and other directory services provided by QuoVadis containing issued and revoked Certificates.

Required Website Content: Either a Random Value or a Request Token, together with additional information that uniquely identifies the Subscriber, as specified by the CA. A Random Value is specified by QuoVadis and exhibits at least 112 bits of entropy.

Reserved IP Address: An IPv4 or IPv6 address that the IANA has marked as reserved.

Subordinate CA: A Certification Authority whose Certificate is signed by the Root CA or another Subordinate CA. Also known as Issuing CA or sub-CA.

Subscriber: Means either the Individual to whom an end entity Certificate is issued or the Individual responsible for requesting, installing and maintaining the trusted system for which a Certificate has been issued.

Subscriber Agreement: Is the agreement executed between a Subscriber and QuoVadis relating to the provision of designated Certificate-related services that governs the Subscriber's rights and obligations related to the Certificate.

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

Terms and Conditions means the Master Services Agreement, Certificate Terms of Use, Privacy Policy and relevant QuoVadis CP/CPS. The Master Services Agreement references and makes the Certificate Terms of Use, Privacy Policy and relevant QuoVadis CP/CPS part of the Terms and Conditions.

1.6.2. Acronyms

ALPN	TLS Application-Layer Protocol Negotiation (ALPN) Extension [RFC7301] as defined in RFC 8737
ADN	Authorisation Domain Name
CA	Certificate Authority or Certification Authority
CAA	Certificate Authority Authorisation
CPS	Certification Practice Statement
CRL	Certificate Revocation List
CSR	Certificate Signing Request
CT	Certificate Transparency
eIDAS	Regulation (EU) No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market
ETSI	European Telecommunications Standards Initiative
EV	Extended Validation
FIPS	Federal Information Processing Standard
ICANN	Internet Corporation for Assigned Names and Numbers
IETF	Internet Engineering Task Force
ITU	International Telecommunication Union
ERA	Enterprise Registration Authority
LRA	Local Registration Authority
NCA	National Competent Authority
NCSC	National Cyber Security Centre.
OID	Object Identifier
PKIo PA	PKIoverheid Policy Authority
PKI	Public Key Infrastructure
PKIX	IETF Working Group on Public Key Infrastructure
PKCS	Public Key Cryptography Standard

PMA	QuoVadis Policy Management Authority
Portal	QuoVadis Certificate Management System
PvE	Programma van Eisen
QWAC	Qualified Website Authentication Certificate
QTSP	Qualified Trust Service Provider
RA	Registration Authority
SSL	Secure Sockets Layer
TLS	Transport Layer Security
X.509	The ITU-T standard for Certificates and their corresponding authentication framework

1.6.3. Conventions

The key words “MUST”, “MUST NOT”, "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this CPS shall be interpreted in accordance with RFC 2119.

2. PUBLICATION AND REPOSITORY RESPONSIBILITIES

2.1. REPOSITORIES

QuoVadis provides public repositories for its CA Certificates, revocation data for issued Certificates, CPS, Terms and Conditions, and other important policy documents. The QuoVadis Repository is located at https://www.quovadisglobal.nl/repository.

All Repository information is publicly available in read-only format and is available 24 x 7. In the event that the Repository is unavailable then QuoVadis aims to restore availability within 24 hours.

QuoVadis may register TLS Certificates with publicly accessible Certificate Transparency (CT) Logs. CT Log information is publicly accessible. Once submitted, Certificate information cannot be removed from a CT Log.

2.2. PUBLICATION OF CERTIFICATE INFORMATION

The Repository contains:

- QuoVadis CPS for PKIoverheid
- QuoVadis PKI Disclosure Statement for PKIoverheid
- Subscriber Agreement, Terms of Use, Privacy Statement
- Certificates for Subscribers (with the consent of the Subscriber)

The location of the Repository, Certificate Revocation List (CRL) and the Online Certificate Status Protocol (OCSP) responders are also in the corresponding field of the Certificate profiles as stated in this CPS.

2.3. TIME OR FREQUENCY OF PUBLICATION

QuoVadis publishes CRL and OCSP resources to allow Relying Parties to determine the validity of a QuoVadis Certificate. Certificate information is published promptly following generation and issue and immediately following the completion of the revocation process.

QuoVadis updates this CPS at least annually to describe how QuoVadis meets the requirements of PKIoverheid and other applicable standards including the CA/Browser Forum Baseline Requirements. Those updates indicate conformance by incrementing the version number and adding a dated changelog entry even if no other changes are made to the document as specified in section 1.2 of this CPS

New or modified versions of the CPS and other policies are typically published within seven days after their approval. In the event that a new version will be published the PKIo PA will be informed.

QuoVadis publishes a list of revoked Certificates. The CRL is updated within 10 minutes of a revocation and automatically updated every 12 hours; each CRL is valid for 72 hours. OCSP is updated immediately when a Certificate is revoked. OSCP responses are valid for a maximum of 48 hours. All OSCP responses conform to RFC 6960.

2.4. ACCESS CONTROLS ON REPOSITORIES

Read-only access to the Repository is unrestricted. Logical and physical controls prevent unauthorised write access to Repositories.

3. IDENTIFICATION AND AUTHENTICATION

The Identification and Authentication procedures used by QuoVadis depend on the Class of Certificate being issued. *See* Appendix B for Certificate Profiles and the relevant verification requirements.

3.1. NAMING

3.1.1. Types Of Names

Personal Certificates

Field	**Description**	**Max. length**
CN - Common name	Full name of the Subscriber	64
C - Country	Two-digit country code for the location	2
GN – Given Name	Official given name(s) of the Subscriber per the Legal ID	64
S - Surname	Official surname(s) of the Subscriber per the Legal ID	64

Personal Certificates with Legal person

Field	**Description**	**Max. length**
CN - Common name	Full name of the Subscriber	64
C - Country	Two-digit country code for the location	2
GN – Given Name	Official given name(s) of the Subscriber per the Legal ID	64
S - Surname	Official surname(s) of the Subscriber per the Legal ID	64
O - Organisation Name	Name of the Organisation	64

Personal Certificates for Registered Professionals

Field	**Description**	**Max. length**
CN - Common name	Full name of the Subscriber	64
C - Country	Two-digit country code for the location	2
GN – Given Name	Official given name(s) of the Subscriber per the Legal ID	64
S - Surname	Official surname(s) of the Subscriber per the Legal ID	64
T- Title	Official registered profession(al) title of the Subscriber	64
O - Organisation Name	GN – Given Name + S - Surname	64

Services Certificates – G1

Field	Description	Max. length
CN - Common name	FQDN to which the Certificate and keypair are assigned or Non-FQDN	64
O - Organisation Name	Name of the Organisation	64
C - Country	Two-digit country code for the location	2
Serial number	Chamber of Commerce number for the Organisation	64

Private Services Server

Field	Description	Max. length
CN - Common name	FQDN to which the Certificate and keypair are assigned	64
O - Organisation Name	Name of the Organisation	64
serial number	Chamber of Commerce number for the Organisation	64
C - Country	Two-digit country code for the location	2
L- Locality	Place the Organisation is located	128
ST- State	State or province the Organisation is located	128
OU – Organisational Unit	Department of the Organisation. As of August 31, 2020 QuoVadis does not include OU fields in public trust TLS Certificates.	64

Domain Server 2020

Field	Description	Max. length
CN - Common name	FQDN to which the Certificate and keypair are assigned	64
O - Organisation Name	Name of the Organisation	64
serial number	Chamber of Commerce number for the Organisation	64
C - Country	Two-digit country code for the location	2
L- Locality	Place the Organisation is located	128
ST- State	State or province the Organisation is located	128
OU – Organisational Unit	Department of the Organisation. As of August 31, 2020 QuoVadis does not include OU fields in public trust TLS Certificates.	64

3.1.2. Need For Names To Be Meaningful

QuoVadis uses Distinguished Names in the Certificates based on the tables above, to create names which are meaningful, unambiguous, and unique and allows any Relying Party to identify the Subscriber.

3.1.3. Pseudonymous Subscribers

Anonymous Certificates or the use of a pseudonym is not permitted.

3.1.4. Rules For Interpreting Various Name Forms

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

3.1.5. Uniqueness Of Names

The Subject Name of each Certificate issued by an Issuing CA shall be unique within each class of Certificate issued by that Issuing CA over the lifetime of that Issuing CA and shall conform to applicable X.500 standards for the uniqueness of names.

The Issuing CA may, if necessary, insert additional numbers or letters to the Subscriber's Subject Common Name, or other attribute such as subject serialNumber, in order to distinguish between two Certificates that would otherwise have the same Subject Name. Name uniqueness is not violated when multiple Certificates are issued to the same entity.

3.1.6. Recognition, Authentication, And Role Of Trademarks

Certificate Applicants shall not use names which infringe upon the intellectual property rights of others. QuoVadis is not required to and does not determine whether a Certificate Applicant has intellectual property rights, and therefore does not mediate, arbitrate or try to resolve any dispute regarding the ownership of any intellectual property or trademarks. QuoVadis reserves the right, without liability, to reject any application for a Certificate.

3.2. INITIAL IDENTITY VALIDATION

QuoVadis may use any legal means of communication or investigation to ascertain the identity of an organisational or individual Applicant. QuoVadis may refuse to issue a Certificate in its sole discretion. The Applicant begins the application on the QuoVadis website: https://www.quovadisglobal.nl/.

Depending on the type of Certificate required the Applicant will submit information via the website registration or will be sent a standard application form. A QuoVadis representative is responsible for the processing of applications, however, a professional registrar may be consulted (where needed) to verify application data. Identity vetting may also be performed by AMP by trained employees on behalf of QuoVadis, specifically for the face-to-face checks.

QuoVadis does not provide Certificate Modification. QuoVadis may reissue or replace a valid Certificate when the Subscriber's common name, organisation name, device name, or geographic location changes. Modified information must undergo the same Identification and Authentication procedures as for a new Certificate.

For all Certificate applications a series of checks and validation actions will be carried out. The table below shows the types of checks and validations carried out per Certificate;

Certificate Type	**Checks and Validations Performed**
PKIo Personal Organisation Certificates Domain CA: Staat der Nederlanden Organisatie Persoon CA - G3	• Individual Identity Checks • Organisation Checks • Certificate Signing Request (CSR)
PKIo Professional Certificates (Beroepscertificaat) Staat der Nederlanden Burger CA - G3	• Individual Identity Checks • Professional check • CSR
PKIo Private Root Personal Certificates Staat der Nederlanden Private Personen CA – G1	• Individual Identity Checks • CSR
PKIo Private Root Server Services Certificates QuoVadis PKIoverheid Private Services CA – G1	• Individual Identity Checks • Authorised Person Checks • FQDN Checks (if applicable) • CSR

Certificate Type	Checks and Validations Performed
PKIo Domein Server 2020	• Individual Identity Checks • Authorised Person Checks • FQDN Checks • Organisation Checks • CSR

All certificate OIDs are listed in Section 1.2 of this document where the names refer to the names in the table above.

3.2.1. Method To Prove Possession Of Private Key

QuoVadis ensures that the Applicant delivers the Certificate Signing Request (CSR) in a secure manner. For PKIo Certificates a CSR is required. The delivery must take place securely, as follows:

- Inputting the CSR into the QuoVadis Certificate Management System (Portal) or website using an HTTPS connection which uses a PKIoverheid TLS Certificate or equivalent;
- Sending the CSR via e-mail with a Qualified Electronic Signature from the Certificate Manager which uses a PKIoverheid Qualified Certificate or equivalent; or
- Inputting or sending a CSR in a manner at least equivalent to the above ways.

3.2.2. Authentication Of Organisation Identity

In issuing Certificates linked to Organisations then QuoVadis will verify the Applicant/Subscriber is an existing organisation. If the Applicant requests a Certificate that will contain Subject identity information then QuoVadis will verify this information, including;

- Verification of country;
- Identity of the Applicant; and
- Authenticity of the Applicant's representative.

All evidence relied upon during the vertification process will be inspected for alteration or falsification.

3.2.2.1. Identity

QuoVadis verifies that the Applicant is an existing and legal organisation. As proof that it is an existing and legal organisation, QuoVadis will request and verify at least the following supporting documents:

- For Organisations in the Netherlands a certified extract from the Kamer van Koophandel (KvK) Trade Register. Extracts may not be older than 825 days;
- For Organisations outside of the Netherlands the following may be used where the Authorised Representative is shown;
  - Trade Registers or equivalent;
  - Article of Association; or
  - Generation Administrative Order.

QuoVadis checks that a legal organisation is not included in the most recent EU list of banned terrorists and organisations published by the European Council before Certificate issuance (list of persons, groups and entities referred to in Articles 2, 3 and 4 of Common Position 2001/931/CFSP on the application of specific measures to combat terrorism.) These lists can be found via the web page: https://www.consilium.europa.eu/nl/policies/fight-against-terrorism/terrorist-list/. QuoVadis will not issue a Certificate to an organisation on this list.

3.2.2.2. DBA/Tradename

If the Certificate is to contain a Subject DBA or tradename then QuoVadis will verify the Applicant's right to use the DBA/tradename by using at least one of the following sources;

- For Organisations in the Netherlands a certified extract from the Kamer van Koophandel (KvK) Trade Register. Extracts may not be older than 825 days;
- For Organisations outside of the Netherlands the following may be used where the Authorised Representative is shown;
  - Trade Registers or equivalent;
  - Article of Association; or
  - Generation Administrative Order.

3.2.2.3. Verification of Country

If the Certificate is to contain the Subject Country information then this will be verified by QuoVadis using the information evidence described in Section 3.2.2.1.

3.2.2.4. Validation of Domain and Email Authorisation and Control

For each FQDN listed in a Certificate, QuoVadis confirms that, as of the date the Certificate was issued, the Applicant either is the Domain Name Registrant or has control over the FQDN by:

i) BR Section 3.2.2.4.1 is no longer used as it is deprecated as of August 1, 2018;

ii) Communicating directly with the Domain Name Registrant via email, fax or postal mail provided by the Domain Name Registrar. Performed in accordance with BR section 3.2.2.4.2 using a Random Value (valid for no more than 30 days from its creation);

iii) BR Section 3.2.2.4.3 is no longer used because it is deprecated as of May 31, 2019;

iv) Communicating with the Domain's administrator using a constructed email address created by prepending 'admin', 'administrator', 'webmaster', 'hostmaster', or 'postmaster' to the Authorisation Domain Name (ADN). Performed in accordance with BR section 3.2.2.4.4;

v) BR Section 3.2.2.4.5 is no longer used because it is deprecated as of August 1, 2018;

vi) BR Section 3.2.2.4.6 is no longer used because it is deprecated as of April 24, 2020;

vii) Confirming the Applicant's control over the requested ADN (which may be prefixed with a label that begins with an underscore character) by confirming the presence of an agreed-upon Random Value in a DNS record. Performed in accordance with BR section 3.2.2.4.7

viii) Confirming the Applicant's control over the FQDN through control of an IP address returned from a DNS lookup for A or AAAA records for the FQDN, performed in accordance with BR Section 3.2.2.4.8;

ix) BR Section 3.2.2.4.9 is no longer used because it was deprecated as of March 16, 2019;

x) BR Section 3.2.2.4.10 is no longer used because it was deprecated as of September 22, 2020;

xi) BR Section 3.2.2.4.11 is no longer used because it is deprecated as of February 5, 2018;

xii) Confirming that the Applicant is the Domain Contact for the Base Domain Name (provided that the CA or RA is also the Domain Name Registrar or an Affiliate of the Registrar), performed in accordance with BR Section 3.2.2.4.12;

xiii) Confirming the Applicant's control over the FQDN by sending a Random Value via email to a DNS CAA Email Contact and then receiving a confirming response utilising the Random Value. The relevant CAA Resource Record Set is found using the search algorithm defined in RFC 8659, performed in accordance with BR Section 3.2.2.4.13;

xiv) Confirming the Applicant's control over the FQDN by sending a Random Value via email to the DNS TXT Record Email Contact for the ADN for the FQDN and then receiving a confirming response utilising the Random Value, performed in accordance with BR Section 3.2.2.4.14;

xv) Confirming the Applicant's control over the FQDN by calling the Domain Contact's phone number and obtaining a confirming response to validate the ADN. Each phone call can confirm control of multiple

ADNs provided that the same Domain Contact phone number is listed for each ADN being verified and they provide a confirming response for each ADN, performed in accordance with BR Section 3.2.2.4.15;

xvi) Confirming the Applicant's control over the FQDN by calling the DNS TXT Record Phone Contact's phone number and obtaining a confirming response to validate the ADN. Each phone call can confirm control of multiple ADN provided that the same DNS TXT Record Phone Contact phone number is listed for each ADN being verified and they provide a confirming response for each ADN, performed in accordance with BR Section 3.2.2.4.16;

xvii) Confirming the Applicant's control over the FQDN by calling the DNS CAA Phone Contact's phone number and obtain a confirming response. Each phone call can confirm control of multiple domains provided that the same DNS CAA Phone Contact phone number is listed for each domain being verified and a confirming response is provided for each domain. Performed in accordance with BR Section 3.2.2.4.17;

xviii) Confirming the Applicant's control over the requested FQDN by confirming the presence of an agreed-upon Random Value under the "/.well-known/pki-validation" directory, performed in accordance with BR section 3.2.2.4.18;

xix) Confirming the Applicant's control over a FQDN by validating domain control of the FQDN using the ACME HTTP Challenge method, performed in accordance with BR Section 3.2.2.4.19; or

xx) Confirming the Applicant's control over a FQDN by validating domain control of the FQDN by negotiating a new application layer protocol using the ALPN Extension, performed in accordance with BR Section 3.2.2.4.20.

