QuoVadis Root CA 2 / QuoVadis Root CA 2 G3

Certification Policy/ Certification Practice Statement

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Important Note About this Document

This document is the Certificate Policy/Certification Practice Statement (CP/CPS) of QuoVadis Limited (QuoVadis), a company of DigiCert, Inc. It contains an overview of the practices and procedures that QuoVadis employs for its operation as a Certification Authority (CA). This document is not intended to create contractual relationships between QuoVadis Limited and any other person. Any person seeking to rely on Certificates or participate within the QuoVadis PKI must do so pursuant to definitive contractual documentation. This document is intended for use only in connection with QuoVadis and its business.

This version of the CP/CPS has been approved for use by the QuoVadis Policy Management Authority (PMA) and is subject to amendment and change in accordance with the policies and guidelines adopted, from time to time, by the PMA and as otherwise set out herein. The date on which this version of the CP/CPS becomes effective is indicated on this CP/CPS. The most recent effective copy of this CP/CPS supersedes all previous versions. No provision is made for different versions of this CP/CPS to remain in effect at the same time.

This document covers aspects of the QuoVadis PKI under QuoVadis Root CA 2 and QuoVadis Root CA 2 G3. QuoVadis Root Certification Authority, QuoVadis Root CA 1 G3, QuoVadis Root CA 3, and QuoVadis Root CA 3 G3, and QuoVadis services for PKIoverheid operate under separate CP/CPS documents.

There are a number of instances where the legal and regulatory frameworks for Qualified Certificates under the Swiss, Dutch or EU Digital Signature regimes impose additional requirements. In these instances, this Document shows these differences either by indicating in the body of the text "For Qualified Certificates" or with the inclusion of a Text Box as shown below.

Provision relating to Qualified Certificates issued in accordance with Swiss regulations.

Provision relating to Qualified Certificates issued in accordance with Regulation (EU) No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market (the eIDAS Regulation).

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Version Control

Author	Date	Version	Comment
QuoVadis PMA	1 December 2006	1.0	Baseline for Root Ceremony
QuoVadis PMA	15 December 2006	1.5	Edits for EV compliance
QuoVadis PMA	28 December 2006	1.6	Formatting and corrections
QuoVadis PMA	12 January 2007	1.7	Corrections to cert policies
QuoVadis PMA	02 October 2007	1.8	v1 of EV Guidelines
QuoVadis PMA	27 May 2008	1.9	V1.1 of EV Guidelines
QuoVadis PMA	22 April 2010	1.10	EV Guidelines Errata and revised Certificate Holder Agreement
QuoVadis PMA	1 March 2012	1.11	Update of revocation reasons as well as changes to EV policies and prohibition of MITM
QuoVadis PMA	12 July 2012	1.12	Baseline Requirements
QuoVadis PMA	31 January 2013	1.13	Updates for SHA256 Roots
QuoVadis PMA	11 March 2014	1.14	Update for SHA256 Code Signing CA and update to physical controls Section
QuoVadis PMA	27 May 2014	1.15	Updates to links to QuoVadis Website and archive periods
QuoVadis PMA	5 August 2014	1.16	Addition of ICA certificate profiles
QuoVadis PMA	26 January 2015	1.17	Certificate Transparency
QuoVadis PMA	15 April 2015	1.18	Certification Authority Authorisation (CAA) policy
QuoVadis PMA	24 February 2017	1.19	Code Signing Minimum Requirements
QuoVadis PMA	8 May 2017	2.0	eIDAS Qualified Website Authentication Certificates.
QuoVadis PMA	3 July 2017	2.1	Updates to domain validation requirements
QuoVadis PMA	6 September 2017	2.2	Updates for CAA and submission of complaints.
QuoVadis PMA	31 January 2018	2.3	Updates for the Baseline Requirements and Mozilla Root Store Policy
QuoVadis PMA	30 July 2018	2.4	Updates for domain validation (CABF Ballot 218)
QuoVadis PMA	7 December 2018	2.5	Updates for the Baseline Requirements (including domain validation) and addition of ICA profiles.
QuoVadis PMA	7 June 2019	2.6	Updates for Baseline Requirements domain and IP address validation methodsChanges to CRL update.
QuoVadis PMA	20 June 2019	2.7	Included PSD2 QWAC (QCP-w-psd2) according to ETSI TS 119 495 and CABF Ballot SC17.

QuoVadis PMA	27 March, 2020	2.8	Changes to comply with Mozilla Root Store Policy v2.7, CA/B Forum Ballot SC25, revised Subscriber Agreement and Terms of Use, and changes to reflect policies and practices adopted from, and editorial conformity with, DigiCert where applicable.
QuoVadis PMA	25 August, 2020	2.9	Updates to domain validation and CAA methods. Reduction in TLS validity period. Update to revocation services information.
QuoVadis PMA	30 September, 2020	2.10	Updates to comply with CA/B Forum Ballots SC30, SC31, SC33; edits to Relying Party obligations, reporting for Key Compromise.

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1. INTRODUCTION

1.1. OVERVIEW

This Certificate Policy/Certification Practice Statement (CP/CPS) sets out the certification processes that QuoVadis Root CA2 uses in the generation, issue, use, and management of Certificates and serves to notify Subscribers and Relying Parties of their roles and responsibilities concerning Certificates. The term "QuoVadis Root CA2" applies to all generations of this Root.

QuoVadis ensures the integrity of its Public Key Infrastructure (PKI) operational hierarchy by binding Participants to contractual agreements. This CP/CPS is not intended to create a contractual relationship between QuoVadis and any Participant in the QuoVadis PKI. Any person seeking to rely on Certificates or participate within the QuoVadis PKI must do so pursuant to definitive contractual documentation.

QuoVadis issues four forms of Certificates according to the terms of this CP/CPS:

i) Business SSL Certificates are Organisation Validated (OV) Certificates for which limited authentication and authorisation checks are performed on the Subscriber and the individuals acting for the Subscriber.

ii) Extended Validation SSL Certificates are issued in compliance with the EV Guidelines published by the CA/Browser Forum. The EV Guidelines are intended to provide enhanced assurance of identity of the Subscriber by enforcing uniform and detailed validation procedures across all EV-issuing CAs.

iii) Qualified Website Authentication Certificates (QWAC) (QCP-w) are issued in compliance with Regulation (EU) No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market (the "eIDAS Regulation"). QuoVadis is a Qualified Trust Service Provider (TSP) listed on the Trusted List for the Netherlands and for Belgium.

iv) Code Signing Certificates are Certificates issued in compliance with the Code Signing Minimum Requirements, including identification of the Certificate subject by a verified organization name and Certificate revocation for any misrepresentation or publication of malicious code.

QuoVadis Certificates comply with Internet standards (x509 v.3) as set out in RFC 5280. This CP/CPS follows the IETF PKIX RFC 3647 framework with 9 Sections that cover practices and procedures for identifying Certificate applicants; issuing and revoking Certificates; and the security controls related to managing the physical, personnel, technical, and operational components of the CA infrastructure. To preserve the outline specified by RFC 3647, some Sections will have the statement "Not applicable" or "No Stipulation."

In addition a *QuoVadis PKI Disclosure Statement,* which summarises information about the QuoVadis PKI, may be found in the QuoVadis Repository.

Where applicable, QuoVadis conforms to the current version of:

- CA/Browser Forum Baseline Requirements for the Issuance and Management of Publicly-Trusted Certificates ("Baseline Requirements") published at http://www.cabforum.org;
- CA/Browser Forum Guidelines for the Issuance and Management of Extended Validation Certificates ("EV Guidelines");
- Minimum Requirements for the Issuance and Management of Publicly Trusted Code Signing Certificates ("Code Signing Minimum Requirements") published at https://aka.ms/csbr; and
- For QCP-w Certificates, ETSI EN 319 411-1 and ETSI EN 319 411-2, as well as ETSI TS 119 495 for QCP-w-PSD2.

In the event of any inconsistency between this CP/CPS and those Requirements, those Requirements take precedence over this document.

1.2. DOCUMENT NAME AND IDENTIFICATION

This document is the QuoVadis Root CA2 CP/CPS which was adopted by the QuoVadis Policy Management Authority (PMA). The Object Identifier (OID) assigned to QuoVadis Root CA2/ QuoVadis Root CA 2 G3 is 1.3.6.1.4.1.8024.0.2.

Separate policy documents in the QuoVadis Repository apply to QuoVadis Certificates signed by the following Root CAs:

- QuoVadis Root Certification Authority/QuoVadis Root CA 1 G3 (OID 1.3.6.1.4.1.8024.0.1) and QuoVadis Root CA 3/QuoVadis Root CA 3 G3 (OID 1.3.6.1.4.1.8024.0.3)
- Netherlands PKIoverheid
- QuoVadis Private PKI / Trust Anchor Root CA (OID 1.3.6.1.4.1.8024.0.4)

QuoVadis also operates Time-stamping Authority (TSA) services under a separate QuoVadis Time-Stamp Policy/Practice Statement (OID 1.3.6.1.4.1.8024.0.2000.6).

1.3. PKI PARTICIPANTS

1.3.1. Certification Authorities

The following OIDs are pertinent to this CP/CPS:

QuoVadis Root CA2/ QuoVadis Root CA 2 G3	1.3.6.1.4.1.8024.0.2	
QuoVadis Business SSL	1.3.6.1.4.1.8024.0.2.100.1.1	Asserts compliance with the Baseline Requirements
QuoVadis EV SSL	1.3.6.1.4.1.8024.0.2.100.1.2	Asserts compliance with the EV Guidelines
QuoVadis Code Signing	1.3.6.1.4.1.8024.0.2.200.1.1	Asserts compliance with the Code Signing Minimum Requirements
QuoVadis QCP-w	0.4.0.194112.1.4	Qualified Web Authentication Certificate (QWAC)
QuoVadis PSD2	0.4.0.19495.3.1	QWAC for PSD2
HydrantID (Avalanche Cloud Corporation)	1.3.6.1.4.1.8024.0.3.900.0	

QuoVadis operates certification authorities (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 must not be used for Man in the Middle (MITM) purposes or for the traffic management of domain names or IP addresses that the entity does not own or control.

External Issuing CAs chaining to a publicly-trusted QuoVadis Root must either be technically constrained, or undergo an independent audit and be publicly disclosed in the QuoVadis Repository.

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 the QuoVadis CP/CPS. QuoVadis contractually obligates each RA and delegated third party to abide by the policies and industry standards that are applicable to their responsibilities. Validation of Domains and IP Addresses for TLS and of email addresses included in Certificate Subject fields cannot be delegated.

Third parties, who enter into a contractual relationship with QuoVadis, may act as Enterprise RAs (ERAs) and authorise the issuance of Certificates by QuoVadis for Organisations and Domains that have been pre-authenticated by QuoVadis. ERAs must abide by all the requirements of this CP/CPS and the terms of their services agreement with QuoVadis.

See also Section 9.6.2.

1.3.3. Subscribers

Subscribers use QuoVadis' services and PKI to support transactions and communications. Subscribers under this CP/CPS include all end users (including entities) of Certificates issued by an Issuer CA. A Subscriber is the entity named as the end-user Subscriber of a certificate. End-user Subscribers may be individuals, organisations or, infrastructure components such as firewalls, routers, trusted servers or other devices used to secure communications within an organisation.

Subscribers are not always the party identified in a Certificate. The *Subject* of a Certificate is the party named in the Certificate. A Subscriber, as used herein, may refer to the Subject of the Certificate and the entity that contracted with QuoVadis for the Certificate's issuance, or the individual responsible for requesting and a Certificate on a trusted system. Prior to verification of identity and issuance of a Certificate, a Subscriber is an *Applicant*.