Wildcard Domain Name validation is completed using the above list as permitted by the CA/B Forum Baseline Requirements along with current best practice of consulting a public suffix list.

QuoVadis verifies an Applicant's or Organisation's right to use or control of an email address to be contained in a Certificate that will have the "Secure Email" EKU by doing one of the following:

i) By verifying domain control over the email Domain Name using one of the procedures listed in this section; or

ii) by sending an email message containing a Random Value to the email address to be included in the Certificate and receiving a confirming response within a limited period of time that includes the Random Value to indicate that the Applicant controls that same email address.

QuoVadis maintains a list of High Risk Domains and has implemented technical controls to prevent the issuance of Certificates to certain domains. QuoVadis follows documented procedures that identify and require additional verification activity for High Risk Certificate Requests prior to the Certificate's approval.

QuoVadis uses a documented internal process to check the accuracy of information sources and databases to ensure the data is acceptable, including reviewing the database provider's terms of use. For EV, the approved sources are published at https://github.com/digicert/reports/tree/master/validation-sources.

3.2.2.5. Authentication for an IP Address

For each IP Address listed in a Certificate, QuoVadis confirms that, as of the date the Certificate was issued, the Applicant controlled the IP Address by:

i) Having the Applicant demonstrate practical control over the IP Address by confirming the presence of a Request Token or Random Value contained in the content of a file or webpage in the form of a meta tag under the "/.well-known/pki-validation" directory on the IP Address, performed in accordance with BR Section 3.2.2.5.1;

ii) Confirming the Applicant's control over the IP Address by sending a Random Value via email, fax, SMS, or postal mail and then receiving a confirming response utilising the Random Value, performed in accordance with BR Section 3.2.2.5.2;

iii) Performing a reverse-IP address lookup and then verifying control over the resulting Domain Name, as set forth above and in accordance with BR Section 3.2.2.5.3;

iv) BR Section 3.2.2.5.3 is no longer used because it was deprecated as of July 31, 2019.

v) Confirming the Applicant's control over the IP Address by calling the IP Address Contact's phone number, as identified by the IP Address RA, and obtaining a response confirming the Applicant's request for validation of the IP Address, performed in accordance with BR Section 3.2.2.5.5;

vi) Confirming the Applicant's control over the IP Address by performing the procedure documented for an "http-01" challenge in draft 04 of "ACME IP Identifier Validation Extension," available at https://tools.ietf.org/html/draft-ietf-acme-ip-04#section-4, performed in accordance with BR Section 3.2.2.5.6; or

vii) Confirming the Applicant's control over the IP Address by performing the procedure documented for a "tls-alpn-01" challenge in draft 04 of "ACME IP Identifier Validation Extension," available at https://tools.ietf.org/html/draft-ietf-acme-ip-04#section-4, performed in accordance with BR Section 3.2.2.5.7.

3.2.2.6. Wildcard Domain Names

Wildcard domains are not permitted for use within PKIoverheid.

3.2.2.7. Data Source Accuracy

Prior to using a data source as a Reliable Data Source, QuoVadis evaluates it for reliability, accuracy and resistance to falsification. QuoVadis will consider:

- The age of the information provided;
- The frequency of updates to the information source;
- The data provider and purpose of the data collected;
- The public accessibility of the data availability; and
- The probability that the data could be falsified or altered.

Databases maintained by the CA, its owner, or its affiliated companies do not qualify as a Reliable Data Source if the primary purpose of the database is to collect information for the purpose of fulfilling the validation requirements under this Section 3.2

3.2.2.8. CAA Records

QuoVadis performs CAA record checks which is described further in Section 4.2.4. All potential issuances that were prevented by a CAA record will be recorded in sufficient detail to the CA/Browser Forum and the circumstances, and may dispatch reports of those issuance requests to the contact(s) stipulated in the CAA iodef record(s), if present.

3.2.3. Authentication Of Individual Identity

An Individual's Identity is to be authenticated in accordance with the class/type of Certificate together with the relevant application data and documentation. TLS Certificates are only issued to organisations and not natural persons.

3.2.3.1. Natural Person

The following checks are carried out for a natural person;

i) Personal Details: The personal details are verified using the details on a Legal Identity Document. This includes full legal name(s) and date of birth.

ii) Email address: Verification of the Applicant's control over the email address is carried out by the first contact. The Applicant is manually sent an email with instructions, documents and forms required for the registration, or automatically when using a QuoVadis Portal.

iii) Legal Identity Document: Verification of the Applicant is done by verifying the Legal Identity Document (LID). QuoVadis has multiple processes that use the LID; the Applicant can send a copy of the LID, can take a picture of the LID during the registration or use an NFC-capable phone to read the NFC chip in the LID.

iv) Face-to-face check: Part of the registration process is a Face-to-Face or physical identification of the natural person applying for the Certificate. Face-to-Face identity vetting is performed for all the individuals who are listed on the applicable PKIoverheid application forms. During the Face-to-Face vetting process the Applicant must place their signature on a copy of the LID as provided by QuoVadis or a third party acting on behalf of QuoVadis.

PROFESSION CHECK

Verification of the natural person in the applicable professional registrar is done when applicable for the specific Certificate that is applied for. QuoVadis currently issue Certificates for the following professions;

- Advocate/Lawyer
- Notary
- Court Bailiff
- Registered Accountant
- Administration-Accountant Consultant

Note: Dutch Driving Licenses are considered acceptable Legal Identity Documents but do not contain all names in full. The use of full and complete names are mandatory for the issuance of Certificates within PKIoverheid and eIDAS, therefore QuoVadis cannot accept driving licenses from Applicants.

NOTE: Certificates issued to natural persons are not interpreted as a means of identification defined in the Dutch Compulsory Identification act (WID), and therefore cannot be used for identification purposes.

3.2.4. Non-Verified Subscriber Information

No stipulation.

3.2.5. Validation Of Authority

Where an Applicant's Name is to be associated with an Organisational Name to indicate his or her status as a Counterparty, Employee or specifies an Authorisation level to act on behalf of an Organisation, the RA will validate the Applicant's Authority by reference to business records maintained by the RA, its Subsidiaries, Holding Companies or Affiliates. Validation of authority is conducted in compliance with this CPS and the Certificate Profiles detailed in Appendix B. Validity of authority of Applicant Representatives and Agents is verified against contractual documentation and Reliable Data Sources.

In addition, QuoVadis will allow an Applicant to specify the individuals who may request Certificates. If an Applicant specifies, in writing, the individuals who may request a Certificate, then certificate requests that are outside this specification will not be accepted. QuoVadis will provide an Applicant with a list of its authorised certificate requesters upon the Applicant's verified written request

3.2.6. Criteria for Interoperation

No stipulation.

3.3. IDENTIFICATION AND AUTHENTICATION FOR RE-KEY REQUESTS

3.3.1. Identification And Authentication For Routine Re-Key

Subscribers may request re-key of a Certificate prior to a Certificate's expiration.

When replacing a personal certificate at the end of its lifetime the Qualified signature of the non-repudiation (signing) Certificate can be used during registration and identification, instead of the physical presence of the certificate holder. This is subject to conditions of PKIoverheid:

- The non-repudiation certificate must be valid at the time of renewal;
- The file must be current and complete, including a copy of a valid ID document;
- Subject details in the valid non-repudiation Certificate e.g., organisation field;

- The single renewal of the certificate without physical appearance is only possible if QuoVadis issued the previous non-repudiation Certificate based on physical appearance.

After receiving a request for re-key, QuoVadis creates a new Certificate with the same Certificate contents except for a new Public Key and, optionally, an extended validity period. If the Certificate has an extended validity period, QuoVadis may perform some revalidation of the Applicant but may also rely on information previously provided or obtained. QuoVadis does not re-key a Certificate without additional Identification and Authentication if doing so would allow the Subscriber to use the Certificate beyond the limits specified for the applicable Certificate Profile.

3.3.2. Identification and Authentication For Re-Key After Revocation

After revocation of the Certificate the relevant keys cannot be recertified. Applicants will be required to apply for a new Certificates using new keys.

3.4. IDENTIFICATION AND AUTHENTICATION FOR REVOCATION REQUESTS

All revocation requests are authenticated by QuoVadis or the RA responsible for issuing the Certificate. QuoVadis may authenticate revocation requests by referencing the Certificate's Public Key, regardless of whether the associated Private Key is compromised. A Subscriber may request that their Certificate be revoked by:

- Authenticating to a QuoVadis Portal and requesting revocation via that system;
- Applying in person to the RA, Issuing CA or QuoVadis supplying either original proof of identification in the form of a valid Driving License or Passport;
- Telephonic communication using a pre-existing shared secret, password or other information associated with Subscriber's account with the CA following appropriate Identification.

4. CERTIFICATE LIFE-CYCLE OPERATION REQUIREMENTS

4.1. CERTIFICATE APPLICATION

4.1.1. Who Can Submit A Certificate Application

Either the Applicant or an individual authorised to request Certificates on behalf of the Applicant may submit Certificate Requests. Applicants are responsible for any data that the Applicant or an agent of the Applicant supplies to QuoVadis. QuoVadis does not issue Certificates to entities on a government denied list maintained by the United States or that are located in a country with which the laws of the U.S. prohibit doing business.

The Applicant is responsible to provide correct and up-to-date data, as required for the generation and Issuance of Certificates as well as the correct usage of the Certificates. By agreeing to the Terms of Use of both QuoVadis, the PKIoverheid framework and the Privacy Statement and signing the contracts, the Applicant also agrees to all underlying documents (the CPS, CP and others). If any of the required information for the Issuance of Certificates is missing, incomplete or produces a negative outcome, QuoVadis will reject the application for a Certificate.

QuoVadis maintain an internal database of all previously revoked Certificates and previously rejected certificate requests due to suspected phishing or other fraudulent usage or concerns. This information is used to identify any subsequent suspicious Certificate requests.

Subscribers have obligations regarding usage of QuoVadis PKIoCertificates, which are set out in the Terms of Use documentation and the contracts.

4.1.2. Enrolment Process And Responsibilities

Certificate Requests must be in a form prescribed by the Issuing CA and typically include i) an application form including all registration information as described by this CPS, ii) secure generation of Key Pair and delivery of the Public Key to QuoVadis, (a CSR may not be required), iii) acceptance of the relevant Subscriber

Agreement or other terms of use upon which the Certificate is to be issued, and iv) payment of fees. All applications are subject to review, approval, and acceptance by the Issuing CA in its discretion.

All agreements concerning the use of, or reliance upon, Certificates issued within the QuoVadis PKIo must incorporate by reference the requirements of this QuoVadis CPS as it may be amended from time to time.

4.2. CERTIFICATE APPLICATION PROCESSING

4.2.1. Performing Identification And Authentication Functions

Prior to Issuing a Certificate, various verification procedures are carried out during the registration process. QuoVadis can only make approval assessments based on the information provided by the Applicant. The Applicant has the obligation to ensure all information provided is accurate and complete at the time of application, QuoVadis provides no guarantees to the issuance of Certificates.

QuoVadis considers a data source's availability, purpose, and reputation when determining whether a third-party source is reasonably reliable. For TLS QuoVadis does not consider a database, source, or form of identification reasonably reliable if QuoVadis or the RA is the sole source of the information

4.2.2. Approval Or Rejection Of Certificate Applications

After receiving a Certificate application QuoVadis will assess the information for completeness and will check if all of the information meets the requirements as laid out in this CPS.

QuoVadis, in its sole discretion, may refuse to issue a Certificate, without incurring any liability for loss or damages arising out of such refusal. QuoVadis reserves the right not to disclose the reason for any refusal.

4.2.3. Time To Process Certificate Applications

QuoVadis makes reasonable efforts to confirm Certificate Application information and issue a Certificate within a reasonable time frame, which is dependent on the Applicant providing the necessary details and documentation in a timely manner. Events outside of the control of QuoVadis may delay the issuance process.

4.2.4. Certificate Authority Authorisation (CAA)

Prior to issuing TLS Certificates, QuoVadis checks for CAA records for each dNSName in the subjectAltName extension of the Certificate to be issued. If the QuoVadis Certificate is issued, it will be issued within the TTL of the CAA record, or 8 hours, whichever is greater.

When processing CAA records, QuoVadis processes the issue, issuewild, and iodef property tags as specified in RFC 8659. QuoVadis may not act on the contents of the iodef property tag. QuoVadis will not issue a Certificate if an unrecognized property is found with the critical flag.

CAA checking is optional for Certificates where CAA was checked prior to the creation of a corresponding CT pre-certificate that was logged in at least 2 public CT log servers. DNS access failure can be treated as permission to issue when the failure is proven to be outside QuoVadis infrastructure, was retried at least once, and the domain zone does not have a DNSSEC validation chain to the ICANN root.

QuoVadis documents potential issuances that were prevented by a CAA record, and may not dispatch reports of such issuance requests to the contact stipulated in the CAA iodef record(s), if present. QuoVadis supports mailto: and https: URL schemes in the iodef record.

The identifying CAA domains recognised by QuoVadis: are "pkioverheid.nl", "digicert.com", "digicert.ne.jp", "cybertrust.ne.jp", "symantec.com", "thawte.com", "geotrust.com", "quovadisglobal.com", "rapidssl.com", "digitalcertvalidation.com" and any domain containing those identifying domains as suffixes (e.g. example.digicert.com) or registered country jurisdictions (e.g., digicert.de).

4.3. CERTIFICATE ISSUANCE

4.3.1. CA Actions During Certificate Issuance

QuoVadis follows the processes outlined in this CPS document for the Issuance of Certificates in accordance with the legal and regulatory requirements as described in paragraph 1.1. After Issuing a Certificate, the Subscriber or Certificate Manager must explicitly confirm the handover of the key material belonging to the QuoVadis issued Certificate. Acceptance of Certificates is deemed to have taken place after completion of the Certificate issue via Trustlink Enterprise.

4.3.2. Notification To Subscriber By The CA Of Issuance Of Certificate

QuoVadis may deliver Certificates in any secure manner within a reasonable time after issuance. Generally, QuoVadis delivers instructions via email to the email address designated by the Certificate Requester during the application process.

4.4. CERTIFICATE ACCEPTANCE

4.4.1. Conduct Constituting Certificate Acceptance

The Certificate Requester is responsible for installing the issued Certificate on the Subscriber's computer or cryptographic module according to the Subscriber's system specifications. A Subscriber is deemed to have accepted a Certificate when:

- The Subscriber downloads, installs, or otherwise takes delivery of the Certificate; or
- 30 days pass since issuance of the Certificate.

BY ACCEPTING A CERTIFICATE, THE SUBSCRIBER ACKNOWLEDGES THAT THEY AGREE TO THE TERMS AND CONDITIONS CONTAINED IN THIS CPS AND THE APPLICABLE SUBSCRIBER AGREEMENT. BY ACCEPTING A CERTIFICATE, THE SUBSCRIBER ASSUMES A DUTY TO RETAIN CONTROL OF THE CERTIFICATE'S PRIVATE KEY, TO USE A TRUSTWORTHY SYSTEM AND TO TAKE REASONABLE PRECAUTIONS TO PREVENT ITS LOSS, EXCLUSION, MODIFICATION OR UNAUTHORISED USE.

4.4.2. Publication Of The Certificate By The CA

QuoVadis publishes all CA Certificates in its Repository. QuoVadis publishes end-entity Certificates by delivering them to the Subscriber.

4.4.3. Notification Of Certificate Issuance By The CA To Other Entities

QuoVadis TLS Certificates may include Signed Certificate Timestamps (SCT) from independent CT Logs in accordance with IETF RFC 6962 (*see also* 4.4.3-pkio154 of the PvE Additional Requirements).

4.5. KEY PAIR AND CERTIFICATE USAGE

4.5.1. Subscriber Private Key And Certificate Usage

As described in this CPS the Subscriber agrees with all applicable Terms of Use, the Relying Parties on their hand must ensure that:

- the Certificate is used in accordance with its intended use;
- the Certificate is used in accordance with any Key-Usage field extensions;
- the Certificate is valid at the time that it is relied upon by consulting the Certificate Status information in the CRL, or via the OCSP protocol to ensure that each Certificate in the Certificate Chain is valid, unexpired, and non-revoked.

In addition, it is stated that the Subscriber itself will ensure timely replacement, in the case of an impending expiry of validity, and emergency replacement in the case of compromise and / or other types of emergency

with regard to the Certificate or the Certificates from which it is derived. The Subscriber is expected to take adequate measures to guarantee the continuity of the use of Certificates.

The validity of a Certificate should not be confused with the authority of the Subscriber to perform a certain transaction on behalf of an organisation. PKIoverheid does not regulate appropriateness of reliance. A Relying Party must gain assurance itself that it is appropriate to rely on the Certificate for a particular transaction by another means.

4.5.2. Relying Party Public Key And Certificate Usage

Relying Parties may only use software that is compliant with X.509, IETF RFCs, and other applicable standards. QuoVadis does not warrant that any third party software will support or enforce the controls and requirements found herein.

A Relying Party should use discretion when relying on a Certificate and should consider the totality of the circumstances and risk of loss prior to relying on a Certificate. If the circumstances indicate that additional assurances are required, the Relying Party must obtain such assurances before using the Certificate.