Subscribers are required to act in accordance with this CP/CPS and Subscriber Agreement. *See* also Section 9.6.3.

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 CP/CPS and the Relying Party Agreement. *See* also Section 9.6.4.

1.3.5. Other Participants

Other Participants in the QuoVadis PKI are required to act in accordance with this CP/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' Certificates and related information in connection with the accreditation.

1.4. CERTIFICATE USAGE

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

1.4.1. Appropriate Certificate Uses

Certificates issued pursuant to this CP/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 CP/CPS.

1.4.2. Prohibited Certificate Usage

Certificates do not guarantee that the Subject is trustworthy, honest, reputable in its business dealings, safe to do business with, or compliant with any laws. A Certificate only establishes that the information in the Certificate was verified in accordance with this CP/CPS when the Certificate was issued. Code signing Certificates do not indicate that the signed code is safe to install or free from malware, bugs, or vulnerabilities.

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 CP/CPS

This CP/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 CP/CPS should be addressed to the QuoVadis PMA.

Policy Director
QuoVadis Limited
11 Bermudiana Road, Suite 1640
Hamilton HM-08, Bermuda

Website: https://www.quovadisglobal.com
Electronic mail: compliance@quovadisglobal.com
Customer complaints: qvcomplaints@digicert.com

1.5.2.1. Revocation Reporting Contact Person

QuoVadis provides additional information for entities requiring assistance with revocation or an investigative report at https://www.quovadisglobal.com/certificate-revocation. *See* also Section 4.9.2.

As of 15 Oct 2020, requests that Certificates be revoked due to keyCompromise must be submitted at https://problemreport.digicert.com/key-compromise providing the information outlined in Section 4.9.

For other types of revocation requests, and for keyCompromise reporting before 15 Oct 2020, please email compliance@quovadisglobal.com.

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 CP/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.

1.5.3. Person Determining The CP/CPS Suitability

The QuoVadis PMA determines the suitability and applicability of this CP/CPS based on the results and recommendations received from an independent auditor. The PMA is also responsible for evaluating and acting upon the results of compliance audits.

1.5.4. CP/CPS Approval Procedures

Approval of this CP/CPS and any amendments hereto is by the QuoVadis PMA. Amendments may be made by updating this entire document or by addendum. The QuoVadis PMA, at its sole discretion, determines whether changes to this CP/CPS require notice or any change in the OID of a Certificate issued pursuant to this CP/CPS. *See* also Section 9.10 and Section 9.12.

1.6. DEFINITIONS AND ACRONYMS

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

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

Authorisation Number: A unique identifier of a Payment Service Provider acting as the Subscriber for PSD2 Certificates. The Authorisation Number is used and recognized by the NCA.

Authorisation Domain Name: The Domain Name used to obtain authorisation for certificate issuance for a given FQDN as defined by the Baseline Requirements.

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 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.

National Competent Authority: A national authority responsible for payment services. The NCA approves or rejects Authorisations for Payment Service Providers in its country.

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.

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 an TLS 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 Subordinate CA Certificate which uses a combination of Extended Key Usage settings and Name Constraint settings to limit the scope within which the Subordinate CA Certificate may issue Subscriber or additional Subordinate CA Certificates.

Acronyms

AND	Authorisation Domain Name
ALPN	TLS Application-Layer Protocol Negotiation (ALPN) Extension [RFC7301] as defined in RFC 8737
CA	Certificate Authority or Certification Authority
CAA	Certificate Authority Authorisation
CP/CPS	Certificate Policy & Certification Practice Statement
CRL	Certificate Revocation List
CSR	Certificate Signing Request
CT	Certificate Transparency
eIDAS	Regulation (EU) N°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
IGTF	International Grid Trust Federation

ITU	International Telecommunication Union
ERA	Enterprise Registration Authority
LRA	Local Registration Authority
NCA	National Competent Authority
OCSP	Online Certificate Status Protocol
OID	Object Identifier
PKI	Public Key Infrastructure
PKIX	IETF Working Group on Public Key Infrastructure
PKCS	Public Key Cryptography Standard
PMA	QuoVadis Policy Management Authority
Portal	Certificate Management System
PSD2	Payment Services Directive - Directive (EU) 2015/2366
PSP	Payment Service Provider
QWAC	Qualified Website Authentication Certificate
RA	Registration Authority
SSL	Secure Sockets Layer
TLS	Transaction Layer Security
UTC	Coordinated Universal Time
X.509	The ITU-T standard for Certificates and their corresponding authentication framework

1.6.1. References

This CP/CPS describes the practices used to comply with the current versions of the following policies, standards, and requirements:

Standards / Law	
WebTrust	WebTrust Principles and Criteria for Certification Authorities WebTrust Principles and Criteria for Certification Authorities – SSL Baseline with Network Security WebTrust for Certification Authorities – Extended Validation SSL WebTrust for Certification Authorities – Publicly Trusted Code Signing Certificates
ESI ("Directive")	Electronic Signatures and Infrastructures (ESI) regulations from EU Telecommunication Standards Institute (ETSI)
ETSI EN 319 401	General Policy Requirements for Trust Service Providers
ETSI EN 319 411-1	Policy and security requirements for Trust Service Providers issuing certificates; Part 1: General Requirements
ETSI EN 319 411-2	Policy and security requirements for Trust Service Providers issuing certificates; Part 2: Requirements for trust service providers issuing EU qualified certificates
ETSI EN 319 421	Policy and Security Requirements for Trust Service Providers issuing Electronic Time-Stamps

Standards / Law	
ETSI EN 319 412-1	Certificate Profiles; Part 1: Overview and common data structures
ETSI EN 319 412-2	Certificate Profiles; Part 2: Certificate profile for certificates issued to natural persons
ETSI EN 319 412-3	Certificate Profiles; Part 3: Certificate profile for certificates issued to legal persons
ETSI EN 319 412-5	Certificate Profiles; Part 5: QCStatements
ETSI EN 319 422	Time stamping protocol and electronic time-stamp profiles
EUGridPMA	Accredited CA by the EU Policy Management Authority for Grid Authentication in e-Science (EUGridPMA).
PKIoverheid	Accredited Certification Service Provider under PKIoverheid. PKIoverheid is the name for the PKI designed for trustworthy communication within and with the Dutch Government.
Bermuda Authorised Certificate Service Provider	As defined in Bermuda's Electronic Transactions Act 1999
Application Software Vendor	Adobe Approved Trust List Technical Requirements, v.2.0 Apple Root Store Program Microsoft Trusted Root Store (Program Requirements) Mozilla Root Store Policy v.2.7 Chromium Project Root Store Certificate Policy

2. PUBLICATION AND REPOSITORY RESPONSIBILITIES

2.1. REPOSITORIES

QuoVadis provides public repositories for its CA Certificates, revocation data for issued Certificates, CP/CPS and other important policy documents. The QuoVadis legal repository for most services is located at https://www.quovadisglobal.com/repository.

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

QuoVadis' CA Certificates, CRLs and OCSP responses are regularly accessible online with systems described in Section 5.

2.2. PUBLICATION OF CERTIFICATE INFORMATION

QuoVadis publishes a Repository that lists all Certificates that have been issued or revoked. The location of the Repository and OCSP responders are given in the individual Certificate Profiles more fully disclosed in Appendix A and Appendix B to this CP/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 CP/CPS at least annually to describe how QuoVadis meets the requirements of standards referred to in Sections 1.1 and 1.6.3 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 CP/CPS

New or modified versions of the CP/CPS and other policies are typically published within seven days after their approval.

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

All Subscribers require a distinguished name that complies with the ITU X.500 standard for Distinguished Names (DN). The QuoVadis PMA approves naming conventions for the creation of distinguished names for Issuing CA applicants. Different naming conventions may be used by different Issuing CAs.

For Certificates issued under the Baseline Requirements, the use of Internal Server Names and Reserved IP Addresses is prohibited, and the FQDN or authenticated domain name is placed in the Common Name (CN) attribute of the Subject field and/or the Subject Alternative Name extension. Wildcard TLS Certificates have a wildcard asterisk character for the server name in the Subject field. Wildcard EV Certificates may not be issued under the EV Guidelines.

The Distinguished Names of a Code Signing Certificate must identify the legal entity that intends to have control over the use of the Private Key when signing code.

3.1.2. Need For Names To Be Meaningful

QuoVadis uses Distinguished Names that identify both the entity (i.e. person, organisation, device, or object) that is the subject of the Certificate and the entity that is the issuer of the Certificate. QuoVadis only allows directory information trees that accurately reflect organisation structures.

3.1.3. Pseudonymous Subscribers

QuoVadis does not issue anonymous or pseudonymous Certificates under this CP/CPS for Internationalised Domain Names (IDN), QuoVadis may include the Punycode version of the IDN as a Subject Name

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

Unless otherwise specifically stated in this CP/CPS, QuoVadis does not verify an Applicant's right to use a trademark and does not resolve trademark disputes. QuoVadis may reject any application or require revocation of any Certificate that is part of a trademark dispute.

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 in compliance with this CP/CPS. QuoVadis may refuse to issue a Certificate in its sole discretion.

3.2.1. Method To Prove Possession Of Private Key

Issuing CAs shall establish that each Applicant for a Certificate is in possession and control of the Private Key corresponding to the Public Key contained in the request for a Certificate. The Issuing CA shall do so in accordance with an appropriate secure protocol, such as the IETF PKIX Certificate Management Protocol, including PKCS#10. If any doubt exists, QuoVadis will not perform certification of the key.

3.2.2. Authentication Of Organisation Identity

Authentication of Organisation identity is conducted in compliance with this CP/CPS and the Certificate Profiles detailed in Appendix B.

3.2.2.1. Validation of Domain 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) 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)

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

iii) 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;

iv) 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 Sections 3.2.2.5 and 3.2.2.4.8;

v) 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;

vi) 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 utilizing 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;

vii) 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 and then receiving a confirming response utilizing the Random Value, performed in accordance with BR Section 3.2.2.4.14;

viii) 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;

ix) 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.

x) 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 ADN being verified and a confirming response is provided for each domain. Performed in accordance with BR Section 3.2.2.4.17;

xi) 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; and

xii) 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. This method is suitable for validating Wildcard Domain Names; or

xiii) 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. This method is NOT suitable for validating Wildcard Domain Names.

QuoVadis and its Issuing CAs verify 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 using one of the following procedures, which may not be delegated:

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.

QuoVadis may include the Legal Entity Identifier (LEI) numbers in Certificates after verification through appropriate mechanisms, such as provided by Global Legal Entity Identifier Foundation (GLEIF), that the LEI is associated with the Subject. LEI lookups are not relied upon by QuoVadis as a primary source of information for verification and this information is treated as additional correlation of identity information found in the certificate.

3.2.2.2. Authentication for an IP Address

For each IP Address listed in a publicly-trusted TLS 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 utilizing 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) Confirming the Applicant's control over the IP Address by calling the IP Address Contact's phone number, as identified by the IP Address Registration Authority, 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;

v) 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

vi) 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.

3.2.2.3. Wildcard Domain Validation

Before issuing a Certificate with a wildcard character (*) in a CN or subjectAltName of type DNS-ID, QuoVadis programmatically enforces that the wildcard character occurs in the first label position to the left of a "registry-controlled" label or "public suffix".

3.2.2.4. Verification of Country

If the Applicant requests a publicly-trusted TLS Certificate that will contain the countryName field and other Subject Identity Information, then QuoVadis verifies the identity of the Applicant, and the authenticity of the Applicant Representative's certificate request using a verification process meeting the requirements of Section 3.2.2.1 in the CA/Browser Forum's Baseline Requirements and this Section. QuoVadis inspects any document relied upon for alteration or falsification.

3.2.3. SectionAuthentication Of Individual Identity

Where applicable, authentication of Individual identity is conducted in compliance with this CP/CPS and the Certificate Profiles detailed in Appendix B. TLS Certificates are only issued to Organisations and not natural persons. Procedures for QCP-w Certificates require the physical presence (or equivalent) of an authorised representative of the Applicant legal entity.

3.2.4. Non-Verified Subscriber Information

QuoVadis does not verify information contained in the Organisation Unit (OU) field in Certificates. Other information may be designated as non-verified according to the Certificate Profile or relevant industry standards. As of August 31, 2020 QuoVadis does not include OU fields in TLS Certificates.

3.2.5. Validation Of Authority

Validation of authority is conducted in compliance with this CP/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.

For Certificates issued at the request of a Subscriber's Agent, both the Agent and the Subscriber shall jointly and severally indemnify and hold harmless QuoVadis, and its parent companies, subsidiaries, directors, officers, and employees. The Subscriber shall control and be responsible for the data that an Agent of the Subscriber supplies to QuoVadis. The Subscriber must promptly notify QuoVadis of any misrepresentations and omissions made by an Agent of the Subscriber.

3.2.6. Criteria for Interoperation

QuoVadis may provide interoperation services to certify a non-QuoVadis CA, allowing it to interoperate with the QuoVadis PKI. In order for such interoperation services to be provided the following criteria must be met:

- QuoVadis will perform due diligence on the CA;
- A formal contract must be entered into with QuoVadis, which includes a 'right to audit' clause; and

- The CA must operate under a CPS that meets QuoVadis requirements.

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. 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

QuoVadis does not allow re-key after revocation. To re-key a revoked Certificate, the Subscriber must undergo the initial Identification and Authentication process prior to re-keying the Certificate.

3.4. IDENTIFICATION AND AUTHENTICATION FOR REVOCATION REQUESTS

See Section 4.9 for information about Certificate Revocation procedures. All revocation requests are authenticated by QuoVadis or the RA responsible for issuing the Certificate.

4. CERTIFICATE LIFE-CYCLE OPERATION REQUIREMENTS

4.1. CERTIFICATE APPLICATION

4.1.1. Who Can Submit A Certificate Application

The process to apply for QuoVadis Certificates varies by Certificate Policy and is described in Appendix B. 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 United States prohibit doing business.

QuoVadis maintains an internal database of previously revoked Certificates and previously rejected certificate requests. QuoVadis uses this information to identify subsequent suspicious certificate requests .

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 CP/CPS, ii) secure generation of KeyPair and delivery of the Public Key to QuoVadis, iii) acceptance of the relevant Subscriber Agreement or other terms of use upon which the Certificate is to be issued, iv) and payment of fees. All applications are subject to review, approval, and acceptance by the Issuing CA in its discretion.

A certificate request may be used for multiple Certificates to be issued to the same Applicant, (subject to the updating requirement in Section 4.2.1 of the Baseline Requirements for publicly-trusted TLS). The certificate request contains a request from, or on behalf of, the Applicant for the issuance of a Certificate, and a certification by, or on behalf of, the Applicant that all of the information contained therein is correct.

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

4.2. CERTIFICATE APPLICATION PROCESSING

4.2.1. Performing Identification And Authentication Functions

After receiving a certificate application, QuoVadis or an RA follows a documented procedure to verify the application and other information in accordance with the Identification and Authentication requirements for each Certificate Profile. *See* also Appendix B.

In cases where the certificate request does not contain all the necessary information about the Applicant, QuoVadis or the RA obtains the remaining information from the Applicant or, having obtained it from a reliable, independent third-party data source, confirm it with the Applicant.

For publicly-trusted TLS Certificates, Applicant information is required to include at least one FQDN or IP address to be included in the Certificate's SubjectAltName extension. QuoVadis implements documented procedures that require additional verifications as reasonably necessary for High Risk Certificate Requests prior to the Certificate's approval.

QuoVadis considers a source's availability, purpose, and reputation when determining whether a third-party data 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.

4.2.1.1. 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 unrecognised property is found with the critical flag.

CAA checking is optional for Certificates issued by a Technically Constrained Issuing CA as set out in Baseline Requirements Section 7.1.5, or 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 "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).

4.2.2. Approval Or Rejection Of Certificate Applications

After receiving a Certificate Application, QuoVadis or an RA verifies the application information and other information in accordance with this CP/CPS.

If an RA (including an Enterprise RA) assists in the verification, the RA must create and maintain records sufficient to establish that it has performed its required verification tasks. After verification is complete, QuoVadis Validation Specialists evaluate the corpus of information and decides whether or not to approve issuance.

Approval for EV requires two QuoVadis Validation Specialists. The second validation specialist cannot be the same individual who collected the documentation and originally approved the EV Certificate.

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 reasons for such a refusal.

Rejected Applicants may re-apply. Subscribers are required to check the Certificate's contents for accuracy prior to using the Certificate.

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. Upon the receipt of the necessary details and documentation, QuoVadis aims to complete the validation process and issue or reject a Certificate Application within three working days. Events outside of the control of QuoVadis may delay the issuance process.

4.3. SECTIONCERTIFICATE ISSUANCE

4.3.1. CA Actions During Certificate Issuance

Certificate issuance is governed by the practices described in and any requirements imposed by this CP/CPS. QuoVadis does not issue end entity TLS Certificates directly from its Root Certificates.

Certificate issuance by a Root CA requires a trusted role authorized by QuoVadis (i.e. the CA system operator, system officer, or PKI administrator) to deliberately issue a direct command in order for the Root CA to perform a Certificate signing operation. Databases and CA processes occurring during Certificate issuance are protected from unauthorised modification. After issuance is complete, the Certificate is stored in a database and sent to the Subscriber.

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 CP/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

Issuing CAs and RAs within the QuoVadis PKI may choose to notify other entities of Certificate issuance.

4.5. KEY PAIR AND CERTIFICATE USAGE

4.5.1. Subscriber Private Key And Certificate Usage

The Certificate shall be used lawfully in accordance with the QuoVadis CP/CPS and Subscriber Agreement.

Subscribers are obligated to protect their Private Keys from unauthorised use or disclosure, discontinue using a Private Key after expiration or revocation of the associated Certificate, and use Certificates in accordance with their intended purpose.

4.5.2. Relying Party Public Key And Certificate Usage

A Party seeking to rely on a Certificate issued within the QuoVadis PKI agrees to and accepts the Relying Party Agreement. 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 CP/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 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

Certificates may be re-keyed upon request. After re-keying a Certificate, QuoVadis may revoke the old Certificate but may not further re-key, renew, or modify the previous Certificate. Subscribers requesting re-key should identify and authenticate themselves as permitted by Section 3.3.1.

4.7.2. Who May Request Re-Key

QuoVadis will accept re-key requests from the Subject of the Certificate, an authorised representative for an Organisational certificate, or the nominating RA. QuoVadis may initiate a certificate re-key at the request of the Certificate Subject or at QuoVadis' own discretion.

4.7.3. Processing Certificate Re-Key Request

If the Private Key and any identity and domain information in a Certificate have not changed, then QuoVadis may issue a replacement Certificate using a previously issued Certificate or previously provided CSR. QuoVadis may re-use existing verification and authentication information in accordance with Section 3.3 unless QuoVadis believes that the information has become inaccurate.

4.7.4. Notification of Certificate Re-Key To Subscriber

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

4.7.5. Conduct Constituting Acceptance Of A Re-Key Certificate

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

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

QuoVadis publishes a re-keyed Certificate by delivering it to the Subscriber.

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

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

4.8. CERTIFICATE MODIFICATION

4.8.1. Circumstances For Certificate Modification

Modifying a Certificate means creating a new Certificate for the same Subject with authenticated information that differs slightly from the old Certificate (e.g., changes to email address or non-essential parts of names or attributes) provided that the modification otherwise complies with this CP/CPS. The new Certificate may have the same or a different subject Public KeyModified information must undergo the same Identification and Authentication procedures as for a new Certificate.

4.8.2. Who May Request Certificate Modification

QuoVadis modifies Certificates at the request of certain Certificate Subjects or in its own discretion. QuoVadis does not make certificate modification services available to all Subscribers.

4.8.3. Processing Certificate Modification Requests

After receiving a request for modification, QuoVadis verifies any information that will change in the modified Certificate. QuoVadis will only issue the modified Certificate after completing the verification process on all modified informationRAs are required to perform Identification and Authentication of all modified Subscriber information in accordance with the requirements of the applicable Certificate Profile.

4.8.4. Notification Of Certificate Modification To Subscriber

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

4.8.5. Conduct Constituting Acceptance Of A Modified Certificate

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

4.8.6. Publication Of The Modified Certificate By The CA

QuoVadis publishes modified Certificates by delivering them to Subscribers.

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

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

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 CP/CPS. Other parties may submit Certificate Problem Reports to QuoVadis to report reasonable cause to revoke the Certificate. Issuing CAs are required to provide evidence of the revocation authorisation to QuoVadis upon request.

4.9.1. Circumstances For Revocation

QuoVadis will revoke a Certificate within 24 hours after receipt and confirming one or more of the following occurred:

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

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

iii) QuoVadis obtains evidence that the Subscriber's Private Key corresponding to the Public Key in the Certificate suffered a Key Compromise; or

iv) 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.

v) The NCA requests revocation for a PSD2 Certificate where the Subscriber (PSP) has lost its authorisation to act as a PSP or any PSP role in the Certificate has been removed;

QuoVadis may revoke a Certificate within 24 hours and will revoke a Certificate within 5 days after receipt and confirming that one or more of the following occurred:

i) QuoVadis obtains evidence that the Certificate was misused and/or used outside the intended purpose as indicated by the relevant agreement;

ii) The Subscriber breached a material obligation under the CP/CPS or the relevant agreement

iii) QuoVadis confirms any circumstance indicating that use of a FQDN, IP address, or email 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 relevant licensing or services agreement between the Domain Name registrant and the Applicant has terminated, or the Domain Name registrant has failed to renew the Domain Name);

iv) For code signing, the Application Software Vendor requests revocation and QuoVadis does not intend to pursue an alternative course of action;

v) For code signing, the Certificate is being used to sign Suspect Code;

vi) QuoVadis confirms that a Wildcard Certificate has been used to authenticate a fraudulently misleading subordinate FQDN;

vii) QuoVadis confirms a material change in the information contained in the Certificate;

viii) QuoVadis confirms that the Certificate was not issued in accordance with the CA/Browser forum requirements or relevant browser policy;

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

x) QuoVadis right to issue Certificates under the CA/Browser Forum requirements expires or is revoked or terminated, unless QuoVadis has made arrangements to continue maintaining the CRL/OCSP Repository;

xi) Revocation is required by the QuoVadis CP/CPS;

xii) QuoVadis confirms 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, see http://wiki.debian.org/SSLkeys), or if there is clear evidence that the specific method used to generate the Private Key was flawed; or

xiii) Where the Subscriber becomes unsuitable or unauthorised to hold a Certificate on behalf of an employer or its respective Subsidiaries, Holding Companies or Counterparties.