Any warranties provided by QuoVadis are only valid if a Relying Party's reliance was reasonable and if the Relying Party adhered to the Relying Party Agreement set forth in the QuoVadis Repository. A Relying Party should rely on a digital signature or TLS handshake only if:

i) the Digital Signature or TLS session was created during the operational period of a valid Certificate and can be verified by referencing a valid Certificate;

ii) the Certificate is not revoked and the Relying Party checked the revocation status of the Certificate prior to the Certificate's use by referring to the relevant CRLs or OCSP responses; and

iii) the Certificate is being used for its intended purpose and in accordance with this CPS.

4.6. CERTIFICATE RENEWAL

4.6.1. Circumstance For Certificate Renewal

Renewal means the issuance of a new Certificate to the Subscriber without changing the Subscriber or other participant's Public Key or any other information in the Certificate. QuoVadis may renew a Certificate if:

i) the associated Public Key has not reached the end of its validity period;

ii) the Subscriber and attributes are consistent; and

iii) the associated Private Key remains uncompromised.

QuoVadis may also renew a Certificate if a CA Certificate is re-keyed or as otherwise necessary to provide services to a customer. QuoVadis may notify Subscribers prior to a Certificate's expiration date. QuoVadis renewal requires payment of additional fees. QuoVadis may renew a certificate after expiration if the relevant industry permits such practices.

4.6.2. Who May Request Renewal

Only the Certificate Subject or an authorised representative of the Certificate Subject may request renewal of the Subscriber's Certificates.

4.6.3. Processing Certificate Renewal Requests

Renewal application requirements and procedures are generally the same as those used during the Certificate's original issuance. QuoVadis will revalidate any information that is older than the periods specified in applicable standards for the Certificate Profile.

4.6.4. Notification of New Certificate Issuance To Subscriber

QuoVadis may deliver the Certificate in any secure fashion, such as using a QuoVadis Portal.

4.6.5. Conduct Constituting Acceptance Of A Renewal Certificate

Conduct constituting acceptance of a renewed Certificate is in accordance with section 4.4.1Issued Certificates are considered accepted 30 days after the Certificate is renewed, or earlier upon use of the Certificate when evidence exists that the Subscriber used the Certificate.

4.6.6. Publication of the Renewal Certificate By The CA

QuoVadis publishes a renewed Certificate by delivering it to the Subscriber. All renewed CA Certificates are published in QuoVadis' Repository.

4.6.7. Notification Of Certificate Issuance By The CA To Other Entities

RAs may receive notification of a Certificate's renewal if the RA was involved in the issuance process.

4.7. CERTIFICATE RE-KEY

Re-keying a Certificate means creating a new Certificate with a new Public Key and serial number while keeping the Subject information the same.

4.7.1. Circumstance for Certificate Re-Key

No stipulation.

4.7.2. Who May Request Re-Key

No stipulation.

4.7.3. Processing Certificate Re-Key Request

No stipulation.

4.7.4. Notification of Certificate Re-Key To Subscriber

No stipulation.

4.7.5. Conduct Constituting Acceptance Of A Re-Key Certificate

No stipulation.

4.7.6. Publication of The Re-Key Certificate By The CA

No stipulation.

4.7.7. Notification of Certificate Re-Key By The CA To Other Entities

No stipulation.

4.8. CERTIFICATE MODIFICATION

4.8.1. Circumstances For Certificate Modification

QuoVadis does not provide Certificate Modification. QuoVadis may reissue or replace a valid Certificate when the Subscriber's common name, organisation name, device name, or geographic location changes. Modified information must undergo the same Identification and Authentication procedures as for a new Certificate.

4.8.2. Who May Request Certificate Modification

No stipulation.

4.8.3. Processing Certificate Modification Requests

No stipulation.

4.8.4. Notification Of Certificate Modification To Subscriber

No stipulation.

4.8.5. Conduct Constituting Acceptance Of A Modified Certificate

No stipulation.

4.8.6. Publication Of The Modified Certificate By The CA

No stipulation.

4.8.7. Notification Of Certificate Modification By The CA To Other Entities

No stipulation.

4.9. CERTIFICATE REVOCATION AND SUSPENSION

Revocation of a Certificate permanently ends the operational period of the Certificate prior to the Certificate reaching the end of its stated validity period. Prior to revoking a Certificate, QuoVadis and Issuing CAs verify that a revocation request was initiated by Subscribers, an RA, an Issuing CA, and other entities listed in section 4.9.2 of this CPS. Issuing CAs are required to provide evidence of the revocation authorisation to QuoVadis upon request

For PKIoverheid, Certificates will be revoked within 4 hours of receipt of the revocation request

4.9.1. Circumstances For Revocation

Certificates will be revoked within 4 hours of the receipt of request when:

i) Subscriber requests in writing that QuoVadis can revoke the Certificate;

ii) Subscriber notifies QuoVadis that the original Certificate request was not authorised and does not retroactively grant authorisation;

iii) QuoVadis obtains evidence that the Private Key corresponding to the Public Key in the Certificate suffered a Key Compromise or no longer complies with applicable requirements. A key is considered compromised in the case of unauthorised access or suspected unauthorised access to the Private Key, lost or presumably lost Private Key or SSCD/QSCD, stolen or presumably stolen key or SSCD/QSCD, or destroyed key or SSCD/QSCD;

iv) QuoVadis obtains reasonable evidence that the Certificate has been used for a purpose outside of that indicated in the Certificate or in QuoVadis' Subscriber Agreements, the Certificate Policy of the PKIo PA or this CPS;

v) QuoVadis receives notice or otherwise becomes aware that a Subscriber has violated one or more of its material obligations under the Subscriber Agreement;

vi) QuoVadis receives notice or otherwise becomes aware of any circumstance indicating that the use of the email address in the Certificate in no longer legally permitted;

vii) QuoVadis receives notice or otherwise becomes aware of a substantial change in the information that is provided in the Certificate rending such information inaccurate;

viii) QuoVadis determines that the Certificate has not been issued in line with (or in violation of) the Certificate Policy of the PKIo PA, Subscriber Agreements, applicable requirements, Root policies of Microsoft or Mozilla, CA/Browser Forum Baseline requirements, or this CPS;

ix) QuoVadis determines that any of the information appearing in the Certificate is inaccurate or misleading;

x) If QuoVadis ceases its activities and the CRL and OCSP services are not undertaken by another TSP.

xi) The PKIo PA determines that the technical content of the Certificate entails an irresponsible risk to Subscriber, relying parties and third parties (e.g., browser parties);

xii) The Certificate revocation is required as a measure to combat an emergency e.g., Private Key compromise or suspected Private Key compromise of QuoVadis;

xiii) QuoVadis obtains evidence that the validation of domain authorisation or control for any FDQN or IP address in the Certificate should not be relied upon.

xiv) That the Certificate no longer complies with the Sections 6.1.5 or 6.1.6 of this CPS;

xv) QuoVadis obtains evidence that the Certificate was misused;

xvi) QuoVadis receives notice or otherwise becomes aware of any circumstance indicating that the use of the email address in the Certificate is no longer legally permitted;

xvii) QuoVadis is made aware of any circumstance indicating that use of a FQDN or IP address in the Certificate is no longer legally permitted (e.g., a court or arbitrator has revoked a Domain Name Registrant's right to use the Domain Name, a licensing or services agreement between the Registrant and the Applicant has terminated, or the Domain Name Registrant has failed to renew the Domain Name);

xviii) QuoVadis is made aware of a material change in the information contained in the Certificate;

xix) Revocation is required by the Certificate Policy of PKIoverheid and/or this CPS;

xx) The CA's right to issue Certificates under these Requirements expires or is revoked or terminated, unless the CA has made arrangements to continue maintaining the CRL/OCSP Repository;

xxi) The CA is made aware of a demonstrated or proven method that exposes the Subscriber's Private Key to compromise, methods have been developed that can easily calculate it based on the Public Key (such as a Debian weak key), or if there is clear evidence that the specific method used to generate the Private Key was flawed;

xxii) If the technical content or format of the Certificate presents an unacceptable risk;

Certificates can be withdrawn if QuoVadis becomes aware that a QSCD used for QCP-n-qscd or QCP-l-qscd loses its certification status.

In addition, Certificates can be withdrawn as a measure to prevent or combat an emergency. As emergency is certainly considered an attack or suspected attack on the Private Key of QuoVadis with which Certificates are signed.

QuoVadis is the determinant of the requirements for revocation which can be exercised at its sole discretion.

4.9.2. Who Can Request Revocation

QuoVadis will revoke a Certificate following a valid request to do so from the Subscriber or the Certificate Manager, the PKIo PA, organisations of Registered Professionals (where professional status may be reflected in the Certificate), Application Software Vendors, or other third parties at the discretion of QuoVadis. QuoVadis itself may also initiate revocation requests.

A Relying Party may not request a revocation, but may provide Certificate problem reports with evidence that may give grounds for revocation of a Certificate. QuoVadis will investigate such reports and, if there is reason to do so, will revoke the Certificate. *See* also https://problemreport.digicert.com and other resources listed in Section 1.5.2.1.

4.9.3. Procedure For Revocation Request

Subscribers may also revoke their Certificates directly via the QuoVadis Portal. QuoVadis maintains a continuous 24x7 ability to internally respond to high priority revocation requests (*see* Section 1.5.2 for contact details).

QuoVadis processes a revocation request as follows:

i) QuoVadis logs the request or problem report and the reason for requesting revocation based on the list in section 4.9.1, including contact information for the requestor. QuoVadis may also include its own reasons for revocation in the log.

ii) QuoVadis may request confirmation of the revocation from a known administrator, where applicable, via out-of-band communication (e.g., telephone, fax, etc.).

iii) If the request is authenticated as originating from the Subscriber or an authorized party, QuoVadis revokes the Certificate.

iv) For requests from third parties, QuoVadis personnel begin investigating the request within 24 hours after receipt and decide whether revocation is appropriate.

v) If QuoVadis determines that revocation is appropriate, QuoVadis personnel revoke the Certificate and update the Certificate Status including the RFC 5280 Revocation reason. If QuoVadis deems appropriate, QuoVadis may forward the revocation reports to law enforcement.

In the case of system defects, service activities, or other factors that are beyond the scope of QuoVadis, QuoVadis will do everything possible to ensure that the unavailability of the revocation facility will not last longer than four (4) hours. In the case of unavailability, the RA has the option of having a Certificate revoked directly via an emergency procedure on the QuoVadis PKIoverheid CA environments.

4.9.4. Revocation Request Grace Period

Requests for revocation are processed immediately for PKIo Certificates. There is no grace period.

4.9.5. Time Within Which The CA Must Process The Revocation Request

The maximum delay between receiving a valid revocation request and the amendment of revocation status information available to all Relying Parties is 4 hours.

Within 24 hours after receiving a Certificate problem report, QuoVadis investigates the facts and circumstances involved with the report and will provide a preliminary report on its findings to both the Subscriber and the entity who filed the Certificate problem report. The time used for the provision of revocation services is synchronised with UTC at least every 24 hours.

4.9.6. Revocation Checking Requirement for Relying Parties

Prior to relying on information listed in a Certificate, a Relying Party must confirm the validity of each Certificate in the certificate path in accordance with IETF PKIX standards, including checking for certificate validity, issuer-to-subject name chaining, policy and key use constraints, and revocation status through CRLs or OCSP responders identified in each Certificate in the chain.

QuoVadis uses an OCSP and a CRL to make the Certificate status information available 24x7. In the event the revocation status information becomes unavailable, QuoVadis aims to restore this information availability within 4 hours.

4.9.7. CRL Issuance Frequency

QuoVadis uses its offline Root CAs to publish CRLs for its Issuing CAs at least every 6 months and within 18 hours after revoking an Issuing CA Certificate. QuoVadis updates the CRL for end-user Certificates at least every 12 hours and the date of the “Next Update” field will not be more than 3 calendar days after the date in the field “Effective Date”. A CRL is valid for a maximum of 72 hours.

Before revoking an Issuing CA Certificate a last CRL is generated with a nextUpdate field value of "99991231235959Z”. The last CRL is available in accordance with Section 5.5.2. QuoVadis does not issue a last CRL until all Certificates in the scope of the CRL are either expired or revoked.

After the expiry date of an Issuing CA the most recent CRL will be published for at least 1 month. QuoVadis does not use the ExpiredCertsOnCRL extension.

4.9.8. Maximum Latency For CRL

CRLs for Certificates issued to end entity Subscribers are posted automatically to the online Repository within a commercially reasonable time after generation, usually within 10 minutes of generation. Regularly scheduled CRLs are posted prior to the nextUpdate field in the previously issued CRL of the same scope.

4.9.9. On-Line Revocation/Status Checking Availability

In addition to CRLs, QuoVadis also provides certificate status information via OCSP in accordance with RFC 6960. OCSP is updated immediately when a Certificate is revoked. OSCP responses are valid for a maximum of 48 hours. Where applicable, the URL for the OCSP responder may be found within the Authority Information Access (AIA) extension of the Certificate.

Upon expiry of the Issuing CA, the associated OCSP Responder service is discontinued. QuoVadis does not use the OCSP ArchiveCutoff extension and does not compute a last OCSP answer for issued Certificates with the "nextUpdate" field set to "99991231235959Z".

OCSP responses of QuoVadis are signed by either:

- the Private Key for the CA which issued the Certificate for which the status is requested; or
- the Private Key of an OCSP Signing Certificate for an OCSP responder designated by QuoVadis;

In the latter case, the OCSP-Signing Certificate is also provided with the extension id-pkix-ocsp-nocheck which is not marked as "critical" and has the value "NULL" (*see* RFC6960 and the requirements of the PvE part 3e, 4.9.9.4).

4.9.10. OCSP Checking Requirement

A Relying Party must confirm the validity of a Certificate in accordance with section 4.9.6 prior to relying on the Certificate. The validity interval of an OCSP response is the difference in time between the thisUpdate and nextUpdate field, inclusive. For purposes of computing differences, a difference of 3,600 seconds shall be equal to one hour, and a difference of 86,400 seconds shall be equal to one day, ignoring leap-seconds.

QuoVadis supports an OCSP capability using the GET method for Certificates. OCSP Responders under QuoVadis' direct control will not respond with a "good" status for a Certificate that has not been issued, in accordance with the Baseline Requirements. The CRLReason for non-issued Certificates is "certificateHold" (value 6). QuoVadis may monitor its OCSP responders for requests for non-issued Certificates as part of its security response procedures.

4.9.11. Other Forms Of Revocation Advertisements Available

No stipulation.

4.9.12. Special Requirements for Key Compromise

QuoVadis uses commercially reasonable efforts to notify potential Relying Parties if it discovers or suspects the compromise of a Private Key. QuoVadis will select the CRLReason code "keyCompromise" (value 1) upon discovery of such reason or as required by an applicable CPS. Should a CA Private Key become compromised, the CA and all Certificates issued by that CA shall be revoked.

QuoVadis provides specific instructions and support for keyCompromise at https://www.quovadisglobal.com/certificate-revocation/ and other resources as indicated in section 1.5.2.1 of this CPS.

4.9.13. Circumstances For Suspension

No suspension of Certificates is permissible within the QuoVadis PKIo.

4.9.14. Who Can Request Suspension

No suspension of Certificates is permissible within the QuoVadis PKIo.

4.9.15. Procedure For Suspension Request

No suspension of Certificates is permissible within the QuoVadis PKIo.

4.9.16. Limits On Suspension Period

No suspension of Certificates is permissible within the QuoVadis PKIo.

4.10. CERTIFICATE STATUS SERVICES

4.10.1. Operational Characteristics

Certificate status information is available via CRL and OCSP responder. Certificates, revocation entries on a CRL or OCSP Response are not removed until after the expiration of the revoked Certificate. The serial number of a revoked Certificate remains on the CRL until one additional CRL is published after the end of the Certificate's validity period, except for revoked Code Signing Certificates, which remain on the CRL for at least 10 years following the Certificate's validity period.

4.10.2. Service Availability

Certificate status services are available 24x7. QuoVadis operates and maintains its CRL and OCSP capability with resources sufficient to provide a response time of ten seconds or less under normal operating conditions.

QuoVadis also maintains a 24x7 ability to respond internally to a high-priority Certificate Problem Report, and where appropriate, forward such a complaint to law enforcement authorities, and/or revoke a Certificate that is the subject of such a complaint.

In the event the revocation status service becomes unavailable, QuoVadis aim to restore this availability within 4 hours.

4.10.3. Optional Features

No stipulation.

4.11. END OF SUBSCRIPTION

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

4.12. KEY ESCROW AND RECOVERY

Within PKIoverheid, QuoVadis does not support key escrow.

4.12.1. Key Archival Escrow And Recovery Policy And Practices

No stipulation.

4.12.2. Session Key Encapsulation And Recovery Policy And Practices

No stipulation.

5. FACILITY, MANAGEMENT, AND OPERATIONAL CONTROLS

The section of the CPS provides a high level description of the security policy, physical and logical access control mechanisms, service levels, and personnel policies used by QuoVadis to provide trustworthy and reliable CA operations. QuoVadis maintains a security program to: i) Protect the confidentiality, integrity, and availability of data and business process; ii) Protect against anticipated threats or hazards to the confidentiality, integrity, and availability of data and business process; iii) Protect against unauthorised or unlawful access, use, disclosure, alteration, or destruction of data and business process; iv) Protect against accidental loss or destruction of, or damage to data and business processes; and v) Comply with all other security requirements applicable to the CA by law and industry best practices. QuoVadis performs an annual risk assessment to identify internal and external threats and assess likelihood and potential impact of these threats to data and business processes.

5.1. PHYSICAL CONTROLS

QuoVadis manages and implements appropriate physical security controls to restrict access to the hardware and software used in connection with CA operations.

5.1.1. Site Location and Construction

QuoVadis operations facilities are especially designed for computer operations and as such have been built to meet the security requirements that apply to QTSPs. The data centres are equipped with logical and physical controls that make QuoVadis' CA and TSA operations inaccessible to non-trusted personnel. QuoVadis operates under a security policy designed to detect, deter, and prevent unauthorised access to QuoVadis' operations.

5.1.2. Physical Access

QuoVadis allows physical access to its secure operational environment only to authorised persons. Controls have been implemented for physical access to the CA operations facilities. The physical access of persons within the secure environment is stored in a log file and periodically evaluated. Physical access to the secure environment is controlled by a combination of access passes and biometric identification.

Access to the QuoVadis Trustlink B.V. office is controlled. Access is permitted to employees with an electronic key system. Visitors to the office must be accompanied by a member of the QuoVadis staff.

5.1.3. Power And Air-Conditioning

Datacentres have primary and secondary power supplies that ensure continuous and uninterrupted access to electric power. Uninterrupted power supplies (UPS) and generators provide redundant backup power.

5.1.4. Water Exposures

The cabinets housing QuoVadis' CA systems are designed to prevent and protect against water exposure.

5.1.5. Fire Prevention And Protection

QuoVadis datacentres are equipped with fire suppression mechanisms.

5.1.6. Media Storage

QuoVadis protects its media from accidental damage, environmental hazards, unauthorised physical access, and from obsolescence/deterioration during the period that records are required to be retained. Backup files are created on a daily basis. QuoVadis backup files are maintained at either within the QuoVadis service operations area or in a secure off-site storage area.

5.1.7. Waste Disposal

All unnecessary copies of printed sensitive information are shredded on-site before disposal. All electronic media are physically destroyed or are overwritten multiple times to prevent the recovery of the data.

5.1.8. Off-Site Backup

An offsite location is used for the storage and retention of backup software and data. The off site storage is available to authorised personnel 24x7for the purpose of retrieving software and data; and has appropriate levels of physical security in place (i.e., software and data are stored in fire-rated safes and containers which are located behind access-controlled doors in areas accessible only by authorised personnel).

5.2. PROCEDURAL CONTROLS

QuoVadis guarantees that physical and technical security procedure are complied with in accordance with this CPS and other relevant internal operational documents. It is business policy that QuoVadis does not delegate PKI operations to other organisations, barring the establishment of identity, in certain instances.

QuoVadis performs a risk analysis at least every year, and more frequently if the PKIo PA and/or NCSC provides the instruction to carry one out. The risk analysis will cover all PKIoverheid processes that are under the responsibility of QuoVadis.

5.2.1. Trusted Roles

Personnel acting in trusted roles include CA, TSA, and RA system administration personnel, and personnel involved with identity vetting and the issuance and revocation of Certificates. The functions and duties performed by persons in trusted roles are distributed so that one person alone cannot circumvent security measures or subvert the security and trustworthiness of the PKI or TSA operations. A list of personnel appointed to trusted roles is maintained and reviewed annually.

5.2.1.1. CA Administrators

The CA Administrator installs and configures the CA software, including key generation, key backup, and key management. The CA Administrator performs and securely stores regular system backups of the CA system. Administrators do not issue Certificates to Subscribers.

5.2.1.2. Registration Officers – Portal, RA, Validation and Vetting Personnel

The Registration Officer role is responsible for issuing and revoking Certificates.

5.2.1.3. System Administrators/ System Engineers (Operator)

The System Administrator/System Engineer installs and configures system hardware, including servers, routers, firewalls, and network configurations. The System Administrator/System Engineer also keeps critical systems updated with software patches and other maintenance needed for system stability and recoverability.

5.2.1.4. Internal Auditors

Internal Auditors are responsible for reviewing, maintaining, and archiving audit logs and performing or overseeing internal compliance audits to determine if QuoVadis, an Issuing CA, or RA is operating in accordance with this CPS or approved registration procedures.

5.2.1.5. RA Administrators

RA Administrators are responsible for the RA certificate management systems.

5.2.1.6. Security Officers

The Security Officer is responsible for administering and implementing security practices.

5.2.2. Number Of Persons Required Per Task

QuoVadis ensures that the number of staff available for tasks is adequate to ensure that all security, risk and compliancy regulations are met.

QuoVadis maintains the segregation of duties between employees who control the issue of Certificates and employees who approve the Issuance of the Certificate.

CA key pair generation and initialisation requires the active participation of at least two Trusted Roles, on a case-by-case basis. Such sensitive actions also require the active participation and supervision of higher management.

5.2.3. Identification And Authentication For Each Role

Employees in Trusted Roles undergo extra screening and training, all employees are screened, verified and authenticated; including Face-to-Face checks and identification checks. Access privileges are configured using the “least privileges” principle for the role.

Employees in Trusted Roles use a Certificate issued by QuoVadis, stored on an SSCD/QSCD, to identify him/herself for operational steps on the various systems used for Issuing and managing PKIoverheid Certificates. A detailed record is kept of all access rights held by employees.

5.2.4. Roles Requiring Separation Of Duties

Trusted roles requiring a separation of duties include those performing:

- authorisation functions such as the verification of information in Certificate Requests and certain approvals of Certificate applications and revocation requests,
- backups, recording, and record keeping functions;
- audit, review, oversight, or reconciliation functions; and
- duties related to CA/TSA key management or CA/TSA administration.

To accomplish this separation of duties, QuoVadis specifically designates individuals to the trusted roles defined in Section 5.2.1 above. Individuals designated as Registration Officer or Administrator may perform Operator duties, but an Internal Auditor may not assume any other role. QuoVadis systems identify and authenticate individuals acting in trusted roles, and restrict an individual from assuming multiple roles at the same time.

5.3. PERSONNEL CONTROLS

5.3.1. Qualifications, Experience, And Clearance Requirements

Before Issuing services Server Certificates, QuoVadis will:

- train all personnel involved in checking and approving a services Server Certificate, whereby general knowledge about PKI, Authentication and verification policies and procedures with regard to the control and approval process and threats including phishing and other social engineering tactics, are covered;
- have all staff sit and successfully pass an internal exam;
- keep records of the training(s) and the exam and guarantee that the skills of the personnel concerned remain at the right level.

5.3.2. Background Check Procedures

All employees, in trusted roles must have a clean and complete background check. Confidentiality agreements must be signed before commencing work, Declarations of Conduct from the Dutch Ministry of Justice are required for many roles.

QuoVadis is not liable for the conduct of employees who are outside the performance of their duties and over which QuoVadis has no control, including but not limited to (corporate) espionage, sabotage, criminal conduct.

The identity of the employee must be established face to face by a personnel officer or other appropriate resources from QuoVadis based on a valid passport, a valid identity card or a valid driver's license.

For determining the reliability of the employee, QuoVadis carries out at least the following actions:

- checking the correctness and completeness of the employment history stated by the employee;
- checking the correctness of the references provided by the employee;
- checking the correctness of the highest or most relevant training stated by the employee;
- requesting a Declaration of Conduct (VOG) from the employee.

5.3.3. Training Requirements

QuoVadis provides relevant skills training to all employees involved in QuoVadis' PKI and TSA operations for the personnel performing information verification duties including:

- basic PKI knowledge;
- software versions used by QuoVadis;

- authentication and verification policies and procedures;
- QuoVadis security principles and mechanisms;
- disaster recovery and business continuity procedures;
- common threats to the validation process, including phishing and other social engineering tactics; and
- CA/Browser Forum guidelines and other applicable industry and government guidelines.

QuoVadis maintains records of who received training. Registration Officers must have the minimum skills necessary to satisfactorily perform validation duties before being granted validation privileges. All Registration Officers are required to pass an internal examination on the EV Guidelines and the Baseline Requirements prior to validating and approving the issuance of such Certificates.

5.3.4. Retraining Frequency And Requirements

Employees must maintain skill levels that are consistent with industry-relevant training and performance programs in order to continue acting in trusted roles as necessary for them to perform their role. QuoVadis makes all employees acting in trusted roles aware of any changes to QuoVadis' operations. If QuoVadis' operations change, QuoVadis will provide documented training, in accordance with an executed training plan, to all employees acting in relevant trusted roles to those changes.

5.3.5. Job Rotation Frequency And Sequence

No stipulation.

5.3.6. Sanctions For Unauthorised Actions

QuoVadis DigiCert employees and agents failing to comply with this CPS, whether through negligence or malicious intent, are subject to internally maintained processes specifying guidance on administrative or disciplinary actions, up to and including termination of employment or agency and criminal sanctions.

5.3.7. Independent Contractor Requirements

Independent contractors who are assigned to perform trusted roles are subject to the duties and requirements specified for such roles in this Section 5.3 and are subject to sanctions stated above in Section 5.3.6.

5.3.8. Documentation Supplied To Personnel

QuoVadis provides the staff with all necessary manuals, descriptions of procedures and training materials that are necessary to fulfil the function and role. All employees and contractors are subject to confidentiality provisions included in their employment contracts or staff handbooks. All employees are required to complete online periodic training exercises which reiterate their confidentiality and security obligations.

5.4. AUDIT LOGGING PROCEDURES

QuoVadis is required under industry standards and best practice to log events and to store critical logs on servers other than those servers generating the log events in a secure manner. Due to the number of servers and transactions QuoVadis evaluates critical logging events and systems prior to implementation of logging procedures. The ethos of log management is to establish the who/what/when of data transactions.

5.4.1. Types Of Events Recorded

The types of data recorded by QuoVadis include, but are not limited to:

- CA Certificate and key lifecycle management events;
    - Certificate requests, renewal, and re-key requests, and revocation;
    - Approval and rejection of Certificate Requests;

    - Cryptographic device lifecycle management events;
    - Generation of CRLs and OCSP entries; and
    - Certificate Profiles management.
- Subscriber Certificate lifecycle management events, including:
    - Certificate requests, renewal, and re-key requests, and revocation;
    - Verification activities;
    - Approval and rejection of Certificate Requests;
    - Issuance of Certificates; and
    - Generation of CRLs and OCSP entries.
- Security events, including
    - Successful and unsuccessful PKI system access attempts;
    - PKI and security system actions performed;
    - Security profile changes;
    - Installation, update and removal of software on a PKI System;
    - System crashes, hardware failures, and other anomalies;
    - Firewall and router activities; and
    - Entries to and exits from the CA facility.

All log entries provide at least the following:

- Date and time of the record;
- Identity of the entity making the journal record; and
- Details of the of record.

5.4.2. Frequency Of Processing Log

As required, generally within at least once every two months, a QuoVadis administrator reviews the logs generated by QuoVadis' systems, makes system and file integrity checks, and conducts a vulnerability assessment. The administrator may perform the checks using automated tools. During these checks, the administrator (i) checks whether anyone has tampered with the log, (ii) scans for anomalies or specific conditions, including any evidence of malicious activity, and (iii) if necessary, prepares a written summary of the review. Any anomalies or irregularities found in the logs are investigated. The summaries may include recommendations to DigiCert's operations management committee and are made available to auditors upon request. QuoVadis documents any actions taken as a result of a review.

5.4.3. Retention Period For Audit Log

QuoVadis log files for events related to Lifecycle events and Certificate lifecycle events are retained for a period of 7 years before deletion starting from the destruction of the CA Private Key or revocation or expiration of the Certificate. Log files for incidents relating to threats and risks will be retained for 18 months and then deleted.

All logfiles are backed up daily. The logfiles are stored in such a way that the integrity and accessibility of the data is guaranteed. QuoVadis makes the audit logs available to auditors, as defined in Section 8, available upon request.

5.4.4. Protection Of Audit Log

The relevant audit data collected is regularly analysed for any attempts to violate the integrity of any element of the QuoVadis PKI. Only certain QuoVadis Trusted Roles and auditors may view audit logs in whole.

QuoVadis decides whether particular audit records need to be viewed by others in specific instances and makes those records available. Consolidated logs are protected from modification and destruction. All audit logs are protected in an encrypted format via a Key and/or Certificate generated especially for the purpose of protecting the logs.

5.4.5. Audit Log Backup Procedures

Each Issuing CA performs an onsite backup of the audit log daily. The backup process includes weekly physical removal of the audit log copy from the Issuing CA premises and storage at a secure, offsite location.

5.4.6. Audit Collection System

The security audit process of each Issuing CA runs independently of the Issuing CA software. Security audit processes are invoked at system start up and cease only at system shutdown.

5.4.7. Notification To Event-Causing Subject

Where an event is logged, no notice is required to be given to the individual, organisation, device, or application that caused the event.

5.4.8. Vulnerability Assessment

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

Based on the risk assessment, QuoVadis develops, implements, and maintains a security plan consisting of security procedures, measures, and products designed to achieve the objectives set forth above and to manage and control the risks identified during the risk assessment, commensurate with the sensitivity of the Certificate data and management processes.

Penetration tests are also carried out by the Dutch Government agencies at least annually. All foreseeable internal and external threats are assessed with both the risk analysis and compliance teams of QuoVadis and DigiCert when they arise, or at least once per year. When significant changes to the infrastructure or applications are made, the risk and compliance teams are involved.

5.5. RECORDS ARCHIVAL

5.5.1. Types Of Records Archived

QuoVadis archives documentation in accordance with its document access control policy and only makes it accessible after an authorised request.

For each Certificate, the archive contains the information related to activities concerning the creation, the issue, the use, the revocation, the period of validity and the renewal. This documentation file contains all the relevant evidence, including:

- Audit logs;
- Certificate requests and all related actions and forms;
- Content of issued Certificates;
- Proof of Acceptance Certificate and signed agreements;
- Revocation requests and all related actions and records;
- Published Certificate Revocation Lists; and

- Audit findings as discussed within this CPS.

5.5.1.1. Storage of information

QuoVadis stores all information used to verify the identity of the Subscriber and Certificate Manager, including reference numbers from the documentation used for verification, as well as limitations on validity.

5.5.1.2. Phishing

QuoVadis maintains a registration of all revoked Certificates and rejected requests for Certificates in connection with the suspicion of phishing or possible other abuse, at the discretion of QuoVadis.

5.5.2. Retention Period For Archive

QuoVadis will, after the validity of the Certificate has expired, store all information regarding the request and possible revocation of the Certificate and all data used to verify the identity of the Certificate Subscriber, Authorised Representative and Certificate Manager for at least 7 years after the expiration date of the Certificate.

5.5.3. Protection Of Archive

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

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

5.5.4. Archive Backup Procedures

QuoVadis maintains and implements backup procedures so that in the event of the loss or destruction of the primary archives a complete set of backup copies will be readily available.

5.5.5. Requirements For Time-Stamping Of Records

QuoVadis supports time stamping of all of its records. All events that are recorded within the QuoVadis service include the date and time of when the event took place. This date and time are based on the system time on which the CA program is operating. QuoVadis uses procedures to review and ensure that all systems operating within the QuoVadis PKIo rely on a trusted time source.

5.5.6. Archive Collection System

The QuoVadis Archive Collection System is internal.

5.5.7. Procedures To Obtain And Verify Archive Information

Only CA Officers, the QuoVadis Chief Security Officer and Auditors may view the entire archive. The contents of the archives will not be released in their entirety, except when required by law or by order of a court order or other legally competent authority. QuoVadis can decide to release logs of individual transactions when requested to do so by the Subscriber or its Representatives. A reasonable contribution to the administrative costs per request will be charged for this.

5.6. KEY CHANGEOVER

Changing the public key of the CA is based on a procedure established for this purpose. At the end of the lifespan of the CA Private Key, QuoVadis stops using this Private Key for signing public keys and only uses the expiring Private Key to sign CRLs and OSCP Responder Certificates associated with that Private Key.

A new CA signing key pair is issued and then all Certificates and CRLs issued from that moment on are signed with the new Private Key. This means that both old and new CA key pairs can be active simultaneously.

5.7. COMPROMISE AND DISASTER RECOVERY

5.7.1. Incident and Compromise Handling Procedures

QuoVadis has implemented procedures to minimise the consequence of disasters as much as possible. These measures include a Disaster Recovery Program and a CA Key Compromise Plan (*see* also Section 5.7.3).

- Incident investigation and reporting is the responsibility of the QuoVadis PMA.
- If an incident is verified the PKIo PA, the Supervisory Authority, the Conformance Assessment Body (CAB), and the NCSC are notified. In the case of loss of privacy sensitive information, the Autoriteit Persoonsgevents (Dutch Data Protection Agency) will be informed; and
- Noncompliance with Application Software Vendor policies are classified as an incident and will be reported in the appropriate forum.

QuoVadis will inform the PA (Logius) immediately about the risks, dangers or events that can directly or indirectly threaten or influence the security of the services and/or the image of the PKIoverheid.

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

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

5.7.3. Entity Private Key Compromise Procedures

In event of a compromise of a CA Private Key:

- The affected CA Certificate as well as its valid end entity Certificates are revoked;
- Subscribers are informed about the incident and its effects;
- The PKIo PA, the Supervisory Authority, the CAB, and the NCSC are notified; and
- A notice is provided on the QuoVadis website and Portal, including a statement that Certificates issued by the affected CA are no longer valid. *See* also Section 5.7.1.