QuoVadis may revoke any Certificate in its sole discretion, including if QuoVadis believes that:

i) Either the Subscriber or QuoVadis obligations under the CP/CPS are delayed or prevented by circumstances beyond the party's reasonable control, including computer or communication failure, and, as a result, another entity's information is materially threatened or compromised;

ii) QuoVadis received a lawful and binding order from a government or regulatory body to revoke the Certificate;

iii) The Subscriber is confirmed to be bankrupt, in liquidation, or deceased;

iv) QuoVadis ceased operations and did not arrange for another CA to provide revocation support for the Certificates;

v) The technical content or format of the Certificate presents an unacceptable risk to Application Software Suppliers, Relying Parties, or others;

vi) The Subscriber was added as a denied party or prohibited person to a blacklist or is operating from a destination prohibited under the laws of the United States;

vii) For Adobe Signing Certificates, Adobe has requested revocation; or

viii) For code-signing Certificates, the Certificate was used to sign, publish, or distribute malware, code that is downloaded without user consent, or other harmful content.

ix) QuoVadis receives notice or otherwise becomes aware that there has been some other modification of the information pertaining to the Subscriber that is contained within the Certificate;

x) The Subscriber fails or refuses to comply, or to promptly correct inaccurate, false or misleading information after being made aware of such inaccuracy, misrepresentation or falsity;

QuoVadis always revokes a Certificate if the binding between the subject and the subject's Public Key in the Certificate is no longer valid or if an associated Private Key is compromised.

QuoVadis will revoke an Issuing CA Certificate within seven (7) days after receipt and confirming one or more of the following occurred:

i) The Issuing CA requests revocation in writing;

ii) The Issuing CA notifies QuoVadis that the original Certificate Request was not authorised and does not retroactively grant authorisation;

iii) QuoVadis obtains evidence that the Issuing CA's Private Key corresponding to the Public Key in the Certificate suffered a key compromise or no longer complies with the requirements of Sections 6.1.5 and 6.1.6 of the CA/Browser Forum Baseline Requirements or any Section of the Mozilla Root Store policy;

iv) QuoVadis obtains evidence that the CA Certificate was misused and/or used outside the intended purpose as indicated by the relevant agreement;

v) QuoVadis confirms that the CA Certificate was not issued in accordance with or that Issuing CA has not complied with the CP/CPS;

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

vii) QuoVadis or the Issuing CA ceases operations for any reason and has not made arrangements for another CA to provide revocation support for the CA Certificate;

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

ix) Revocation is required by the QuoVadis CP/CPS; or

x) The technical content or format of the CA Certificate presents an unacceptable risk to Application Software Vendors or Relying Parties.

In the event that an Issuing CA determines that its Certificates or the QuoVadis PKI could become compromised and that revocation of Certificates is in the interests of the PKI, following remedial action, QuoVadis may authorise the reissue of Certificates to Subscribers at no charge, unless the actions of the Subscribers were in breach of the QuoVadis CP/CPS or other contractual documents.

4.9.2. Who Can Request Revocation

Any appropriately authorised party, such as a recognised representative of a Subscriber or RA, may request revocation of a Certificate. QuoVadis may revoke a Certificate without receiving a request and without reason. Third parties may request Certificate revocation for problems related to fraud, misuse, or compromise. Certificate revocation requests must identify the entity requesting revocation and specify the reason for revocation.

QuoVadis provides Anti-Malware Organisations, Subscribers, Relying Parties, Application Software Vendors, and other third parties (such as a National Competent Authority that issued the Authorisation Number in a

PSD2 Certificate) with clear instructions on how they can report suspected Private Key compromise, Certificate misuse, Certificates used to sign Suspect Code, Takeover Attacks, or other types of possible fraud, compromise, misuse, inappropriate conduct, or any other matter related to Certificates at https://www.quovadisglobal.com/certificate-revocation and other resources listed in Section 1.5.2.1.

4.9.3. Procedure For Revocation Request

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 authorised party, QuoVadis revokes the Certificate based on the timeframes listed in 4.9.1 as listed for the reason for revocation.

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

- the nature of the alleged problem;
- the number of reports received about a particular Certificate or website;
- the identity of the complainants (for example, complaints from a law enforcement official that a web site is engaged in illegal activities have more weight than a complaint from a consumer alleging they never received the goods they ordered); and
- relevant legislation.

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

In the case of a PSD2 Certificate, the NCA identified in the Certificate may request revocation by contacting psd2@quovadisglobal.nl. NCA revocation requests are authenticated using either a previously communicated shared secret, or use of a Digital Signature supported by Qualified Certificate issued to the NCA.

QuoVadis maintains a continuous 24x7 ability to internally respond to high priority revocation requests and certificate problem reports at https://www.quovadisglobal.com/certificate-revocation and other resources listed in Section 1.5.2.1. Subscribers may also revoke their Certificates via the QuoVadis Portal.

4.9.4. Revocation Request Grace Period

Subscribers are required to request revocation within one day after detecting the loss or compromise of the Private Key. No grace period is permitted once a revocation request has been verified. QuoVadis will revoke Certificates as soon as reasonably practical following verification of a revocation request.

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

QuoVadis will revoke a CA Certificate within one hour after receiving clear instructions from the PMA.

Within 24 hours after receiving a Certificate problem report or revocation request, 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.

After reviewing the facts and circumstances, QuoVadis works with the Subscriber and any entity reporting the Certificate problem report or other revocation-related notice to establish whether or not the Certificate will be revoked, and if so, a date which DigiCert will revoke the Certificate. The period from receipt of the Certificate problem report or revocation-related notice to published revocation must not exceed the time frame set forth in Section 4.9.1. The date selected by QuoVadis will consider the following criteria:

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

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

iii) The number of Certificate problem reports received about a particular Certificate or Subscriber;

iv) The entity making the complaint (for example, a complaint from a law enforcement official that a Web site is engaged in illegal activities should carry more weight than a complaint from a consumer alleging that she didn't receive the goods she ordered); and

v) Relevant legislation.

Under normal operating circumstances, QuoVadis will revoke Certificates as quickly as practical after validating the revocation request following the guidelines of this Section and Section 4.9.1. For Certificates containing the ETSI OIDs the maximum delay between the receipt of the revocation request and the update of the Certificate Status information is at most 24 hours. For

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.

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". 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".

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

Not applicable.

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 KeyQuoVadis will select the CRLReason code "keyCompromise" (value 1) upon discovery of such reason or as required by an applicable CP/CPS. Should a CA Private Key become compromised, QuoVadis shall revoke all Certificates issued by that CA.

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 CP/CPS.

4.9.13. Circumstances For Suspension

The QuoVadis PKI does not support suspension of Certificates.

4.9.14. Who Can Request Suspension

The QuoVadis PKI does not support suspension of Certificates.

4.9.15. Procedure For Suspension Request

The QuoVadis PKI does not support suspension of Certificates.

4.9.16. Limits On Suspension Period

The QuoVadis PKI does not support suspension of Certificates.

4.10. CERTIFICATE STATUS SERVICES

4.10.1. Operational Characteristics

Certificate status information is available via CRL and OCSP responder. For publicly-trusted TLS 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 continuous 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.

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

4.12.1. Key Archival Escrow And Recovery Policy And Practices

This CP/CPS does not support key escrow or recovery of Subscriber Private Keys.

4.12.2. Session Key Encapsulation And Recovery Policy And Practices

Not applicable.

5. FACILITY, MANAGEMENT, AND OPERATIONAL CONTROLS

The Section of the CP/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 performs its CA and TSA operations from secure datacentres located in Bermuda, the Netherlands, and Switzerland. The datacentres 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's operations.

5.1.2. Physical Access

QuoVadis permits entry to its secure datacentre only to security-cleared and authorised personnel, whose movements within the facility are logged and audited. A police background check forms part of the security clearance authorisation process. Physical access is controlled by dual-factor authentication using a combination of physical access cards and biometric readers.

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. Water Exposures

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

5.1.4. Fire Prevention And Protection

QuoVadis datacentres are equipped with fire suppression mechanisms.

5.1.5. Media Storage

QuoVadis protects its media from accidental damage, environmental hazards, and unauthorised physical access. 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.

5.1.6. 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.

5.1.7. 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

Administrative processes are described in detail in the various documents used within and supporting the QuoVadis PKI. Administrative procedures related to personnel and procedural requirements, as well as physical and technological security mechanisms, are maintained in accordance with this CP/CPS and other relevant operational documents. Except for certain RA functions described in this CP/CPS, QuoVadis does not outsource operations associated with Root CA2.

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 – CMS, 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 CP/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 requires that at least two people acting in a trusted role take action for the most sensitive tasks, such as activating QuoVadis' Private Keys, generating a CA Key Pair, or backing up a QuoVadis Private Key. The Internal Auditor may serve to fulfill the requirement of multiparty control for physical access to the CA system but not logical access.

5.2.3. Identification And Authentication For Each Role

Persons filling trusted roles must undergo an appropriate security screening procedure commensurate to their roleAll personnel are required to authenticate themselves to CA, TSA, and RA systems before they are allowed access to systems necessary to perform their trusted roles.

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

The PMA is responsible and accountable for QuoVadis PKI operations and ensures compliance with this CP/CPS. Prior to the engagement of any person in the Certificate management process, QuoVadis verifies the identity and trustworthiness of such person. QuoVadis determines that all individuals assigned to trusted roles perform their prospective job responsibilities competently and satisfactorily as required.

Without limitation, QuoVadis shall not be liable for employee conduct that is outside of their duties and for which QuoVadis has no control including, without limitation, acts of espionage, sabotage, criminal conduct, or malicious interference.

5.3.2. Background Check Procedures

QuoVadis verifies the identity of each employee appointed to a trusted role and performs a background check prior to allowing such person to act in a trusted role. QuoVadis requires each individual to appear in-person before a human resources employee whose responsibility it is to verify identity. The human resources employee verifies the individual's identity using government-issued photo. Background checks may include a combination of the following as required; verification of individual identity, employment history, education, character references, social security number, previous residences, driving records, professional references, and criminal background.

These procedures are subject to any limitations on background checks imposed by local law. To the extent one of the requirements imposed by this Section cannot be met by QuoVadis due to a prohibition or limitation in local law, QuoVadis utilises a substitute investigative technique permitted by law that provides substantially similar information, including but not limited to obtaining a background check performed by the applicable governmental agency.

5.3.3. Training Requirements

QuoVadis provides relevant skills training 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 QuoVadis' industry-relevant training and performance programs in order to continue acting in trusted roles. QuoVadis makes employees acting in trusted roles aware of any changes to QuoVadis' operations as necessary for them to perform their role. 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

Not applicable.

5.3.6. Sanctions For Unauthorised Actions

QuoVadis employees and agents failing to comply with this CP/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

Personnel in trusted roles are provided with the documentation necessary to perform their duties.

5.4. AUDIT LOGGING PROCEDURES

5.4.1. Types Of Events Recorded

QuoVadis records details of the actions taken to process a Certificate Request and to issue a Certificate, including all information generated and documentation received in connection with the Certificate Request. QuoVadis logs the following events:

- CA key lifecycle management events;
- CA and Subscriber Certificate lifecycle management events;
- Security events, including
  - Successful and unsuccessful PKI system access attempts;
  - PKI and security system actions performed;
  - Security profile changes;
  - System crashes, hardware failures, and other anomalies;
  - Firewall and router activities; and
  - Entries to and exits from the CA facility.