Taking into account the reason for compromise, a new CA Key Pair will be generated to replace end entity Certificates.

5.7.4. Business Continuity Capabilities after a Disaster

QuoVadis has a Business Continuity Plan (BCP) to ensure continuity when a disaster occurs. The aim of the plan is to ensure the orderly recovery of business operations, communication to Subscribers and Relying Parties as well as the continuity of services for the affected Subscribers. The BCP includes all criteria as required per the CA/Browser Forum Baseline Requirements. The BCP is a confidential document and has been audited and approved by external auditors.

5.8. CA AND/OR RA TERMINATION

Unless otherwise addressed in an applicable agreement between QuoVadis and a counterparty, before terminating its CA or RA activities, QuoVadis may:

i) Notify relevant Government and Certification bodies under applicable laws and related regulations;

ii) Provide notice and information about the termination by sending notice by email to its Subscribers, Relying Parties and other relevant parties within PKIoverheid; and

iii) Transfer all responsibilities to a qualified successor entity.

Unless otherwise addressed in an applicable agreement between QuoVadis and a counterparty, if a qualified successor entity does not exist, QuoVadis will:

i) transfer those functions capable of being transferred to a reliable third party and arrange to preserve all relevant records with a reliable third party or a government, regulatory, or legal body with appropriate authority;

ii) revoke all Certificates that are still un-revoked or un-expired on a date as specified in the notice and publish final CRLs;

iii) destroy all Private Keys; and

iv) make other necessary arrangements that are in accordance with this CPS.

For EU Qualified Certificates, QuoVadis procedures provide for the transfer of relevant records to a regulatory body and the continuation of revocation status in the event of termination.

Wherever possible, the revocation of Certificates will be scheduled in conjunction with the scheduled issue of new Certificates by a TSP that takes over the activities of QuoVadis within PKIoverheid. This requires that Subjects and Subscribers must conform to the procedures and requirements of the new TSP. The new TSP will, in any case, be responsible for making the Certificate status information available for six months, keeping the revocation management service (revocation facility) operational and storing the archived registration documents.

6. TECHNICAL SECURITY CONTROLS

6.1. KEY PAIR GENERATION AND INSTALLATION

6.1.1. Key Pair Generation

6.1.1.1. Root CA Key pair generation

QuoVadis does not perform the key pair generation for PKIoverheid Root Certificates, and certain PKIoverheid intermediate Certificates.

6.1.1.2. Generation of key pairs for the TSP sub CA

The algorithm and the length of the cryptographic keys used to generate the keys for the TSP sub CA must fulfil the requirements set in the list of recommended cryptographic algorithms and key lengths, as defined in ETSI TS 119 312.

6.1.1.3. Generation of key pairs of the Subscribers

The keys of Subscribers (or data for creating Electronic Signatures) are generated within the requirements specified in EN 419 211 for QSCD's or CWA 14169 for SSCD's (transition rule eIDAS 51)"Secure signature creation devices (EAL 4+)" or equivalent security criteria. In the case that a QSCD used by QuoVadis for QCP-n-qscd or QCP-l-qscd loses its certification status, non-expired Certificates using the affected QCSD will be revoked.

6.1.1.4. Algorithm of key pairs of the Subscribers

With exception of the Certificate policy Private Service Server QuoVadis is not permitted with in the PKIoverheid to generate and deliver the Private Key (PKCS #12).

6.1.1.5. Key pairs managed on behalf of the Subscribers

In the case of Qualified Certificates, where QuoVadis manages the keys on behalf of the Subscriber, QuoVadis ensures:

- where the policy requires the use of a Qualified Signature Creation Device (QSCD) then the signatures are only created by the QSCD;
- in the case of natural persons, the Subscribers' Private Key is maintained and used under their sole control and used only for electronic signatures; and

- in the case of legal persons, the Private Key is maintained and used under their sole control.

6.1.2. Private Key Delivery To Subscriber

Subscribers can choose to have their Key Pair generated by QuoVadis, or to generate it themselves.

Subscribers must generate their Key Pair in a manner that is appropriate for the certificate type. Subscribers for TLS Certificates are solely responsible for the generation of the Private Keys used in their Certificate Requests. QuoVadis does not provide TLS key generation, escrow, recovery or backup facilities.

For some Qualified Certificates QuoVadis may generate the Private Keys on behalf of the Subscriber; they are delivered in a secure manner via the QuoVadis Portal.

For some EU Qualified Certificates, QuoVadis may generate and manage Private Keys on behalf of the Subscriber. Where the policy requires the use of a QSCD then the signatures shall only be created by the QSCD.

6.1.3. Public Key Delivery To Certificate Issuer

Except as noted in Section 6.1.2, Subscribers generate Key Pairs and deliver Public Keys to the Issuing CA in a secure and trustworthy manner, such as submitting a Certificate Signing Request (CSR) message to the QuoVadis Portal.

6.1.4. CA Public Key To Relying Parties

QuoVadis' Public Keys are provided to Relying Parties as specified in a certificate validation or path discovery policy file, as trust anchors in root stores or an EU Trusted List, and/or as roots signed by PKIoverheid. All accreditation authorities supporting QuoVadis Certificates and all Application Software Providers are permitted to redistribute QuoVadis root anchors.

QuoVadis may also distribute Public Keys that are part of an updated signature Key Pair as a self-signed Certificate, as a new CA Certificate, or in a key roll-over Certificate. Relying Parties may also obtain QuoVadis CA Certificates from QuoVadis' web site or by email.

6.1.5. Key Sizes

The minimal key length for the QuoVadis PKIoverheid CAs is 2048-bits. QuoVadis supports higher-bits keys for certain Certificates as determined by customer request. The keys are based on *sha256WithRSAEncryption*. The length of the Certificate holder's cryptographic keys must fulfill the requirements defined in ETSI TS 119 312.

Signatures on CRLs, OCSP responses, and OCSP responder Certificates that provide status information for Certificates that were generated using SHA-1 may continue to be generated using the SHA-1 algorithm if it is compliant with all applicable programs listed in Section 1.1. All other signatures on CRLs, OCSP responses, and OCSP responder Certificates must use the SHA-256 hash algorithm or one that is equally or more resistant to collision attack.

6.1.6. Public Key Parameters Generation And Quality Checking

QuoVadis uses cryptographic modules that conform to FIPS 186-2 and provide random number generation and on-board generation of Public Keys and a wide range of ECC curves. The value of this public exponent equates to an odd number equal to three or more.

6.1.7. Key Usage Purposes (As Per X.509 V3 Key Usage Field)

Keys may only be used for the purposes described in this CPS. The QuoVadis PKIoverheid CA Private Keys may only be used for signing public keys (Certificates) and CRLs/OCSP responses.

6.2. PRIVATE KEY PROTECTION AND CRYPTOGRAPHIC MODULE ENGINEERING CONTROLS

6.2.1. Cryptographic Module Standards And Controls

The Private Keys of QuoVadis PKIoverheid CAs are generated and stored in a cryptographic module that complies with (at least) FIPS 140-2 level 3 and/or EAL 4+ security standards.

The HSM modules are always stored in a secure environment and are subject to strict security procedures throughout the entire life cycle.

For relevant Qualified Certificates of type QCP-n-qscd or QCP-l-qscd, the Subscriber Private Keys are generated and stored on a QSCD which meets the requirements laid down in Annex II of the eIDAS Regulation and is certified to the appropriate standards.

SSASC Policy 'eu-remote-qscd' OID defined in ETSI TS 119 431-1. *See* chapter 7.1 Certificate profiles.

6.2.2. Private Key (N of M) Multi-Person Control

QuoVadis' authentication mechanisms are protected securely when not in use and may only be accessed by actions of multiple trusted persons. Backups of CA Private Keys are securely stored and require two-person access. Re-activation of a backed-up CA Private Key (unwrapping) requires the same security and multi-person control as when performing other sensitive CA Private Key operations.

6.2.3. Private Key Escrow

QuoVadis does not support Private Key Escrow for PKIoverheid Certificates.

6.2.4. Private Key Backup

When keys are transferred to other media for backup and disaster recovery purposes, the keys are transferred and stored in an encrypted form. QuoVadis' CA Key Pairs are backed up by multiple trusted individuals using a cryptographic hardware device as part of scripted key backup process. QuoVadis does not backup Subscriber Private Keys.

6.2.5. Private Key Archive

QuoVadis does not archive CA Certificate Private Keys or Subscriber Private Keys.

6.2.6. Private Key Transfer Into Or From A Cryptographic Module

All CA keys must be generated by and in a cryptographic module. Private Keys are exported from the cryptographic module into backup tokens only for HSM transfer, offline storage, and backup purposes. The Private Keys are encrypted when transferred out of the module and never exist in plaintext form. When transported between cryptographic modules, QuoVadis encrypts the Private Key and protects the keys used for encryption from disclosure. Private Keys used to encrypt backups are securely stored and require two-person access. If QuoVadis becomes aware that an Issuing CA's Private Key has been communicated to an unauthorized person or an organization not affiliated with the Issuing CA, then QuoVadis will revoke all certificates that include the Public Key corresponding to the communicated Private Key.

6.2.7. Private Key Storage On Cryptographic Module

The Private Keys which are stored in a cryptographic module are secured throughout their entire life cycle.

6.2.8. Method Of Activating Private Key

QuoVadis' Private Keys are activated according to the specifications of the HSM manufacturer. Activation data entry is protected from disclosure.

6.2.9. Method Of Deactivating Private Key

The Private Key of operational QuoVadis PKIoverheid CAs are not normally deactivated but remain in production in the secure environment. Other cryptographic modules are deactivated after use, for example, by means of a manual logout procedure or a passive timeout. Cryptographic Modules that are not in use are deleted and stored.

6.2.10. Method Of Destroying Private Key

QuoVadis personnel, acting in trusted roles, destroy CA, RA, and status server Private Keys when no longer needed. QuoVadis may destroy a Private Key by deleting it from all known storage partitions. QuoVadis also zeroizes the HSM device and associated backup tokens according to the specifications of the hardware manufacturer. This reinitializes the device and overwrites the data with binary zeros. If the zeroization or re-initialization procedure fails, QuoVadis will crush, shred, and/or incinerate the device in a manner that destroys the ability to extract any Private Key. Such destruction shall be documented.

6.2.11. Cryptographic Module Rating

For relevant Qualified Certificates, in accordance with the eIDAS Regulation, the Subscriber Private Keys are generated and stored on a QSCD. Where QuoVadis manages the QSCD on behalf of the Subscriber, QuoVadis operates the QSCD in accordance with Annex II of the eIDAS Regulation.

QuoVadis verifies that QSCDs are certified as a QSCD in accordance requirements laid down in Annex II of the eIDAS Regulation. QuoVadis monitors this certification status and takes appropriate measures if the certification status of a QSCD changes on a regular basis. The QSCD certification status and evidence of the QuoVadis monitoring are in scope of the external eIDAS/ ETSI conformity assessments.

6.3. OTHER ASPECTS OF KEY PAIR MANAGEMENT

6.3.1. Public Key Archival

Public Keys will be recorded in Certificates that will be archived in the Repository. No separate archive of Public Keys will be maintained. Archived information is retained for at least 7 years after the expiry of the Certificate.

6.3.2. Certificate Operational Periods And Key Pair Usage Periods

Periods for use of the public and Private Keys are the same as the period of use of the Certificate that links the public key to a Subscriber. When the end-user Certificates are issued, the remaining validity of the QuoVadis CA used is always longer than the specified validity of the Certificate for the Subscriber. The maximum validity of end-user Certificates is 3 years, and for TLS Certificates 397 days after September 1, 2020. An overview of the current validity of the different QuoVadis CAs is as follows:

PKIoverheid Intermediates	**Valid to:**	**G1 / G2 / G3**
QuoVadis PKIoverheid Burger CA - 2021	12-Nov-28	-
QuoVadis PKIoverheid Organisatie Persoon CA - G3	11-Nov-28	G3
QuoVadis PKIoverheid Organisatie Services CA - G3	11-Nov-28	G3
QuoVadis PKIoverheid Private Personen CA - G1	11-Nov-28	G1
QuoVadis PKIoverheid Private Services CA - G1	11-Nov-28	G1
QuoVadis PKIoverheid Domain CA 2020	05-Dec-22	-

Private keys that are used by a Subscriber and issued under this CPS must not be used for more than two (2) years. Certificates which are issued under the CAs in the table below will not be valid for more than 397 days.

Issuing CA	Profile Name	OID
QuoVadis PKIoverheid Domain CA 2020	PKIoverheid Domain CA 2020	2.16.528.1.1003.1.2.5.9

In the case of Certificate replacement where the previous Certificate is to be revoked because of an issue listed in section 4.9.1.1. of the Baseline Requirements the Private Key will not be reused, unless the revocation is caused by a violation of subsection 7 (Certificate not issued in accordance with these Requirements or the CA Certificate Policy or Certification Practice Statement).

6.4. ACTIVATION DATA

6.4.1. Activation Data Generation And Installation

QuoVadis activates the cryptographic module containing its CA Private Keys according to the specifications of the hardware manufacturer, meeting the requirements of FIPS 140-2 Level 3 and/or Common Criteria EAL 4. The cryptographic hardware is held under two-person control as explained in Section 5.2.2 and elsewhere in this CPS. QuoVadis will only transmit activation data via an appropriately protected channel and at a time and place that is distinct from the delivery of the associated cryptographic module.

QuoVadis personnel and Subscribers are instructed to use strong passwords and to protect PINs and passwords that meet the requirements specified by the CA/B Forum's Network Security Requirements and other relevant standards.

6.4.2. Activation Data Protection

If activation data must be transmitted, it shall be via a channel of appropriate protection, and distinct in time and place from the associated Cryptographic Module. PINs may be supplied to Users in two portions using different delivery methods, for example by e-mail and by standard post, to provide increased security against third-party interception of the PIN. Activation Data should be memorised, not written down. Activation Data must never be shared. Activation data must not consist solely of information that could be easily guessed, e.g., a Subscriber's personal information.

6.4.3. Other Aspects Of Activation Data

Where a PIN is used, the User is required to enter the PIN and identification details such as their Distinguished Name before they are able to access and install their Keys and Certificates.

6.5. COMPUTER SECURITY CONTROLS

QuoVadis has a formal Information Security Policy that documents the QuoVadis policies, standards and guidelines relating to information security. This Information Security Policy has been approved by management and is communicated to all employees.

6.5.1. Specific Computer Security Technical Requirements

QuoVadis secures its CA systems and authenticates and protects communications between its systems and trusted roles. QuoVadis' CA servers and support-and-vetting workstations run on trustworthy systems that are configured and hardened using industry best practices. All CA systems are scanned for malicious code and protected against spyware and viruses. Inactivity log out timeframes are set and enforced through internal information security policies and procedures to ensure security.

RAs must ensure that the systems maintaining RA software and data files are trustworthy systems secure from unauthorised access, which can be demonstrated by compliance with audit criteria applicable under Section 5.4.1.

QuoVadis' CA systems are configured to:

i) authenticate the identity of users before permitting access to the system or applications;
ii) manage the privileges of users and limit users to their assigned roles;
iii) generate and archive audit records for all transactions;
iv) enforce domain integrity boundaries for security critical processes; and
v) support recovery from key or system failure.

All Certificate Status Servers:

i) authenticate the identity of users before permitting access to the system or applications;
ii) manage privileges to limit users to their assigned roles;
iii) enforce domain integrity boundaries for security critical processes; and
iv) support recovery from key or system failure.

QuoVadis enforces multi-factor authentication on any Portal account capable of directly causing Certificate issuance.

6.5.2. Computer Security Rating

A version of the core CA software used by QuoVadis has obtained the Common Criteria EAL 4+ certification.

6.6. LIFE CYCLE TECHNICAL CONTROLS

6.6.1. System Development Controls

QuoVadis uses standard products from accredited suppliers who fulfil the security classifications required by the PKIoverheid PvE (*see* 6.1 and 6.2). QuoVadis follows the Certificate of Issuing and Management Components (CIMC) Family of Protection Profiles (Common Criteria), which sets the requirements for components that issue, revoke and manage public key Certificates, such as X.509 public key Certificates. CIMC is based on the Criteria/ISO IS15408 standards.

Software developed by QuoVadis and used for use in services within PKIoverheid is developed in a controlled environment which fulfils strict safety requirements. The software developed within QuoVadis itself and used within one of the core PKI services must fulfil the applicable requirements for reliable systems as included in CEN TS 419261.

6.6.2. Security Management Controls

QuoVadis has mechanisms in place to control and continuously monitor the security-related configurations of its CA systems. When loading software onto a CA system, QuoVadis verifies that the software is the correct version and is supplied by the vendor free of any modifications.

6.6.3. Life Cycle Security Controls

No stipulation.

6.7. NETWORK SECURITY CONTROLS

QuoVadis conforms to the CA/Browser Forum Network Security Controls as well as network security requirements from PKIoverheid. QuoVadis ensures that all PKIoverheid systems relating to the registration service, certificate generation service, subject device provision service, dissemination service, revocation management service and revocation status service:

- Are equipped with the latest updates;
- The web application controls and filters all input by users;
- The web application codes the dynamic output;
- The web application maintains a secure session with the user; and

- The web application uses a secured database.

QuoVadis use the NCSC's "Security of Web Applications Checklist" as guidance.

QuoVadis carry out monthly security scans on all PKI infrastructure and documents the results of these security scans and any measures taken.