QuoVadis event logs include:

- Date and time of the entry
- Serial or sequence number of entry (for automatic journal entries)
- Details of the of entry (name, type etc)
- Source of entry (for example, terminal, port, location, customer, IP address)
- Destination address (if relevant)
- identity of the entity making the journal entry (e.g. User ID)

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

Audit logs relating to the Certificate lifecycle are retained as archive records for a period no less than eleven (11) years for Swiss Qualified Certificates and for seven (7) years for all other Certificates starting from the expiration of the Certificate. Certain high volume system generated logs are retained for 18 months based on a risk assessment. 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 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 unauthorized 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.

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.

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.

5.5. RECORDS ARCHIVAL

5.5.1. Types Of Records Archived

QuoVadis retains the following information in its archives (as such information pertains to QuoVadis' CA / TSA operations):

- QuoVadis accreditations
- Compliance auditor reports
- CP/CPS versions
- Contractual obligations and other agreements concerning the operation of the CA
- System and equipment configurations, modifications, and updates
- Certificate request and verification
- Rejection or acceptance of a certificate request
- Certificate issuance, rekey, renewal, and revocation requests (and related actions)
- Certificate acceptance including Subscriber Agreements
- Escrow and retrieval requests
- Audit logs
- CA Key generation and destruction

- Appointment of an individual to a trusted role
- Destruction of a cryptographic module

5.5.2. Retention Period For Archive

Audit logs relating to the certificate lifecycle are retained as archive records for a period of for seven (7) years. Detailed system generated logs are retained for 18 months based on a risk assessment.

5.5.3. Protection Of Archive

Archive records are stored at a secure location and are maintained in a manner that prevents unauthorized 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 PKI 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 specific QuoVadis Trusted Roles and auditors may view the archives in whole. The contents of the archives will not be released as a whole, except as required by law. QuoVadis may decide to release records of individual transactions upon request of any of the entities involved in the transaction or their authorised representatives. A reasonable handling fee per record (subject to a minimum fee) will be assessed to cover the cost of record retrieval.

5.6. KEY CHANGEOVER

Key changeover is not automatic but procedures enable the smooth transition from expiring CA Certificates to new CA Certificates. Towards the end of the CA Private Key's lifetime, QuoVadis ceases using its expiring CA Private Key to sign Certificates (well in advance of expiration) and uses the old Private Key only to sign CRLs associated with that key. A new CA signing Key Pair is commissioned and all subsequently issued Certificates and CRLs are signed with the new private signing key. Both the old and the new Key Pairs may be concurrently active.

5.7. COMPROMISE AND DISASTER RECOVERY

5.7.1. Incident and Compromise Handling Procedures

QuoVadis maintains internal incident response procedures to guide personnel in response to security incidents, natural disasters, and similar events that may give rise to system compromise. These procedures include notification to Application Software Vendors, Subscribers, and Relying Parties as appropriate in the

event of a disaster, security compromise, or business failure. QuoVadis reviews, tests, and updates its incident response plans and procedures on a periodic basis.

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

If QuoVadis suspects that one of its CA Private Keys has been compromised, the PMA will convene a response team to assess the incident and take appropriate action. Specifically, QuoVadis will:

i) Collect information related to the incident;

ii) Determine the degree and scope of compromise; and report on the course of action that should be taken to correct the problem and prevent reoccurrence;

iii) If appropriate, contact government agencies, law enforcement, and other interested parties and activate any other appropriate additional security measures; and

iv) Incorporate lessons learned into the implementation of long term solutions and the Incident Response Plan.

QuoVadis may generate a new Key Pair and sign a new Certificate. If a disaster physically damages QuoVadis' equipment and destroys all copies of QuoVadis' Private Keys then QuoVadis will provide notice to affected parties at the earliest feasible time.

5.7.4. Business Continuity Capabilities after a Disaster

To maintain the integrity of its services, QuoVadis implements data backup and recovery procedures as part of its Business Continuity Management Plan (BCMP). Stated goals of the BCMP are to ensure that certificate status services be only minimally affected by any disaster involving QuoVadis' primary facility and that QuoVadis be capable of maintaining other services or resuming them as quickly as possible following a disaster. QuoVadis periodically reviews, tests, and updates the BCMP and supporting procedures.

5.8. CA AND/OR RA TERMINATION

Before terminating its CA or RA activities, QuoVadis will:

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 customers, Application Software Suppliers and by posting such information on QuoVadis' web site; and

iii) Transfer all responsibilities to a qualified successor entity.

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 CP/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.

6. TECHNICAL SECURITY CONTROLS

6.1. KEY PAIR GENERATION AND INSTALLATION

6.1.1. Key Pair Generation

QuoVadis CA Key Pairs are generated by multiple trusted individuals acting in trusted roles and using a cryptographic hardware device as part of scripted key generation ceremony in the environments described in Section 5.1 and logged in accordance with Section 5.4. The cryptographic hardware is evaluated to FIPS 140-2 Level 3 and/or Common Criteria EAL 4 or higher. Hardware Security Modules (HSM) are always stored in a physically secure environment and are subject to security controls throughout their lifecycle. Activation of the hardware requires the use of two-factor authentication tokens.

QuoVadis creates auditable evidence during the key generation process to prove that the CP/CPS was followed and role separation was enforced during the key generation process. QuoVadis requires that an external auditor witness the generation of or review a recording of any CA keys to be used as publicly-trusted Root Certificates. For other CA Key Pair generation ceremonies, an Internal Auditor, external auditor, or independent third party attends the ceremony, or an external auditor examines the signed and documented record of the key generation ceremony, as allowed by applicable policy.

Subscribers must generate their Key Pair in a manner that is appropriate for the certificate type. QuoVadis never creates key pairs for publicly-trusted TLS Certificates and will not accept a certificate request using a Key Pair previously generated by DigiCert or QuoVadis.

For publicly-trusted TLS Certificates, QuoVadis rejects a certificate request if the requested Public Key does not meet the requirements set forth in Sections 6.1.5 and 6.1.6 of CA/Browser Baseline Requirements or if it has a known weak Private Key (such as a Debian weak key, see http://wiki.debian.org/SSLkeys).

6.1.2. Private Key Delivery To Subscriber

Subscribers are solely responsible for the generation of the Private Keys used in their Certificate Requests.

6.1.3. Public Key Delivery To Certificate Issuer

Subscribers generate Key Pairs and deliver Public Keys to the Issuing CA in a secure and trustworthy manner, such as submitting a CSR message to a 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 commercial browsers and operating system root stores, and/or as roots signed by other CAs. All Accreditation Authorities supporting QuoVadis Certificates and all Application Software Vendors are permitted to redistribute QuoVadis CA Certificates.

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

QuoVadis follows the relevant ETSI and NIST guidance in using and retiring signature algorithms and key sizes. Key sizes for individual Certificate Profiles are disclosed in Appendix A and Appendix B. Currently QuoVadis generates and uses at least the following key sizes, signature algorithms and hash algorithms for signing Certificates, CRLs and OCSP responses:

- 2048-bit or greater RSA Key (with a modulus size in bits divisible by 8);

- 256-bit ECDSA Key or greater with the matching Secure Hash Algorithm version as required and a valid point on the elliptic curve; or
- a hash algorithm that is equally or more resistant to a collision attack allowed by the references in Sections 1.1 and 8.1.

QuoVadis requires end-entity Certificates to contain a key size that is at least 2048 bits for RSA, DSA, or Diffie-Hellman and 224 bits for elliptic curve algorithms. QuoVadis may require higher bit keys in its sole discretion.

QuoVadis and Subscribers may fulfill transmission security requirements using TLS or another protocol that provides similar security, provided the protocol requires at least AES 128 bits or equivalent for the symmetric key and at least 2048-bit RSA or equivalent for the asymmetric keys

6.1.6. Public Key Parameters Generation And Quality Checking

QuoVadis uses cryptographic modules that conform to FIPS 186-2 and provides 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)

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

i) Self-signed Certificates to represent the QuoVadis Root CA itself;

ii) Certificates for Subordinate CAs and Cross Certificates;

iii) Certificates for infrastructure purposes (administrative role certificates, internal CA operational device certificates); and

iv) Certificates for OCSP Response verification.

Subscriber Certificates assert key usages based on the intended application of the Key Pair and cannot include anyExtendedKeyUsage. Key usage bits and extended key usages are specified in Appendix A and Appendix B.

An Issuing CA's Private Keys may be used for Certificate signing and CRL and OCSP response signing. Keys may also be used to authenticate the Issuing CA to a Repository.

6.2. PRIVATE KEY PROTECTION AND CRYPTOGRAPHIC MODULE ENGINEERING CONTROLS

6.2.1. Cryptographic Module Standards And Controls

The cryptographic modules used by the QuoVadis PKI are validated to provide FIPS 140-2 Level-3 and/or Common Criteria EAL 4 security standards in both the generation and the maintenance in all Root and Issuing CA Private Keys.

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

Private keys shall not be escrowed.

6.2.4. Private Key Backup

QuoVadis Private Keys are generated and operated inside cryptographic modules which have been evaluated to at least FIPS 140-2 Level 3. 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.

6.2.5. Private Key Archive

QuoVadis does not archive CA Certificate 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 unauthorised 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

CA Private Keys are generated and stored in a physically secure environment within cryptographic modules that are validated to FIPS 140-2 Level-3. Root CA Private Keys are stored offline in cryptographic modules or backup tokens as described above in Sections 6.2.2, 6.2.4, and 6.2.6.

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.

Subscribers are solely responsible for protection of their Private Keys. QuoVadis maintains no involvement in the generation, protection, or distribution of such keys. QuoVadis suggests that Subscribers use a strong password or equivalent authentication method to prevent unauthorised access and usage of the Subscriber Private Key.

6.2.9. Method Of Deactivating Private Key

QuoVadis' Private Keys are deactivated via manual and passive logout procedures on the applicable HSM device when not in use. QuoVadis never leaves its HSM devices in an active unlocked or unattended state.

Subscribers should deactivate their Private Keys via logout and removal procedures when not in use.

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. Subscribers shall destroy their Private Keys when the corresponding Certificate is revoked or expired or if the Private Key is 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

The cryptographic modules used by the QuoVadis PKI are validated to FIPS 140-2 Level-3 and/or Common Criteria EAL 4 security standards or higher.

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.

6.3.2. Certificate Operational Periods And Key Pair Usage Periods

The maximum validity periods for Certificates issued within the QuoVadis PKI are:

Type	**Certificate Term**
Publicly-trusted Root CAs	30 years
Publicly-trusted Issuing CAs	10 - 15 years
TLS Certificates	397 days
Qualified Web Authentication Certificates (QCP-w)	397 days
Code Signing Certificates	36 months

For the purpose of calculations, a day is measured as 86,400 seconds. Any amount of time greater than this, including fractional seconds and/or leap seconds, represents an additional day.

Participants shall cease all use of their Key Pairs after their usage periods have expired. Relying Parties may still validate signatures generated with these keys after expiration of the Certificate.

QuoVadis may voluntarily retire its CA Private Keys before the periods listed above to accommodate key changeover processes. QuoVadis does not issue Subscriber Certificates with an expiration date that exceeds the Issuing CA's term or that exceeds the routine re-key identification requirements specified in Section 3.1.1.

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 CP/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/Browser 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 unauthorized 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 Certificate Authority 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 has mechanisms in place to control and monitor the acquisition and development of its CA systems. Change requests require the approval of at least one administrator who is different from the person submitting the request. QuoVadis only installs software on CA systems if the software is part of the CA's operation. CA hardware and software are dedicated to performing operations of the CA.

Vendors are selected based on their reputation in the market, ability to deliver quality product, and likelihood of remaining viable in the future. Management is involved in the vendor selection and purchase decision process. Non-PKI hardware and software is purchased without identifying the purpose for which the component will be used. All hardware and software are shipped under standard conditions to ensure delivery of the component directly to a trusted employee who ensures that the equipment is installed without opportunity for tampering.

Some of the PKI software components used by QuoVadis are developed in-house or by consultants using standard software development methodologies. All such software is designed and developed in a controlled environment and subjected to quality assurance review. Other software is purchased commercial off-the-

shelf (COTS). Quality assurance is maintained throughout the process through testing and documentation or by purchasing from trusted vendors as discussed above.

Updates of equipment and software are purchased or developed in the same manner as the original equipment or software and are installed and tested by trusted and trained personnel. All hardware and software essential to QuoVadis' operations is scanned for malicious code on first use and periodically thereafter.

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 CA and RA functions are performed using networks secured in accordance to prevent unauthorised access, tampering, and denial-of-service attacks. Communications of sensitive information shall be protected using point-to-point encryption for confidentiality and Digital Signatures for non-repudiation and authentication.

QuoVadis documents and controls the configuration of its systems, including any upgrades or modifications made. Root Keys are kept offline and brought online only when necessary to sign Issuing CA Certificates, OCSP Responder Certificates, or periodic CRLs. Firewalls and boundary control devices are configured to allow access only by the addresses, ports, protocols and commands required for the trustworthy provision of PKI services by such systems.

The QuoVadis security policy is to block all ports and protocols and open only ports necessary to enable CA functions. All CA equipment is configured with a minimum number of services and all unused network ports and services are disabled.

6.8. TIME-STAMPING

See Section 5.5.5. In addition, QuoVadis provides a Time-Stamp Authority (TSA) service for use with specific QuoVadis products such as Code Signing Certificates. The QuoVadis Time-Stamp Policy/Practice Statement is structured in accordance with ETSI EN 319 421 and should be read in conjunction with this CP/CPS.

7. CERTIFICATE, CRL, AND OCSP PROFILES

QuoVadis uses the ITU X.509, version 3 standard to construct Certificates. QuoVadis adds certain certificate extensions to the basic certificate structure for the purposes intended by X.509v3 as per Amendment 1 to ISO/IEC 9594-8, 1995. *See* Appendix A and Appendix B.

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 Baseline Requirements and this CP/CPS.

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. CERTIFICATE PROFILE

7.1.1. Version Number(s)

All Certificates are X.509 version 3 Certificates.

7.1.2. Certificate Extensions

The extensions defined for X.509 v3 Certificates provide methods for associating additional attributes with users or Public Keys and for managing relationships between CAs. *See* Appendix A and Appendix B.

For Root CA, Subordinate CA, and Subscriber Certificates used for publicly-trusted TLS, QuoVadis abide by Section 7.1.2 of the Baseline Requirements and configure the Certificate extensions to those requirements.

For TLS Certificates, the subjectAltName extension is populated in accordance with RFC 5280 with the authenticated value in the Common Name field of the subject DN (domain name or public iPAddress). The SubjectAltName extension may contain additional authenticated domain names or public iPAddresses.

For internationalized domain names, the Common Name is represented as a puny-code value and that Common Name will be represented in the Subject Alternative Name extension as a puny-coded A-label value. These different encodings of the same name are treated as equal values for the purposes of Common Name to Subject Alternative Name duplication requirements.

QuoVadis' Technically Constrained Subordinate CA Certificates include an Extended Key Usage (EKU) extension specifying all extended key usages for which the Subordinate CA Certificate is authorized to issue certificates. The anyExtendedKeyUsage KeyPurposeId does not appear in the EKU extension of publicly-trusted certificates.

7.1.3. Algorithm Object Identifiers

QuoVadis Certificates are signed using one of the following algorithms:

sha256WithRSAEncryption	[iso(1) member-body(2) us(840) rsadsi(113549) pkcs(1) pkcs-1(1) 11]
ecdsa-with-sha256	[iso(1) member-body(2) us(840) ansi-X9-62 (10045) signatures(4) ecdsa-with-SHA2 (3) 2]
ecdsa-with-SHA384	[iso(1) member-body(2) us(840) ansi-X9-62 (10045) signatures(4) ecdsa-with-SHA2(3) 3]
id-RSASSA-PSS	[iso(1) member-body(2) us(840) rsadsi(113549) pkcs(1) pkcs-1(1) rsassa-pss(10)]

RSASSA-PSS is not used for TLS Certificates and specifies the SHA-256 hash algorithm (2.16.840.1.101.3.4.2.1) as a parameter. For all other RSA algorithms the parameters field is NULL.

QuoVadis and Subscribers may generate Key Pairs using the following:

id-dsa	[iso(1) member-body(2) us(840) x9-57(10040) x9cm(4) 1]
RsaEncryption	[iso(1) member-body(2) us(840) rsadsi(113549) pkcs(1) pkcs-1(1) 1]
Dhpublicnumber	[iso(1) member-body(2) us(840) ansi-x942(10046) number-type(2) 1]
id-keyExchangeAlgorithm	[joint-iso-ccitt(2) country(16) us(840) organization(1) gov(101) dod(2) infosec(1) algorithms(1) 22]
id-ecPublicKey	[iso(1) member-body(2) us(840) ansi-X9-62(10045) id-publicKeyType(2) 1]

Elliptic curve Public Keys submitted to QuoVadis for inclusion in end entity Certificates should be based on NIST "Suite B" curves.

QuoVadis uses the key and hash algorithms specified in the CA/Browser Forum Baseline Requirements. *See* also Appendix A and Appendix B.

7.1.4. Name Forms

Each Certificate includes a serial number that is unique to the Issuing CA. Optional subfields in the subject of an TLS Certificate must either contain information verified by QuoVadis or be left empty. TLS Server Certificates cannot contain metadata such as '.', '-' and ' ' characters or and/or any other indication that the value/field is absent, incomplete, or not applicable.

QuoVadis does not issue publicly-trusted TLS Certificates to a Reserved IP address or Internal Name.

For CA Certificates, the commonName attribute is present contains an identifier that uniquely identifies the CA and distinguishes it from other CAs. Certificates are populated with the Issuer Name and Subject Distinguished Name required under Section 3.1.1. Issuer DNs meet the requirements in the CA/Browser Forum Baseline Requirements. *See* also Appendix A and Appendix B.

7.1.5. Name Constraints

QuoVadis may use nameConstraints when appropriate. For publicly-trusted TLS certificates, QuoVadis follows the requirements of Section 7.1.5 of the Baseline Requirements. If the technically constrained Issuing CA Certificates includes the id-kp-serverAuth EKU, then it includes the Name Constraints X.509v3 extension with constraints on dNSName, iPAddress and DirectoryName as follows:

i) For each dNSName in permittedSubtrees, QuoVadis confirms that the Applicant has registered the dNSName or has been authorized by the domain registrant to act on the registrant's behalf in line with the verification practices of Baseline Requirements Section 3.2.2.4.

ii) For each iPAddress range in permittedSubtrees, QuoVadis confirms that the Applicant has been assigned the iPAddress range or has been authorized by the assigner to act on the assignee's behalf.

iii) For each DirectoryName in permittedSubtrees QuoVadis confirms the Applicant's and/or Subsidiary's Organisational name(s) and location(s) such that end entity Certificates issued from the Issuing CA will comply with Section 7.1.2.4 and 7.1.2.5 of the Baseline Requirements.

If the Issuing CA is not allowed to issue certificates with an iPAddress, then the Issuing CA Certificate specifies the entire IPv4 and IPv6 address ranges in excludedSubtrees. The Issuing CA Certificate includes within excludedSubtrees an iPAddress GeneralName of 8 zero octets (covering the IPv4 address range of 0.0.0.0/0). The Issuing CA Certificate also includes within excludedSubtrees an iPAddress GeneralName of 32 zero octets (covering the IPv6 address range of ::0/0). Otherwise, the Issuing CA Certificate includes at least one iPAddress in permittedSubtrees.

If the Issuing CA is not allowed to issue certificates with dNSNames, then the Issuing CA Certificate includes a zero-length dNSName in excludedSubtrees. Otherwise, the Issuing CA Certificate includes at least one dNSName in permittedSubtrees.

7.1.6. Certificate Policy Object Identifier

An object identifier (OID) is a number unique that identifies an object or policy. The Certificate Policy OIDs that incorporate this CP/CPS into different Certificate Profiles are listed in Appendix A and Appendix B.

7.1.7. Usage Of Policy Constraints Extension

Not applicable.

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 CP/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 present, this extension cannot be marked critical. This extension must be present for a Root CA or Issuing CA Certificate, including Cross Certificates. This extension may be present for Certificates not technically capable of causing issuance, subject to the requirement that the CRLReason cannot be unspecified (0) or certificateHold (6).

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:

Field	**Value**
Issuer Signature Algorithm	sha-1WithRSAEncryption [1 2 840 113549 1 1 5] OR sha-256WithRSAEncryption [1 2 840 113549 1 1 11] OR ecdsa-with-sha384 [1 2 840 10045 4 3 3]
Issuer Distinguished Name	QuoVadis Issuing CA name
thisUpdate	CRL issue date in UTC format
nextUpdate	Date when the next CRL will issue in UTC format.
Revoked Certificates List	List of revoked Certificates, including the serial number and revocation date
Issuer's Signature	[Signature]

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	Same as the Authority Key Identifier listed in the 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

The QuoVadis OCSP Responders conform to version 1, as defined by RFC 6960. If an OCSP response is for a Root CA or Issuing CA, including Cross Certificates, and that Certificate has been revoked, the revocationReason field within the RevokedInfo of the CertStatus is present and asserted.

7.3.2. OCSP Extensions

The singleExtensions of an OCSP response cannot contain the reasonCode (OID 2.5.29.21) CRL entry extension.

7.4. CERTIFICATE TRANSPARENCY

QuoVadis TLS Certificates MAY include Signed Certificate Timestamps (SCT) from independent CT Logs. Information on Certificate Transparency may be found in IETF RFC 6962.

8. COMPLIANCE AUDIT AND OTHER ASSESSMENTS

8.1. FREQUENCY, CIRCUMSTANCE AND STANDARDS OF ASSESSMENT

The practices in this CP/CPS are designed to meet or exceed the requirements of generally accepted industry standards, including the latest versions of the WebTrust Programs for CAs as required by the Mozilla Root Store policy and other programs and standards listed in Section 1.1 and 1.6.3.

Publicly available audit reports provided by Conformance Assessment Bodies responsible for these audits will be published at https://www.quovadisglobal.com/accreditations. Compliance audits as carried out under these provisions may substitute for audits noted in this CP/CPS.

8.2. IDENTITY AND QUALIFICATIONS OF ASSESSOR

WebTrust auditors must meet the requirements of Section 8.2 of the CA/Browser ForumBaseline Requirements. 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 auditors 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' PKI operations, and an Issuing CAs' compliance with this CP/CPS and referenced requirements. Audits verify that QuoVadis is compliant with the CP/CPS and applicable standards and regulatory requirements.

Each audit scheme used by QuoVadis incorporates periodic monitoring and/or accountability procedures to ensure that audits continue to be conducted in accordance with the requirements of the scheme. Audits are conducted by a Qualified Auditor, as specified in Section 8.2.

8.5. ACTIONS TAKEN AS A RESULT OF DEFICIENCY

If an audit reports a material noncompliance with applicable law, this CP/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 plan 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 non-compliant 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 on an annual basis and within three months of completion.