QuoVadis arranges a yearly penetration test to be performed on the PKIoverheid infrastructure. In the event of any significant change to the PKIoverheid infrastructure then QuoVadis will arrange additional penetration testing. Significant changes include:

- New software;
- New versions of existing software (excluding patches); and
- Significant changes in infrastructure.

QuoVadis is obliged to comply with instructions from the PKIo PA to carry out additional penetration tests when requested.

6.8. TIME-STAMPING

QuoVadis does not provide time stamps within the PKIoverheid framework. A separate QuoVadis Time-Stamp Policy/Practice Statement, structured in accordance with ETSI EN 319 421, describes QuoVadis' commercial service.

7. CERTIFICATE, CRL, AND OCSP PROFILES

7.1. CERTIFICATE PROFILE

QuoVadis only uses approved Certificate Profiles for the issuance of PKIoverheid Certificates. *See* Appendix A.

7.1.1. Version Numbers

Information for interpreting Certificate and CRL Profiles may be found in IETF RFC 5280. QuoVadis Certificates for PKIoverheid follow the ITU X.509v3 standard and the PKIoverheid PvE.

For publicly-trusted TLS Certificates, QuoVadis meets the technical requirements set forth in Sections 2.2, 6.1.5, and 6.1.6 of the CA/Browser Forum Baseline Requirements and this CPS.

7.1.1.1. Serial Number

The serial number is no longer than 160 bits (20 octets) ECC Certificates. QuoVadis may select one of the following options for the Signature field in a Certificate:

- *sha256WithRSAEncryption*: 1.2.840.113549.1.1.11
- *ecdsa-with-SHA256*: 1.2.840.10045.4.3.2

QuoVadis generates non-sequential Certificate serial numbers (positive numbers greater than zero) that contain at least 64 bits of output from a CSPRNG.

7.1.2. Certificate Extensions

See Appendix A.

7.1.3. Algorithm Object Identifiers

See Appendix A.

7.1.4. Name Forms

Each Certificate includes a serial number that is unique to the Issuing CA. TLS Server Certificates cannot contain metadata and/or any other indication that the value is absent, incomplete, or not applicable.

Certificates are populated with the Issuer Name and Subject Distinguished Name required under Section 3.1.1.

7.1.5. Name Constraints

All Certificates are configured to meet the applicable requirements, including Regulation (EU) No. 910/2014, Baseline Requirements, ETSI EN 319 411-1, ETSI EN 319 411-2 and PvE (Logius, PKIoverheid).

7.1.6. Certificate Policy Object Identifier

Certificate Policy object identifiers (OIDs) are described in Section 1.2.

7.1.7. Usage Of Policy Constraints Extension

No stipulation.

7.1.8. Policy Qualifiers Syntax And Semantics

QuoVadis Certificates include a brief statement in the Policy Qualifier field of the Certificate Policy extension to inform potential Relying Parties on notice of the limitations of liability and other terms and conditions on the use of the Certificate, including those contained in this CPS, which are incorporated by reference into the Certificate.

7.1.9. Processing Semantics For The Critical Certificate Policies Extension

No stipulation.

7.2. CRL PROFILE

If a reasonCode CRL entry extension is present, the CRLReason must indicate the most appropriate reason for revocation of the certificate. QuoVadis uses the following reasonCode values from RFC 5280:

- keyCompromise (1)
- cACompromise (2)
- affiliationChanged (3)
- superseded (4)
- cessationOfOperation (5)

7.2.1. Version Number

QuoVadis issues X.509 version 2 CRLs that contain the following fields:

Basic Contents	**Value**	**Demarcation**
Issuer.CountryName	NL	Fixed
Issuer.OrganisationName	QuoVadis Trustlink BV	Fixed
Issuer.OrgIdentifier	NTRNL-30237459	Fixed
Issuer.CommonName	Common name of the relevant issuer	Fixed
Effective date	Date	Required
Next update	Date	Required
SignatureAlgorithm	sha256RSA	Fixed
revokedCertificates	List of revoked Certificates: - Serial Number - Revocation Date and Time - Revocation Reason	Required

7.2.2. CRL And CRL Entry Extensions

QuoVadis CRLs have the following extensions:

Extension	Value
CRL Number	Never repeated monotonically increasing integer
Authority Key Identifier	Subject Key Identifier of the CRL issuer Certificate
Invalidity Date	Optional date in UTC format
Reason Code	Reason for revocation as described in Section 7.2

7.3. ONLINE CERTIFICATE STATUS PROTOCOL PROFILE

7.3.1. OCSP Version Numbers

OCSP Version 1, as defined by RFC 6960, is supported. OCSP Responder Certificates have a maximum validity of 12 months.

7.3.2. OCSP Extensions

The OCSP Certificate profile below provides an overview of the Certificate profile as issued in accordance with the PKIoverheid PvE, part 3a.

Basic Contents	Value	Demarcation
SignatureAlgorithm	sha256RSA	Fixed
Issuer.CountryName	NL	Fixed
Issuer.OrganisationName	QuoVadis Trustlink BV	Fixed
Issuer.OrganisationIdentifier	NTRNL-30237459	Fixed
Issuer.CommonName	Common name of the relevant issuer	Fixed
Validity.NotBefore	Date and Time	Required
Validity.NotAfter	Date and Time	Required
Subject.CommonName	QuoVadis OCSP Authority Signature	Required
Subject.OrganisationName	QuoVadis Limited	Required
Subject.CountryName	BM	Required
Subject.PublicKeyInfo	RSA (2048 bit) / System Generated	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature	Fixed
CertificatePolicies	G3: - Organisation Person: 2.16.528.1.1003.1.2.5.1 - Organisation Services: 2.16.528.1.1003.1.2.5.4 - Citizen: 2.16.528.1.1003.1.2.3.1 Private Root: - Private Services/server: 2.16.528.1.1003.1.2.8.4 - Private Persons: 2.16.528.1.1003.1.2.8.1 Domain CA 2020: 2.16.528.1.1003.2.5.9	Fixed

Basic Contents	Value	Demarcation
extKeyUsage	OCSP Signing	Fixed
ocspNoCheck	Null	Fixed

8. COMPLIANCE AUDIT AND OTHER ASSESSMENTS

8.1. FREQUENCY, CIRCUMSTANCE AND STANDARDS OF ASSESSMENT

QuoVadis is a TSP as referred to in Regulation (EU) No. 910/2014 (the eIDAS framework) and QuoVadis operations under this CPS comply with the applicable requirements of the following standards and regulations:

- ETSI EN 319 411-1 and ETSI EN 391 411-2
- Regulation (EU) No. 910/2014
- CA/Browser Forum Network and Certificate System Security Requirements
- CA/Browser Forum Baseline Requirements
- GDPR – EU 2016/679
- PKIoverheid Programma van Eisen (PvE)
  - PvE part 3 – General requirements
  - PvE part 3 – Additional requirements
  - PvE part 3a – Organisatie (G2) + Organisatie Persoon (G3)
  - PvE part 3b – Organisatie Services (G1 & G3)
  - PvE part 3c – CSP Burger CA (G2 & G3)
  - PvE part 3d – Autonomous Devices (G3) – *Not currently in use by QuoVadis*
  - PvE part 3e – Organisatie Server CA (G3) – *Not currently in use by QuoVadis*
  - PvE part 3f – EV CA (G3) – *Not currently in use by QuoVadis*
  - PvE part 3g – Private Services (G1)
  - PvE part 3h – Private Server (G1)
  - PvE part 3i – Private Persoon (G1)
  - PvE part 3j – Domain Server (2020)

Supervisory Authority *Agentschap Telecom* supervises QuoVadis for compliance with the EU Regulation on Electronic Signatures (Regulation (EU) No. 910/2014).

Conformance Assessment Body *BSI Group Nederland* audits QuoVadis for compliance with ETSI EN 319411-1, 319411-2 and other relevant standards on an annual basis. BSI Group Nederland is accredited by UKAS for assessments under ISO17065 and the requirements defined in ETSI EN 319 403.

External auditors are independent and have no business interests or business affiliation with QuoVadis, DigiCert or affiliated companies. Audits are carried out by external auditors at least annually. The scope of the audit concerns the following subjects and processes:

- Registration service
- Certificate Generation Service
- Dissemination Service
- Revocation Management Service
- Revocation Status Service
- Subject Device Provision Service
- Network Security
- Logical and Physical Access
- Logging and Monitoring
- Human Resource Security
- Business Continuity Management
- Compliance

For any non-conformities are found during an audit, QuoVadis drafts a Corrective Action Plan (CAP) proposing corrective measures. The certifying institution must grant approval to the CAP.

QuoVadis conducts internal audits in which the follow-up of corrective actions is checked. Finally, during a subsequent certification audit, the implementation of the corrective measure is checked by the certifying institution.

8.2. IDENTITY AND QUALIFICATIONS OF ASSESSOR

ETSI Conformance Assessment Bodies must meet the requirements of the relevant national accrediting authority. Auditors shall be experienced in performing information security audits, specifically having significant experience with PKI and cryptographic technologies.

8.3. ASSESSOR'S RELATIONSHIP TO ASSESSED ENTITY

QuoVadis and the assessors do not have any other relationship that would impair their independence and objectivity under Generally Accepted Auditing Standards. These relationships include financial, legal, social or other relationships that could result in a conflict of interest.

8.4. TOPICS COVERED BY ASSESSMENT

Audits as applicable cover QuoVadis' business practices disclosure, the integrity of QuoVadis' PKIo operations, and an Issuing CAs' compliance with this CPS and referenced requirements. Audits verify that QuoVadis is compliant with the CPS and applicable standards and regulatory requirements.

8.5. ACTIONS TAKEN AS A RESULT OF DEFICIENCY

If an audit reports a material noncompliance with applicable law, this CPS, or any other contractual obligations related to QuoVadis' services, then (i) the auditor will document the discrepancy, (ii) the auditor will promptly notify QuoVadis, and (iii) QuoVadis will develop a Corrective Action Plan (CAP) to cure the noncompliance. QuoVadis will submit the plan to the PMA for approval and to any third party that QuoVadis is legally obligated to satisfy. The PMA may require additional action if necessary to rectify any significant issues created by the non-compliance, including requiring revocation of affected Certificates. QuoVadis is entitled to suspend and/or terminate of services through revocation or other actions as deemed by the PMA to address the noncompliant Issuing CA

8.6. PUBLICATION OF AUDIT RESULTS

The results of each audit are reported to the PMA and to any third-party entities which are entitled by law, regulation, or agreement to receive a copy of the audit results. The results of the most recent audits of QuoVadis are posted at https://www.quovadisglobal.com/accreditations.

8.7. SELF AUDITS

QuoVadis controls service quality by performing quarterly self-audits against a randomly selected sample of TLS Certificates being no less than three percent of the Certificates issued. Audits of other Certificate types will be at the discretion of QuoVadis to gain reasonable assurance of compliance to applicable requirements.

9. OTHER BUSINESS AND LEGAL MATTERS

9.1. FEES

9.1.1. Certificate Issuance Or Renewal Fees

QuoVadis charges fees for verification, certificate issuance and renewal. QuoVadis may change its fees at any time in accordance with the applicable customer agreement.

9.1.2. Certificate Access Fees

QuoVadis may charge a reasonable fee for access to its certificate databases.

9.1.3. Revocation Or Status Information Access Fees

QuoVadis does not charge a certificate revocation fee or a fee for checking the validity status of an issued Certificate using a CRL. QuoVadis may charge a fee for providing customised CRLs, OCSP services, or other value-added revocation and status information services. QuoVadis does not permit access to revocation information, Certificate status information, or time stamping in their Repositories by third parties that provide products or services that utilise such Certificate status information without QuoVadis' prior express written consent.

9.1.4. Fees For Other Services

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

9.1.5. Refund Policy

QuoVadis may establish a refund policy, details of which may be contained in relevant contractual agreements.

9.2. FINANCIAL RESPONSIBILITIES

9.2.1. Insurance Coverage

QuoVadis has made adequate arrangements to cover liabilities – including product liability – related to this service. The coverage is $10,000,000 (ten million US Dollars). The corporate liability insurance is taken out with an insurance company that has at least an "A" rating with a known rating agency. More details about liability and insurance are in the Terms of Use and the contractual agreements between the Subscriber, Relying Parties and QuoVadis.

QuoVadis does not provide for any other undertakings, guarantees and/or commitments than those explicitly provided for in the Terms of Use and the contractual agreements.

9.2.2. Other Assets

QuoVadis has a financial department, responsible for all financially related tasks and operations. QuoVadis uses the services of an international financial services accounting firm, including periodic audits.

9.2.3. Insurance Or Warranty Coverage For End-Entities

No stipulation.

9.3. CONFIDENTIALITY OF BUSINESS-SENSITIVE DATA

9.3.1. Scope Of Confidential Information

QuoVadis keeps the following types of information confidential and maintains reasonable controls to prevent the exposure of such records to non-trusted personnel.

i) Private Keys;

ii) Activation data used to access Private Keys or to gain access to the CA system;

iii) Business continuity, incident response, contingency, and disaster recovery plans;

iv) Other security practices used to protect the confidentiality, integrity, or availability of information;

v) Information held by QuoVadis as private information in accordance with Section 9.4;

vi) Audit logs and archive records; and

vii) Transaction records, financial audit records, and external or internal audit trail records and any audit reports (with the exception of an auditor's letter confirming the effectiveness of the controls set forth in this CPS).

9.3.2. Information Not Within The Scope Of Confidential Information

Information appearing in Certificates or stored in the Repository is considered public and not within the scope of confidential information, unless statutes or special agreements so dictate.

9.3.3. Responsibility To Protect Private Information

QuoVadis employees, agents, and contractors are responsible for protecting confidential information and are contractually obligated to do so. Employees receive training on how to handle confidential information.

9.4. PRIVACY OF PERSONAL INFORMATION

9.4.1. Privacy Plan

QuoVadis follows the Privacy Notices posted on its website when handling personal information. *See* https://www.quovadisglobal.com/privacy-policy. Personal information is only disclosed when the disclosure is required by law or when requested by the subject of the personal information. Such privacy policies shall conform to applicable local privacy laws and regulations including the Council Directive 95/46/EC of the European Parliament and the Swiss Federal Act on Data Protection of June 19, 1992 (SR 235.1).

9.4.2. Information Treated As Private

Personal information about an individual that is not publicly available in the contents of a Certificate or CRL is considered private. QuoVadis protects private information using appropriate safeguards and a reasonable degree of care.

9.4.3. Information Deemed Not Private

Certificates, CRLs, and personal or corporate information appearing in them are not considered private. This QuoVadis CPS is a public document and is not confidential information and is not treated as private.

9.4.4. Responsibility To Protect Private Information

QuoVadis employees and contractors are expected to handle personal information in strict confidence and meet the requirements of US and European law concerning the protection of personal data. QuoVadis will not divulge any private Subscriber information to any third party for any reason, unless compelled to do so by law or competent regulatory authority. All sensitive information is securely stored and protected against accidental disclosure.

9.4.5. Notice And Consent To Use Private Information

In the course of accepting a Certificate, individuals have agreed to allow their personal data submitted in the course of registration to be processed by and on behalf of the QuoVadis CA, and used as explained in the registration process. They have also been given an opportunity to decline from having their personal data used for particular purposes. They have also agreed to let certain personal data to appear in publicly accessible directories and be communicated to others.

9.4.6. Disclosure Pursuant To Judicial Or Administrative Process

If required by a legitimate and lawful judicial order or regulation that complies with requirements of this CPS, QuoVadis may disclose private information without notice.

9.5. INTELLECTUAL PROPERTY RIGHTS

QuoVadis owns the intellectual property rights in QuoVadis' services, including the Certificates, trademarks and the Proprietary Marks used in providing the services, and this CPS.

For the avoidance of doubt, external documents or electronic records signed or protected using QuoVadis Certificates are not considered to be QuoVadis documents for the purposes of this section, nor is QuoVadis responsible for the content of those documents or records.

Intellectual property rights and restrictions thereof are described in the Subscriber Agreements. QuoVadis indemnifies the Subscriber in respect of claims by third parties due to violations of intellectual property rights by QuoVadis.

9.5.1. Property Rights in Certificates and Revocation Information

QuoVadis retains all intellectual property rights in and to the Certificates and revocation information that it issues. QuoVadis and customers shall 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. QuoVadis, and customers shall grant permission to use revocation information to perform Relying Party functions subject to the applicable CRL usage agreement, Relying Party Agreement, or any other applicable agreements.

9.5.2. Property Rights in the CPS

Issuing CAs acknowledge that QuoVadis retains all intellectual property rights in and to this CPS.

9.5.3. Property Rights in Names

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

9.5.4. Property Rights in Keys and Key Material

Key Pairs corresponding to Certificates of CAs and end-user Subscribers are the property of QuoVadis and end-user Subscribers that are the respective subjects of the Certificates, 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. Without limiting the generality of the foregoing, QuoVadis Root Public Keys and the Root CA Certificates containing them, including all Public Keys and self-signed Certificates, are the property of QuoVadis. QuoVadis licenses software and hardware manufacturers to reproduce such Root and CA Certificates to place copies in trustworthy hardware devices or software

9.5.5. Violation of Property Rights

Issuing CAs shall not knowingly violate the intellectual property rights of any third party.

9.6. REPRESENTATIONS AND WARRANTIES

9.6.1. Certification Authority Representations

QuoVadis hereby declares that:

i) It has taken reasonable steps to verify the information contained in a Certificate for accuracy at the time of issue

ii) Certificates will be withdrawn if QuoVadis suspects or has been notified that the content of a Certificate is no longer accurate, or that the key associated with a Certificate has been compromised in any way.

QuoVadis is only liable in respect to Certificate Subscribers or Relying Parties for immediate loss resulting from the violation by QuoVadis of provisions of this CSP or of any other liability under agreement, tort or otherwise, including liability for negligence up to the maximum amount included in chapter 9.8, for any event or series of related events (in a 12-month period).

QuoVadis excludes all liability for damage that occurs if the Certificate is not used in accordance with the intended Certificate use, as described in chapter 1.4 of this CPS.

- QuoVadis can, at the direction of the PKIo PA, include restrictions on its use in the signature Certificate, provided the relevant restrictions are clear to third parties. QuoVadis is not liable for damage resulting from the use of a signature Certificate in violation of such an included restriction. QuoVadis does not accept any form of liability for damage suffered by Relying Parties, with the following exceptions:
- QuoVadis is, in principle, liable in accordance with Article 6.19b, first to third paragraphs, of the Dutch Civil Code, on the understanding that:
    - "a Qualified Certificate as referred to in Article 1.1. section ss Telecommunications Act" is read as follows: "an Authentication Certificate"
    - "Signatory": is read as: "Subscriber";
    - "Electronic Signatures" is read as: "Authentication characteristics".
    - QuoVadis is, in principle, liable in accordance with Article 6.19b, first to third paragraphs, of the Dutch Civil Code, on the understanding that:
    - "a Qualified Certificate as referred to in Article 1.1. section ss Telecommunications Act" is read as follows: "an EV TLS Certificate";
    - "Signatory": is read as: "Subscriber";
    - "creating Electronic Signatures" is read as: "creating Encrypted Data";
    - "verifying Electronic Signatures" is read as: "decrypting Encrypted Data".
    - "a Qualified Certificate as referred to in Article 1.1. section ss Telecommunications Act" is read as follows: "a Server Certificate";
    - "Signatory": is read as: "Subscriber";
    - "creating Electronic Signatures" is read as: "verifying Authentication characteristics and creating Encrypted Data";
    - "verifying Electronic Signatures" is read as: "decrypting Authentication characteristics and Encrypted Data".

QuoVadis provides test certificates for all types of Certificates.

9.6.2. RA Representations and Warranties

RAs represent and warrant that:

i) The RA's certificate issuance and management services conform to the QuoVadis CPS and applicable CA or RA Agreements;

ii) Information provided by the RA does not contain any false or misleading information;

iii) Reasonable steps are taken to verify that the information contained in any Certificate is accurate at the time of issue;

iv) Translations performed by the RA are an accurate translation of the original information;

v) All Certificates requested by the RA meet the requirements of this CPS and RA Agreement; and

vi) The RA will request that Certificates be revoked by QuoVadis if they believe or are notified that the contents of the Certificate are no longer accurate, or that the key associated with a Certificate has been compromised in any way.

QuoVadis' RA Agreement may contain additional representations. Subscriber Agreements may include additional representations and warranties.

9.6.3. Subscriber Representations And Warranties

Prior to being issued and receiving a Certificate, Subscribers are solely responsible for any misrepresentations they make to third parties and for all transactions that use Subscriber's Private Key,

regardless of whether such use was authorised. Subscribers are required to notify QuoVadis and any applicable RA if a change occurs that could affect the status of the Certificate.

QuoVadis requires, as part of the Subscriber Agreement or Terms of Use, that the Applicant make the commitments and warranties in this section for the benefit of QuoVadis and all Relying Parties and Application Software Vendors. This make take the form of either:

i) The Applicant's agreement to the Subscriber Agreement with QuoVadis; or

ii) The Applicant's acknowledgement of the Terms of Use.

Subscribers represent to QuoVadis, Application Software Vendors, and Relying Parties that, for each Certificate, the Subscriber will:

i) Securely generate its Private Keys and protect its Private Keys from compromise, and exercise sole and complete control and use of its Private Keys;

ii) Provide accurate and complete information when communicating with QuoVadis, and to respond to QuoVadis' instructions concerning Key Compromise or Certificate misuse;

iii) Confirm the accuracy of the certificate data prior to installing or using the Certificate;

iv) For Qualified Certificates (a) if the policy requires the use of a QSCD, Electronic Signatures must only be created by a QSCD, (b) in the case of natural persons, the Private Key should only be used for Electronic Signatures, and (c) in the case of legal persons, the Private Key must be maintained and used under the control of the Subscriber and it should only be used for Electronic Seals.

v) Promptly (a) request revocation of a Certificate, cease using it and its associated Private Key, and notify QuoVadis if there is any actual or suspected misuse or compromise of the Private Key associated with the Public Key included in the Certificate, and (b) request revocation of the Certificate, and cease using it, if any information in the Certificate is or becomes incorrect or inaccurate;

vi) Ensure that individuals using Certificates on behalf of an organisation have received security training appropriate to the Certificate;

vii) Use the Certificate only for authorised and legal purposes, consistent with the Certificate purpose, this CPS, and the relevant Subscriber Agreement, including only installing TLS Server Certificates on servers accessible at the Domain listed in the Certificate and not using code signing Certificates to sign malicious code or any code that is downloaded without a user's consent; and

viii) Promptly cease using the Certificate and related Private Key after the Certificate's expiration or revocation, or in the event that QuoVadis notifies the Subscriber that the QuoVadis PKIo has been compromised.

Subscriber Agreements may include additional representations and warranties.

9.6.4. Relying Parties Representations And Warranties

Each Relying Party represents that it:

i) Prior to relying on the Certificate or other authentication product or service, Relying Parties are obliged to check all status information provided by QuoVadis related to the Certificate or other authentication product or service to confirm that the information was still valid and that the product or service had not expired or been revoked. For Certificates, this includes checking to ensure that each Certificate in the Certificate Chain is valid, unexpired, and non-revoked (by using any CRL or OCSP information available).

- to be relied upon as an EU Qualified Certificate, the CA/trust anchor for the validation of the Certificate shall be as identified in a service digital identifier of an EU Trusted List entry with service type identifier "http://uri.etsi.org/TrstSvc/Svctype/CA/QC" for a Qualified Trust Service Provider. ETSI TS 119 615 provides guidance on how to validate a Certificate against the EU Trusted Lists. ETSI TS 119 172-4 describes how to validate a digital signature to determine whether it can be considered as an EU Qualified electronic signature or seal.

ii) Prior to relying on an authentication product or service, Relying Parties must gather sufficient information to make an informed decision about the proper use of the authentication product or service and whether intended reliance on the authentication product or service was reasonable in light of the circumstances. This includes evaluating the risks associated with their intended use and the limitations associated with the authentication product or service provided by QuoVadis.

iii) Relying Parties' reliance on the authentication product or service is reasonable based on the circumstances. Relying Parties reliance will be deemed reasonable if:

- the attributes of the Certificate relied upon and the level of assurance in the Identification and Authentication provided by the Certificate are appropriate in all respects to the level of risk and the reliance placed upon that Certificate by the Relying Party;
- the Relying Party has, at the time of that reliance, used the Certificate for purposes appropriate and permitted by the CPS and under the laws and regulations of the jurisdiction in which the Relying Party is located;
- the Relying Party has, at the time of that reliance, acted in good faith and in a manner appropriate to all the circumstances known, or circumstances that ought reasonably to have been known, to the Relying Party;
- the Relying Party has, at the time of that reliance, verified the Digital Signature, if any;
- the Relying Party has, at the time of that reliance, verified that the Digital Signature, if any, was created during the Operational Term of the Certificate being relied upon;
- the Relying Party ensures that the data signed has not been altered following signature by utilising trusted application software,
- the signature is trusted and the results of the signature are displayed correctly by utilising trusted application software;
- the identity of the Subscriber is displayed correctly by utilising trusted application software; and
- any alterations arising from security changes are identified by utilising trusted application software.

If the circumstances indicate a need for additional assurances, it is Relying Parties' responsibility to obtain such assurances. A Relying Party shall make no assumptions about information that does not appear in a Certificate. All obligations and warranties within this Section relate to Reasonable Reliance on the validity of a Digital Signature, not the accuracy of the underlying electronic record.

Any unauthorised reliance on a Certificate is at a party's own risk. Relying Party Agreements may include additional representations and warranties.

9.6.5. Representations And Warranties Of Other Participants

Participants within the QuoVadis PKIo represent and warrant that they accept and will perform any and all duties and obligations as specified by this CPS.

9.7. DISCLAIMERS OF WARRANTIES

OTHER THAN AS PROVIDED IN SECTION 9.6.1, THE CERTIFICATES ARE PROVIDED "AS IS" AND "AS AVAILABLE" AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, QUOVADIS DISCLAIMS ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. QUOVADIS DOES NOT WARRANT THAT ANY CERTIFICATE WILL MEET SUBSCRIBER'S OR ANY OTHER PARTY'S EXPECTATIONS OR THAT ACCESS TO THE CERTIFICATES WILL BE TIMELY OR ERROR-FREE. QuoVadis does not guarantee the accessibility of any Certificates and may modify or discontinue offering any Certificates at any time. Subscriber's sole remedy for a defect in the Certificates is for QuoVadis to use commercially reasonable efforts, upon notice of such defect from Subscriber, to correct the defect, except that QuoVadis has no obligation to correct defects that arise from (i) misuse, damage, modification or damage of the Certificates or combination of the Certificates with

other products and services by parties other than QuoVadis, or (ii) Subscriber's breach of any provision of the Subscriber Agreement.

9.8. LIABILITY AND LIMITATIONS OF LIABILITY

This Section 9.8 does not limit a party's liability for: (i) death or personal injury resulting from the negligence of a party; (ii) gross negligence, willful misconduct or violations of applicable law, or (iii) fraud or fraudulent statements made by a party to the other party in connection with this CPS. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW AND NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY OR LIMITATION OF LIABILITY: (A) QUOVADIS AND ITS AFFILIATES, SUBSIDIARIES, OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, PARTNERS AND LICENSORS (THE "QUOVADIS ENTITIES") WILL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES (INCLUDING ANY DAMAGES ARISING FROM LOSS OF USE, LOSS OF DATA, LOST PROFITS, BUSINESS INTERRUPTION, OR COSTS OF PROCURING SUBSTITUTE SOFTWARE OR SERVICES) ARISING OUT OF OR RELATING TO THIS CPS OR THE SUBJECT MATTER HEREOF; AND (B) THE QUOVADIS ENTITIES' TOTAL CUMULATIVE LIABILITY ARISING OUT OF OR RELATING TO THIS CPS OR THE SUBJECT MATTER HEREOF WILL NOT EXCEED THE AMOUNTS PAID BY OR ON BEHALF OF SUBSCRIBER TO QUOVADIS IN THE TWELVE MONTHS PRIOR TO THE EVENT GIVING RISE TO SUCH LIABILITY, REGARDLESS OF WHETHER SUCH LIABILITY ARISES FROM CONTRACT, INDEMNIFICATION, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, AND REGARDLESS OF WHETHER QUOVADIS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE. NO CLAIM, REGARDLESS OF FORM, WHICH IN ANY WAY ARISES OUT OF THIS CPS, MAY BE MADE OR BROUGHT BY SUBSCRIBER OR SUBSCRIBER'S REPRESENTATIVES MORE THAN ONE (1) YEAR AFTER THE BASIS FOR THE CLAIM BECOMES KNOWN TO SUBSCRIBER.

For EU Qualified Certificates, QuoVadis liability is in accordance with Extract 37 and Article 13 of the eIDAS Regulation.

9.9. INDEMNITIES

9.9.1. Indemnification By QuoVadis

To the extent permitted by applicable law, QuoVadis shall indemnify each Application Software Vendor against any claim, damage, or loss suffered by an Application Software Vendor related to an Certificate issued by QuoVadis, regardless of the cause of action or legal theory involved, except where the claim, damage, or loss suffered by the Application Software Vendor was directly caused by the Application Software Vendor's software displaying either (i) a valid and trustworthy Certificate as not valid or trustworthy or (ii) displaying as trustworthy (a) an Certificate that has expired or (b) a revoked Certificate where the revocation status is available online but the Application Software Vendor's software failed to check or ignored the status.

9.9.2. Indemnification By Subscribers

Customer will indemnify, defend and hold harmless QuoVadis and QuoVadis' employees, officers, directors, shareholders, Affiliates, and assigns (each an "Indemnified Party") against all third party claims and all related liabilities, damages, and costs, including reasonable attorneys' fees, arising from (i) Customer's breach of this Agreement; (ii) Customer's online properties for which QuoVadis provides Services hereunder, or the technology or content embodied therein or made available through such properties; (iii) QuoVadis' access or use in compliance with this Agreement of any information, systems, data or materials provided by or on behalf of Customer to QuoVadis hereunder, (iv) Customer's failure to protect the authentication mechanisms used to secure the Portal or a Portal Account; (v) Customer's modification of a QuoVadis product or service or combination of a QuoVadis product or service with any product or service not provided by QuoVadis; (vi) an allegation that personal injury or property damage was caused by the fault or negligence of Customer; (vii) Customer's failure to disclose a material fact related to the use or issuance of the Services; or (viii) an allegation that the Customer, or an agent of Customer, used QuoVadis' Services to infringe on the rights of a third party.

9.9.3. Indemnification By Relying Parties

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

9.10. TERM AND TERMINATION

9.10.1. Term

This CPS and any amendments to this CPS are effective when published in the QuoVadis Repository and remain in effect until replaced with a newer version.

9.10.2. Termination

This CPS as amended from time to time shall remain in force until it is replaced by a newer version.

9.10.3. Effect Of Termination And Survival

The provisions within this CPS survive the termination or revocation of a Subscriber or Relying Party within the PKI for the Government regarding all acts based on the use of or reliance on a Certificate or other participation within the PKI for the Government. Any such termination or revocation will not act in such a way as to prejudice or influence any right to action or remedy that were due to any person up to and including the date of revocation or termination.

9.11. INDIVIDUAL NOTICES AND COMMUNICATIONS WITH PARTICIPANTS

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

Notices to Application Software Vendors are sent out in accordance with the respective requirements.

9.12. AMENDMENTS

9.12.1. Procedure For Amendment

Changes to this CPS will be in the form of a modified CPS or replacement CPS. Updated versions of this CPS will replace designated or conflicting provisions of the stated version of the CPS.

There are two possible types of policy change:

- the issue of a new CPS; or
- a change or adjustment of a policy in the existing CPS.

The only changes that may be made to this CPS without reporting are editorial or typographical corrections that have no consequences for any participants within the PKI for the Government.

9.12.2. Notification Mechanism And Period

The new or modified CPS is published in the Repository at https://www.quovadisglobal.nl/repository. The QuoVadis PMA is responsible for determining what constitutes a material change of the CPS. For routine modifications, QuoVadis does not guarantee or set a notice-and-comment period and may make changes to this CPS without notice and without changing the version number.

When the QuoVadis PMA determines a CPS change may have a significant impact on Subscribers or Relying Parties, due notice of seven (7) days will be provided in the Repository. Subscribers whose Certificates remain valid at the effective date of the CPS change shall be deemed to have accepted the modification. If there is an intention to change the CA structure, QuoVadis submits this information to the PKIo PA. In the event of any change to this CPS then PKIoverheid (Logius) will be notified of such change.

9.12.3. Circumstances Under Which OID Must Be Changed

OIDs used within PKIoverheid Certificates are determined by the PKIo PA; QuoVadis does not control the circumstances for those changes.

9.13. DISPUTE RESOLUTION PROVISIONS

To the extent permitted by law, before a Participant files suit or initiates an arbitration claim with respect to a dispute involving any aspect of this Agreement, Participant shall notify QuoVadis, and any other party to the dispute for the purpose of seeking business resolution. Both Participant and QuoVadis shall make good faith efforts to resolve such dispute via business discussions. If the dispute is not resolved within sixty (60) days after the initial notice, then a party may proceed as permitted under applicable law and as specified under this CPS and other relevant agreements.

i) Arbitration: In the event a dispute is allowed or required to be resolved through arbitration, the parties will maintain the confidential nature of the existence, content, or results of any arbitration hereunder, except as may be necessary to prepare for or conduct the arbitration hearing on the merits, or except as may be necessary in connection with a court application for a preliminary remedy, a judicial confirmation or challenge to an arbitration award or its enforcement, or unless otherwise required by law or judicial decision.

ii) Class Action and Jury Trial Waiver: THE PARTIES EXPRESSLY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL FOR THE PURPOSES OF LITIGATING DISPUTES HEREUNDER. Each party agrees that any dispute must be brought in the respective party's individual capacity, and not as a plaintiff or class member in any purported class, collective, representative, multiple plaintiff, or similar proceeding ("Class Action"). The parties expressly waive any ability to maintain any Class Action in any forum in connection with any dispute. If the dispute is subject to arbitration, the arbitrator will not have authority to combine or aggregate similar claims or conduct any Class Action nor make an award to any person or entity not a party to the arbitration. Any claim that all or part of this Class Action waiver is unenforceable, unconscionable, void, or voidable may be determined only by a court of competent jurisdiction and not by an arbitrator.

9.14. GOVERNING LAW

All agreements entered into by QuoVadis under this CPS are governed by Dutch law, unless otherwise specified.