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 customized 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 utilize 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 CP/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 maintains the following insurance related to its respective performance and obligations:

- Commercial General Liability insurance (occurrence form) with policy limits of at least $2 million in coverage, and
- Professional Liability/Errors & Omissions insurance, with policy limits of at least $5 million in coverage, and including coverage for (i) claims for damages arising out of an act, error, or omission, unintentional breach of contract, or neglect in issuing or maintaining EV Certificates, and (ii) claims for damages arising out of infringement of the proprietary rights of any third party (excluding copyright, and trademark infringement), and invasion of privacy and advertising injury.

9.2.2. Other Assets

No stipulation.

9.2.3. Insurance Or Warranty Coverage For End-Entities

No stipulation.

9.3. CONFIDENTIALITY OF BUSINESS INFORMATION

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 CP/CPS).

Any personal or corporate information held by Issuing CAs related to a Subscriber's application and the issuance of Certificates is considered confidential and will not be released without the prior consent of the relevant Holder, unless required otherwise by law or to fulfil the requirements of this QuoVadis CP/CPS.

There is no requirement to place a copy of any Private Key with any backup/recovery or escrow service. Under contract between an Issuing CA and a Subscriber or the Subscriber's Nominating RA, a copy of an entity's encryption Keys may be escrowed by QuoVadis for possible retrieval of encrypted information upon the loss or corruption of the original encryption Keys.

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 Confidential 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. RESPONSIBILITY TO PROTECT PRIVATE 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. 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 of the Council of 24 October 1995 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 CP/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 CP/CPS, QuoVadis may disclose private information without notice.

9.4.7. Other Information Disclosure Circumstances

No stipulation.

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 CP/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.

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 CP/CPS

Issuing CAs acknowledge that QuoVadis retains all intellectual property rights in and to this CP/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 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

By issuing a Digital Certificate, QuoVadis represents and warrants that, during the period when the Digital Certificate is valid, QuoVadis has complied with this CP/CPS in issuing and managing the Digital Certificate to the parties listed below:

- The party to the relevant QuoVadis Subscriber Agreement and Terms of Use;
- All Relying Parties who reasonably rely on a Valid Certificate; and
- All Application Software Vendors with whom QuoVadis has entered into a contract for inclusion of its Root Certificate in software distributed by such Application Software Vendor.

QuoVadis discharges its obligations by:

- QuoVadis complies, in all material aspects, with this CP/CPS, and all applicable laws and regulations;
- QuoVadis publishes and updates CRLs and OCSP responses on a regular basis;
- All Certificates issued under this CP/CPS will be verified in accordance with this CP/CPS and meet the minimum requirements found herein and in the Baseline Requirements; and
- QuoVadis will maintain a Repository of public information on its website.

QuoVadis hereby warrants (i) it has taken reasonable steps to verify that the information contained in any Certificate is accurate at the time of issue (ii) Certificates shall be revoked if QuoVadis believes or is notified that the contents of the Certificate are no longer accurate, or that the Private Key associated with a Certificate has been compromised in any way.

QuoVadis makes no other warranties, and all warranties, express or implied, statutory or otherwise, are excluded to the greatest extent permissible by applicable law, including without limitation all warranties as to merchantability or fitness for a particular purpose.

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 CP/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 CP/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 Suppliers, 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 CP/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 PKI has been compromised.

Subscriber Agreements may include additional representations and warranties.

9.6.4. Relying Parties Representations And Warranties

Relying parties are required to act in accordance with this CP/CPS and the Relying Party Agreement. A Relying Party must exercise Reasonable Reliance as set out in this Section.

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 QTSP.

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 CP/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 within this Section relate to Reasonable Reliance on the validity of a Digital Signature, not the accuracy of the underlying electronic record. Relying Party Agreements may include additional representations and warranties.

9.6.5. Representations And Warranties Of Other Participants

Participants within the QuoVadis PKI represent and warrant that they accept and will perform any and all duties and obligations as specified by this CP/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 CP/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 CP/CPS OR THE SUBJECT MATTER HEREOF; AND (B) THE QUOVADIS ENTITIES' TOTAL CUMULATIVE LIABILITY ARISING OUT OF OR RELATING TO THIS CP/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 CP/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

To the extent permitted by law, each Subscriber 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 (i) any misrepresentation or omission of material fact by Subscriber, regardless of whether the misrepresentation or omission was intentional or unintentional; (ii) Subscriber's breach of the Subscriber Agreement, this CP/CPS, or applicable law; (iii) the compromise or unauthorised use of a Certificate or Private Key caused by the Subscriber's negligence or intentional acts; or (iv) Subscriber's misuse of the Certificate or Private KeyThe applicable Subscriber Agreement may include additional indemnity obligations.

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

9.10.2. Termination

This CP/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 conditions and effect resulting from termination of this CP/CPS will be communicated via the QuoVadis website upon termination. That communication will outline the provisions that may survive termination of this CP/CPS and remain in force. The responsibilities for protecting business confidential and private personal information shall survive termination, and the terms and conditions for all existing Certificates shall remain valid for the remainder of the validity periods of such Certificates.

9.11. INDIVIDUAL NOTICES AND COMMUNICATIONS WITH PARTICIPANTS

QuoVadis accepts notices related to this CP/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.

9.12. AMENDMENTS

9.12.1. Procedure For Amendment

Amendments to this CP/CPS are made and approved by the QuoVadis PMA at at least annually. Amendments are made by posting an updated version of the CP/CPS to the Repository. Updates supersede any designated or conflicting provisions of the referenced version of the CP/CPS. Controls are in place to reasonably ensure that this CP/CPS is not amended and published without the prior authorisation of the QuoVadis PMA

9.12.2. Notification Mechanism And Period

QuoVadis posts CP/CPS revisions to the Repository (https://www.quovadisglobal.com/repository). QuoVadis does not guarantee or set a notice-and-comment period and may make changes to this CP/CPS without notice and without changing the version number. The QuoVadis PMA is responsible for determining what constitutes a material change of the CP/CPS.

9.12.3. Circumstances Under Which OID Must Be Changed

The QuoVadis PMA is solely responsible for determining whether an amendment to the CP/CPS requires an OID change.

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 CP/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

The (i) laws that govern the interpretation, construction, and enforcement of this Agreement and all matters, claims or disputes related to it, including tort claims, and (ii) the courts or arbitration bodies that have exclusive jurisdiction over any of the matters, claims or disputes contemplated in sub-Section (i) above, will each depend on where Customer is domiciled, as set forth in the table below.

In instances where the International Chamber of Commerce is designated below as the court or arbitration body with exclusive jurisdiction of such matters, claims or disputes, then the parties hereby agree that (x) all matters, claims or disputes arising out of or in connection with this Agreement shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce (Rules) by one or more arbitrators appointed in accordance with the Rules, (y) judgment on the award rendered by such arbitration may be entered in any court having jurisdiction, and (z) this arbitration clause shall not preclude parties from seeking provisional remedies in aid of arbitration from a court of appropriate jurisdiction.

Customer is Domiciled in:	**Governing Law is laws of:**	**Court or arbitration body with exclusive jurisdiction:**
The United States of America, Canada, Mexico, Central America, South America, the Caribbean, or any other country not otherwise included in the rest of the table below	Utah state law and United States federal law	State and Federal courts located in Salt Lake County, Utah

Customer is Domiciled in:	Governing Law is laws of:	Court or arbitration body with exclusive jurisdiction:
Europe, Switzerland, the United Kingdom, Russia, the Middle East or Africa	England	International Chamber of Commerce, International Court of Arbitration, with seat of arbitration in the below city corresponding to the QuoVadis contracting entity listed in the Order Form. For QV CH: Zurich For QV NL: Amsterdam For QV DE: Munich For QV/BE/DigiCert Europe: Brussels For QV UK: London
Japan	Japan	International Chamber of Commerce, International Court of Arbitration, with seat of arbitration in Tokyo
Australia or New Zealand	Australia	International Chamber of Commerce, International Court of Arbitration, with seat of arbitration in Melbourne
A Country in Asia or the Pacific region, other than Japan, Australia or New Zealand	Singapore	International Chamber of Commerce, International Court of Arbitration, with seat of arbitration in Singapore

9.15. COMPLIANCE WITH APPLICABLE LAW

This CP/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 organization measures against unauthorized 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 CP/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 CP/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 CP/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 CP/CPS is held invalid or unenforceable by a competent court or tribunal, the remainder of the CP/CPS will remain valid and enforceable. Each provision of this CP/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 CP/CPS does not waive QuoVadis' right to enforce the same provision later or right to enforce any other provision of this CP/CPS. To be effective, waivers must be in writing and signed by QuoVadis.

9.16.5. Force Majeure

QuoVadis is not liable for any delay or failure to perform an obligation under this CP/CPS to the extent that the delay or failure is caused by an occurrence beyond QuoVadis' reasonable control. The operation of the Internet is beyond QuoVadis' reasonable control.

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

9.17. OTHER PROVISIONS

No stipulation.

10. APPENDIX A – ROOT CA PROFILES

QuoVadis Root CA2

Field	**Value**
Version	V3
Serial Number	Unique number 0509
Issuer Signature Algorithm	sha-1WithRSAEncryption {1 2 840 113549 1 1 5}
Issuer Distinguished Name	Unique X.500 CA DN. CN = QuoVadis Root CA 2 O =QuoVadis Limited C = BM
Validity Period	25 years expressed in UTC format NotBefore: 11/24/2006 18:27:00 NotAfter: 11/24/2031 18:23:33
Subject Distinguished Name	CN = QuoVadis Root CA 2 O =QuoVadis Limited C = BM
Subject Public Key Information	Public Key Algorithm: Algorithm ObjectId: 1.2.840.113549.1.1.1 RSA Algorithm Parameters: 05 00 Public Key Length: 4096-bit
Issuer's Signature	sha-1WithRSAEncryption {1 2 840 113549 1 1 5}
Extension	**Value**
Authority Key Identifier	c=no; KeyID=1a 84 62 bc 48 4c 33 25 04 d4 ee d0 f6 03 c4 19 46 d1 94 6b Certificate Issuer: Directory Address: CN=QuoVadis Root CA 2 O=QuoVadis Limited C=BM Certificate SerialNumber=05 09
Subject Key Identifier	c=no; 1a 84 62 bc 48 4c 33 25 04 d4 ee d0 f6 03 c4 19 46 d1 94 6b
Key Usage	c=no; Certificate Signing, Off-line CRL Signing, CRL Signing (06)
Basic Constraints	c=yes; Subject Type=CA Path Length Constraint=None
Key Id Hash(sha1):	73 97 82 ea b4 04 16 6e 25 d4 82 3c 37 db f8 a8 12 fb cf 26
Cert Hash(sha1):	ca 3a fb cf 12 40 36 4b 44 b2 16 20 88 80 48 39 19 93 7c f7