9.15. COMPLIANCE WITH APPLICABLE LAW

This CPS is subject to all applicable laws and regulations, including United States restrictions on the export of software and cryptography products. Subject to section 9.4.5, QuoVadis meets the requirements of the European data protection laws and has established appropriate technical and organisation measures against unauthorised or unlawful processing of personal data and against the loss, damage, or destruction of personal data.

9.16. MISCELLANEOUS PROVISIONS

9.16.1. Entire Agreement

QuoVadis contractually obligates each RA to comply with this CPS and applicable industry guidelines. QuoVadis also requires each party using its products and services to enter into an agreement that delineates the terms associated with the product or service. If an agreement has provisions that differ from this CPS,

then the agreement with that party controls, but solely with respect to that party. Third parties may not rely on or bring action to enforce such agreement.

9.16.2. Assignment

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

9.16.3. Severability

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

9.16.4. Enforcement (Waiver Of Rights)

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

9.16.5. Force Majeure

Except for Customer's payment obligations, neither party is liable for any failure or delay in performing its obligations under this Agreement to the extent that the circumstances causing such failure or delay are beyond a party's reasonable control. Customer acknowledges that the Services (including the Portal and Certificates) are subject to the operation and telecommunication infrastructures of the Internet and the operation of Customer's Internet connection services, all of which are beyond QuoVadis' control.

9.17. OTHER PROVISIONS

QuoVadis ensures that it is capable of issuing all types of Certificate listed in this CPS per the PvE requirements.

APPENDIX A – CERTIFICATE PROFILES FOR PKIOVERHEID

QuoVadis PKIoverheid Organisatie Persoon CA-G3

Personal Organisation Authentication G3

Basic Contents	**Value**	**Demarcation**
Subject.CommonName	CommonName	Required
Subject.givenname	Given Name	Required
Subject.surname	Surname	Required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional / Prohibited for Profession Certificates
Subject.title	Title	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature	Fixed
extKeyUsage	Client Authentication Document Signing E-Mail Protection	Required
CertPolicyID	2.16.528.1.1003.1.2.5.1	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	user@domain (used for Single Sign on)	Optional
subjectAltName.User Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkiopersong3.crl	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkiopersong3.crt	Fixed

Personal Organisation Non-Repudiation G3

Basic Contents	**Value**	**Demarcation**
Subject.CommonName	CommonName	Required
Subject.givenname	Given Name	Required
Subject.surname	Surname	Required
Subject.SerialNumber	SerialNumber	Required

Basic Contents	Value	Demarcation
Subject.OrganisationName	OrganisationName	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional / Prohibited for Profession Certificates
Subject.title	Title	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage(CRITICAL)	Non-Repudiation	Fixed
extKeyUsage	Document Signing E-Mail Protection	Required/ optional
CertPolicyID	2.16.528.1.1003.1.2.5.2 0.4.0.19431.1.1.3 'eu-remote-qscd' EUSCP: EU SSASC Policy (ETSI TS 119 431-1)	Fixed Only included when QuoVadis generates & manages Private Keys on behalf of Subscriber on a QSCD.
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkiopersong3.crl	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkiopersong3.crt	Fixed
QC Statements	Id-etsi-qcs-QcCompliance { id-etsi-qcs 1 } 0.4.0.1862.1.1 Id-etsi-qct-eseal { id-etsi-qct-esign } 0.4.0.1862.1.6.1 Id-etsi-qcs-QcSSCD { id-etsi-qcs 4 } 0.4.0.1862.1.4 Id-etsi-qcs-QcPDS { id-etsi-qcs 5 } 0.4.0.1862.1.5	Fixed

Personal Organisation Encryption G3

Basic Contents	Value	Demarcation
Subject.CommonName	CommonName	Required
Subject.givenname	Given Name	Required
Subject.surname	Surname	Required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required

Basic Contents	Value	Demarcation
Subject.organisationalUnitName	OrganisationalUnitName	Optional / Prohibited for Profession Certificates
Subject.title	Title	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Key Encipherment Data Encipherment	Fixed
extKeyUsage	Encrypting File System E-Mail Protection	Required
CertificatePolicies	2.16.528.1.1003.1.2.5.3	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkiopersong3.crl	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkiopersong3.crt	Fixed

QuoVadis PKIoverheid Organisation Services CA-G3

Organisation Services Authentication G3

Basic Contents	Value	Demarcation
Subject.CommonName	CommonName	Required
Subject.SerialNumber	SerialNumber	Optional
Subject.OrganisationName	OrganisationName	Required
Subject.organisationIdentifier	3 character legal person identity type reference (e.g., NTR or VAT); 2 character ISO 3166 [2] country code; hyphen-minus "-" (0x2D (ASCII), U+002D (UTF-8)); and identifier (according to country and identity type reference). Company registration number	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required

Basic Contents	Value	Demarcation
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature	Fixed
extKeyUsage	Client Authentication Document Signing EmailProtection	Fixed
CertificatePolicies	2.16.528.1.1003.1.2.5.4	Fixed
subjectAltName.User Principle Name (MS UPN)	user@domain (used for Single Sign on)	Optional
subjectAltName.User Principle Name (MS UPN)	<Service ID>@2.16.528.1.1003.1.3.5.2.1 (Where <Service ID> is the relevant ID number of the Service)	Required
subjectAltName.rfc822Name	Rfc822 email address	Optional - for e-mail signing
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioservicg3.crt	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioservicg3.crt	

Organisation Service Encryption G3

Basic Contents	Value	Demarcation
Subject.CommonName	CommonName	Required
Subject.SerialNumber	SerialNumber	Optional
Subject.OrganisationName	OrganisationName	Required
Subject.organisationIdentifier	3 character legal person identity type reference (e.g., NTR or VAT); 2 character ISO 3166 [2] country code; hyphen-minus "-" (0x2D (ASCII), U+002D (UTF-8)); and identifier (according to country and identity type reference). Company registration number	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional / Prohibited for Profession Certificates
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Key Encipherment Data Encipherment	Fixed

Basic Contents	**Value**	**Demarcation**
extKeyUsage	Email Protection Encrypting File System	Fixed
CertificatePolicies	2.16.528.1.1003.1.2.5.5	Fixed
subjectAltName.User Principle Name (MS UPN)	<Service ID>@2.16.528.1.1003.1.3.5.2.1 (Where <Service ID> is the relevant ID number of the Service)	Required
subjectAltName.rfc822Name	Rfc822 email address	Optional - for e-mail signing
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioservicg3.crt	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioservicg3.crt	Fixed

Organisation Service Seal G3

Basic Contents	Value	Demarcation
Subject.CommonName	CommonName (commonly used name of the Subject)	Required
Subject.SerialNumber	SerialNumber	Optional
Subject.OrganisationName	OrganisationName	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional / Prohibited for Profession Certificates
Subject Organisation Identifier	3 character legal person identity type reference (e.g., NTR or VAT); 2 character ISO 3166 [2] country code; hyphen-minus "-" (0x2D (ASCII), U+002D (UTF-8)); and identifier (according to country and identity type reference). Company registration number	Required
Subject.localityName	City	Optional
Subject.stateOrProvinceName	State or province	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit) / System Generated	Fixed
Subject Serial Number	Serial number	Required
Extensions		Fixed
KeyUsage (CRITICAL)	Non repudiation	Fixed
extKeyUsage	Document Signing EmailProtection	Fixed

CertificatePolicies	2.16.528.1.1003.1.2.5.7 Policy Identifier=0.4.0.19431.1.1.3 'eu-remote-qscd' EUSCP: EU SSASC Policy (ETSI TS 119 431-1)	Fixed Only included when QuoVadis generates & manages Private Keys on behalf of Subscriber on a QSCD
subjectAltName.User Principle Name (MS UPN)	<Service ID>@2.16.528.1.1003.1.3.5.2.1 (Where <Service ID> is the relevant ID number of the Service)	Holder Variable
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioservicg3.crt	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioservicg3.crt	Fixed
QC Statements	Id-etsi-qcs-QcCompliance { id-etsi-qcs 1 } 0.4.0.1862.1.1 Id-etsi-qct-eseal { id-etsi-qcs-QcType 2 } 0.4.0.1862.1.6.2 Id-etsi-qcs-QcSSCD { id-etsi-qcs 4 } 0.4.0.1862.1.4 Id-etsi-qcs-QcPDS { id-etsi-qcs 5 } 0.4.0.1862.1.5 ld-etsi-gcs SymanticsID-legal } { id-etsi-qcs-Symantics-identifiers 2 } 0.4.0.194121.1.2	Fixed

QuoVadis PKIoverheid Burger CA-2021

Personal Citizen Authentication G3

Basic Contents	**Value**	**Demarcation**
Subject.commonName	Subject Common Name	Required
Subject.surname	Surname	Required
Subject.givenName	Given name	Required
Subject.serialNumber	Serial Number	Required
Subject.countryName	Country Name	Required
Subject.publicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature	Fixed
extKeyUsage	Client authentication Document Signing	Required/optional

	E-Mail Protection	
CertificatePolicies	2.16.528.1.1003.1.2.3.1	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.Principle Name (MS UPN)	MS UPN in the format: <unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/quovadispkioverheidburgerca2021.crl	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/quovadispkioverheidburgerca2021.crt	Fixed

Personal Citizen Non-Repudiation G3

Basic Contents	**Value**	**Demarcation**
Subject.commonName	Subject Common Name	Required
Subject.surname	Surname	Required
Subject.givenName	Given name	Required
Subject.serialNumber	Serial Number	Required
Subject.countryName	Country Name	Required
Subject.publicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Non-Repudiation	Fixed
extKeyUsage	Document Signing E-Mail Protection	Required
CertificatePolicies	2.16.528.1.1003.1.2.3.2 0.4.0.19431.1.1.3 'eu-remote-qscd' EUSCP: EU SSASC Policy (ETSI TS 119 431-1)	Fixed Only included when QuoVadis generates & manages Private Keys on behalf of Subscriber on a QSCD.
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	MS UPN in the format: <unique identifier>@2.16.528.1.1003.1.3.3.3.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioburgerg3.crl	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioburgerg3.crt	Fixed
QC Statements	Id-etsi-qcs-QcCompliance { id-etsi-qcs 1 } 0.4.0.1862.1.1 Id-etsi-qct-eseal	Fixed

	{ id-etsi-qct-esign } 0.4.0.1862.1.6.1 Id-etsi-qcs-QcSSCD { id-etsi-qcs 4 } 0.4.0.1862.1.4 Id-etsi-qcs-QcPDS { id-etsi-qcs 5 } 0.4.0.1862.1.5	

Personal Citizen Encryption G3

Basic Contents	**Value**	**Demarcation**
Subject.commonName	Subject Common Name	Required
Subject.surname	Surname	Required
Subject.givenName	Given name	Required
Subject.serialNumber	Serial Number	Required
Subject.countryName	Country Name	Required
Subject.publicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Key Encipherment Data Encipherment	Fixed
extKeyUsage	Encrypting File System E-Mail Protection	Required
CertificatePolicies	2.16.528.1.1003.1.2.3.3	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.UserPrinciple Name (MS UPN)	MS UPN (in format: <unique identifier>@2.16.528.1.1003.1.3.3.3.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioburgerg3.crl	Fixed
AuthorityInfoAccess	http://ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioburgerg3.crt	Fixed

QuoVadis PKIoverheid Private Services CA - G1

Private Services – Authentication

Basic Contents	**Value**	**Demarcation**
Subject.CommonName	If FQDN it should be registered, else a name that identifies the server/service. Internal domain name allowed.	required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required

Basic Contents	Value	Demarcation
Subject.organisationalUnitName	OrganisationalUnitName	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit) / System Generated	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature	Fixed
extKeyUsage	Client Authentication Document Signing E-Mail Protection	Required
CertificatePolicies	2.16.528.1.1003.1.2.8.4	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	user@domain (used for Single Sign on)	Optional
subjectAltName.Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioprivservg1.crl	Fixed
AuthorityInfoAccess	http://sl.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioprivserv.crt	Fixed

Private Services – Encryption

Basic Contents	Value	Demarcation
Subject.CommonName	If FQDN it should be registered, else a name that identifies the server/service. Internal domain name allowed.	required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit) / System Generated	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Key Encipherment Data Encipherment	Fixed
extKeyUsage	Encrypting File System E-Mail Protection	Required
CertificatePolicies	2.16.528.1.1003.1.2.8.5	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing

Basic Contents	Value	Demarcation
subjectAltName.User Principle Name (MS UPN)	user@domain (used for Single Sign on)	Optional
subjectAltName.Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioprivservg1.crl	Fixed
AuthorityInfoAccess	http://sl.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioprivserv.crt	Fixed

Private Services – Server

Basic Contents	Value	Demarcation
Subject.CommonName	If FQDN it should be registered, else a name that identifies the server/service. Internal domain name allowed	Required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit) / System Generated	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature Key encipherment	Fixed
extKeyUsage	Client Authentication Server Authentication	Required
CertificatePolicies	2.16.528.1.1003.1.2.8.6	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.dNSname	If FQDN is used it must be in first SAN DNS field. Otherwise usage of this field is prohibited	Required/prohibited
subjectAltName.ipadress	Only public IP adresses	Optional
subjectAltName.Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioprivservg1.crl	Fixed
AuthorityInfoAccess	http://sl.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioprivserv.crt	Fixed

QuoVadis PKIoverheid Private Personen CA - G1

Private Personal Authentication

Basic Contents	**Value**	**Demarcation**
Subject.CommonName	CommonName	Required
Subject.givenname	Given Name	Required
Subject.surname	Surname	Required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required
Subject.OrganisationUnit	OrganisationUnitName	optional
Subject.CountryName	Country	Required
Subject.Title	Title	Optional
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature	Fixed
extKeyUsage	Client Authentication Document Signing E-Mail Protection	Required
CertificatePolicies	2.16.528.1.1003.1.2.8.1	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	user@domain (used for Single Sign on)	Optional
subjectAltName.User Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioprivpersg1.crl	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioprivpersg1.crt	Fixed

Private Personal Non-Repudiation

Basic Contents	**Value**	**Demarcation**
Subject.CommonName	CommonName	Required
Subject.givenname	Given Name	Required
Subject.surname	Surname	Required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional / Prohibited for Profession Certificates
Subject.title	Title	Optional

Basic Contents	**Value**	**Demarcation**
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage(CRITICAL)	Non-Repudiation	Fixed
extKeyUsage	Document Signing E-Mail Protection	Required/ optional
CertPolicyID	2.16.528.1.1003.1.2.8.2	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioprivpersg1.crl	Fixed
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioprivpersg1.crt	Fixed
QC Statements	Id-etsi-qcs-QcCompliance { id-etsi-qcs 1 } 0.4.0.1862.1.1 Id-etsi-qct-eseal { id-etsi-qct-esign } 0.4.0.1862.1.6.1 Id-etsi-qcs-QcSSCD { id-etsi-qcs 4 } 0.4.0.1862.1.4 Id-etsi-qcs-QcPDS { id-etsi-qcs 5 } 0.4.0.1862.1.5	Fixed

Private Personal Encryption

Basic Contents	**Value**	**Demarcation**
Subject.CommonName	CommonName	Required
Subject.givenname	Given Name	Required
Subject.surname	Surname	Required
Subject.SerialNumber	SerialNumber	Required
Subject.OrganisationName	OrganisationName	Required
Subject.organisationalUnitName	OrganisationalUnitName	Optional / Prohibited for Profession Certificates
Subject.title	Title	Optional
Subject.CountryName	Country	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Key Encipherment	Fixed

Basic Contents	Value	Demarcation
	Data Encipherment	
extKeyUsage	Encrypting File System E-Mail Protection	Required
CertificatePolicies	2.16.528.1.1003.1.2.8.3	Fixed
subjectAltName.Rfc822Name	Rfc822 email address	Optional - for e-mail signing
subjectAltName.User Principle Name (MS UPN)	MS UPN in the format: .<unique identifier>@2.16.528.1.1003.1.3.5.2.1	Required
CRLDistributionPoints	http://crl.quovadisglobal.com/pkioprivpersg1.crl	Required
AuthorityInfoAccess	http://uw.ocsp.quovadisglobal.com http://trust.quovadisglobal.com/pkioprivpersg1.crt	Fixed

PKIoverheid Domain CA 2020

Basic Contents	Value	Demarcation
Subject.CommonName	CommonName	Required
Subject.SerialNumber	SerialNumber	Optional
Subject.OrganisationName	OrganisationName	Required
Subject.CountryName	Country	Required
Subject.LocalityName	Town or City	Required
Subject.StateProvince	Province or State	Required
Subject.PublicKeyInfo	RSA (2048 bit)	Required
Extensions		**Fixed**
KeyUsage (CRITICAL)	Digital Signature Key Encipherment	Fixed
extKeyUsage	Client Authentication Server Authentication	Fixed
CertificatePolicies	Policy ID #1: 2.16.528.1.1003.1.2.5.9 Policy ID #2: 2.23.140.1.2.2 CPS URI: https://www.quovadisglobal.com/repository User Notice: Reliance on this certificate by any party assumes acceptance of the relevant QuoVadis Certification Practice Statement and other documents in the QuoVadis repository.	Fixed
subjectAltName.dnsname	Name identifying the server (FQDN)	Required

Basic Contents	Value	Demarcation
CRLDistributionPoints	http://crl.quovadisglobal.com/quovadispkioverheidserverca2020.crl	Fixed
AuthorityInfoAccess	http://trust.quovadisglobal.com/quovadispkioverheidserverca2020.crt OCSP: http//ocsp.quovadisglobal.com	