QuoVadis Root CA 2 G3

Field	**Value**
Version	V3
Serial Number	Unique number 445734245b81899b35f2ceb82b3b5ba726f07528
Issuer Signature Algorithm	sha256RSA {1.2.840.113549.1.1.11 }
Issuer Distinguished Name	Unique X.500 CA DN. CN = QuoVadis Root CA 2 G3 O =QuoVadis Limited C = BM
Validity Period	30 years expressed in UTC format NotBefore: 01/12/2012 18:59:32 NotAfter: 01/12/2042 18:59:32
Subject Distinguished Name	CN = QuoVadis Root CA 2 G3 O =QuoVadis Limited C = BM
Subject Public Key Information	Public Key Algorithm: Algorithm ObjectId: 1.2.840.113549.1.1.1 RSA Algorithm Parameters: 05 00 Public Key Length: 4096-bit
Issuer's Signature	sha256RSA {1.2.840.113549.1.1.11 }
Extension	**Value**
Subject Key Identifier	c=no; ed e7 6f 76 5a bf 60 ec 49 5b c6 a5 77 bb 72 16 71 9b c4 3d
Key Usage	c=yes; Certificate Signing, Off-line CRL Signing, CRL Signing (06)
Basic Constraints	c=yes; Subject Type=CA Path Length Constraint=None
Key Id Hash(sha1):	67 ec 9f 90 2d cd 64 ae fe 7e bc cd f8 8c 51 28 f1 93 2c 12
Cert Hash(sha1):	09 3c 61 f3 8b 8b dc 7d 55 df 75 38 02 05 00 e1 25 f5 c8 36

11. APPENDIX B

11.1. BUSINESS SSL

Field	**Value**
Version	V3
Serial Number	Unique number
Issuer Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)
Issuer Distinguished Name	Unique X.500 CA DN. CN = Variable O = QuoVadis Limited C = BM
Validity Period	397 days
Subject Distinguished Name	
Organization Name	subject:organisationName (2.5.4.10)
Organisation Unit	Not permitted in QuoVadis Business SSL.
Common Name	subject:commonName (2.5.4.3) cn = Common name
State or province (if any)	subject:stateOrProvinceName (2.5.4.8)
Country	subject:countryName (2.5.4.6)
Subject Public Key Information	2048-bit RSA key modulus, rsaEncryption (1.2.840.113549.1.1.1)
Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)
Extension	**Value**
Authority Key Identifier	c=no; Octet String – Same as Issuer's Subject Key Identifier
Subject Key Identifier	c=no; Octet String – Same as calculated by CA from PKCS#10
Key Usage	c=yes; Digital Signature, Key Encipherment (a0)
Extended Key Usage	c=no; Server Authentication (1.3.6.1.5.5.7.3.1) Client Authentication (1.3.6.1.5.5.7.3.2)
Certificate Policies	c=no; Certificate Policies; {1.3.6.1.4.1.8024.0.2.100.1.1 } Certificate Policies; { 2.23.140.1.2.2 } [1,1] Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: http://www.quovadisglobal.com/repository
Certificate Transparency (optional)	(1.3.6.1.4.1.11129.2.4.4) This field MAY include two or more Certificate Transparency proofs from approved CT Logs.
Subject Alternative Name	c=no; DNS = FQDN of Device (e.g., domain.com)

Authority Information Access	c=no; Access Method= - Id-ad-ocsp (On-line Certificate Status Protocol - 1.3.6.1.5.5.7.48.1); URL =http://ocsp.quovadisglobal.com
CRL Distribution Points	c = no; CRL HTTP URL =http://crl.quovadisglobal.com/<CA Name>.crl

Purposes of Business SSL

QuoVadis Business SSL Certificates are intended for use in establishing web-based data communication conduits via TLS protocols. The primary purposes of a Business SSL Certificate are to:

- Identify the individual or entity that controls a website; and
- Facilitate the exchange of encryption keys in order to enable the encrypted communication of information over the Internet between the user of an Internet browser and a website.

QuoVadis Certificates focus only on the identity of the Subject named in the Certificate, and not on the behaviour of the Subject. As such, Certificates are not intended to provide any assurances, or otherwise represent or warrant:

- That the Subject named in the Certificate is actively engaged in doing business;
- That the Subject named in the Certificate complies with applicable laws;
- That the Subject named in the Certificate is trustworthy, honest, or reputable in its business dealings; or
- That it is "safe" to do business with the Subject named in the Certificate.

Eligible Applicants

Individuals (natural persons), incorporated entities, government entities, general partnerships, unincorporated associations, and sole proprietorships may apply for QuoVadis Business SSL Certificates.

Verification Requirements

Before issuing a Business SSL Certificate, QuoVadis performs limited procedures to verify that all Subject information in the Certificate is correct, and that the Applicant is authorised to use the domain name and has accepted a Subscriber Agreement for the requested Certificate.

Identity: QuoVadis verifies the identity and address of the organization and that the address is the Applicant's address of existence or operation. QuoVadis verifies the identity and address of the Applicant using documentation provided by, or through communication with, at least one of the following:

i) A government agency in the jurisdiction of the Applicant's legal creation, existence, or recognition;

ii) A third party database that is periodically updated and considered a Reliable Data Source;

iii) A site visit by the CA or a third party who is acting as an agent for the CA; or

iv) An Attestation Letter.

DBA/Tradename: If the Subject Identity Information is to include a DBA or tradename, QuoVadis verifies the Applicant's right to use the DBA/tradename using at least one of the following:

i) Documentation provided by, or communication with, a government agency in the jurisdiction of the Applicant's legal creation, existence, or recognition;

ii) A Reliable Data Source;

iii) Communication with a government agency responsible for the management of such DBAs or tradenames;

iv) An Attestation Letter accompanied by documentary support; or

v) A utility bill, bank statement, credit card statement, government-issued tax document, or other form of identification that the CA determines to be reliable.

Verification of Country: QuoVadis verifies the country associated with the Subject using one of the following:

i) the IP Address range assignment by country for either (i) the web site's IP address, as indicated by the DNS record for the web site or (ii) the Applicant's IP address;

ii) the ccTLD of the requested Domain Name;

iii) information provided by the Domain Name Registrar; or

iv) a method identified in "Identity" above.

Application Process

During the Certificate approval process, QuoVadis Validation Specialists employ controls to validate the identity of the Applicant and other information featured in the Certificate Application to ensure compliance with this CP/CPS.

Step 1: The Applicant provides a signed Certificate Application to QuoVadis, which includes identifying information to assist QuoVadis in processing the request and issuing the Business SSL Certificate, along with a PKCS#10 CSR and billing details.

Step 2: QuoVadis independently verifies information using a variety of sources.

Step 3: The Applicant accepts the Subscriber Agreement and approves Certificate issuance. Step 4: All signatures are verified through follow-up procedures or telephone calls.

Step 5: QuoVadis obtains and documents further explanation or clarification as necessary to resolve discrepancies or details requiring further explanation. If satisfactory explanation and/or additional documentation are not received within a reasonable time, QuoVadis will decline the Certificate Request and notify the Applicant accordingly. Two QuoVadis Validation Specialists must approve issuance of the Certificate.

Step 6: QuoVadis creates the Business SSL Certificate.

Step 7: The Business SSL Certificate is delivered to the Applicant.

Renewal

Renewal requirements and procedures include verification that the Applicant continues to have authority to use the domain name, and that the Certificate Application is approved by an authorised representative of the Applicant.

11.2. EXTENDED VALIDATION SSL

Field	Value	Comments
Version	V3 (2)	
Serial Number	Unique system generated random number assigned to each certificate, containing at least 64 bits of output.	
Issuer Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)	
Issuer Distinguished Name	Unique X.500 CA DN. CN = Variable O = QuoVadis Limited C = BM	
Validity Period	397 days	
Subject Distinguished Name		
subject:organisationName (2.5.4.10)	This field MUST contain the Subject's full legal organisation name as listed in the official records of the Incorporating or Registration Agency in the Subject's Jurisdiction of Incorporation. In addition, an assumed name or d/b/a name used by the Subject MAY be included at the beginning of this field, provided that it is followed by the full legal organisation name in parenthesis. If the combination of the full legal organisation name and the assumed or d/b/a name exceeds 64 characters as defined by RFC 5280, only the full legal organisation name will be used.	subject:organisation Name (2.5.4.10)
subject:organisationUnit (2.5.6.5)	Not permitted in QuoVadis EV SSL.	subject:organisation Unit (2.5.6.5)
subject:commonName (2.5.4.3) cn = Common name	SubjectAlternativeName:dNSName is found below in this table. This field MUST contain one or more host domain name(s) owned or controlled by the Subject and to be associated with Subject's publicly accessible server. Such server may be owned and operated by the Subject or another entity (e.g., a hosting service). Wildcard Certificates are not allowed for EV Certificates.	subject:commonNam e (2.5.4.3) cn = Common name
subject:Organization Identifier (2.5.4.97) (optional)	subject:organisationIdentifier (2.5.4.97)	Refer to: CA/Browser Forum Ballot SC17
subject:jurisdictionOfIncor porationLocalityName (1.3.6.1.4.1.311.60.2.1.1)	ASN.1 - X520LocalityName as specified in RFC 5280 Full name of Jurisdiction of Incorporation for an Incorporating or Registration Agency at the city or town level, including both country and state or province information as follows.	subject:jurisdictionO fIncorporationLocalit yName (1.3.6.1.4.1.311.60.2. 1.1)
subject:jurisdictionOfIncor porationStateOrProvin	ASN.1 - X520StateOrProvinceName as specified in RFC 5280	subject:jurisdictionO fIncorporationStateO rProvin ceName

ceName (1.3.6.1.4.1.311.60.2.1.2)	Full name of Jurisdiction of Incorporation for an Incorporating or Registration Agency at the state or province level, including country information as follows, but not city or town information above.	(1.3.6.1.4.1.311.60.2.1.2)
subject:jurisdictionOfIncorporationCountryName (1.3.6.1.4.1.311.60.2.1.3)	ASN.1 - X520countryName as specified in RFC 5280 Jurisdiction of Incorporation for an Incorporating or Registration Agency at the country level would include country information but would not include state or province or city or town information. Country information MUST be specified using the applicable ISO country code.	subject:jurisdictionOfIncorporationCountryName (1.3.6.1.4.1.311.60.2.1.3)
Subject:serialNumber (2.5.4.5)	For Private Organisations and Business Entities, this field MUST contain the unique Registration Number assigned to the Subject by the Incorporating or Registration Agency in its Jurisdiction of Incorporation. If the Incorporating or Registration Agency does not provide Registration Numbers, then the field will contain the date of incorporation or registration. For Government Entities, that do not have a Registration Number or verifiable date of creation, the field will contain the label “Government Entity”.	Subject:serialNumber (2.5.4.5)
Subject:businessCategory (2.5.4.15)	This field MUST contain one of the following strings: "Private Organization", "Government Entity", "Business Entity", or "Non-Commercial Entity", depending on which Section of the EV Guidelines applies to the Subject.	Subject:businessCategory (2.5.4.15)
Number & street (optional)	subject:streetAddress (2.5.4.9)	
City or town	subject:localityName (2.5.4.7)	
State or province (if any)	subject:stateOrProvinceName (2.5.4.8)	
Country	subject:countryName (2.5.4.6)	
Postal code (optional)	subject:postalCode (2.5.4.17)	
Subject Public Key Information	2048-bit RSA key modulus, rsaEncryption (1.2.840.113549.1.1.1)	
Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)	
Extension	**Value**	
Authority Key Identifier	c=no; Octet String – Same as Issuer's Subject Key Identifier	
Subject Key Identifier	c=no; Octet String – Same as calculated by CA from PKCS#10	
Extended Key Usage	c=no; Server Authentication (1.3.6.1.5.5.7.3.1) Client Authentication (1.3.6.1.5.5.7.3.2)	
Certificate Policies	c=no; Certificate Policies; {1.3.6.1.4.1.8024.0.2.100.1.2 }	

	Certificate Policies; { 2.23.140.1.1} [1,1] Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: http://www.quovadisglobal.com/repository [1,2] Policy Qualifier Info: Policy Qualifier Id=User Notice Qualifier: Notice Text= Any use of this Certificate constitutes acceptance of the QuoVadis Root CA 2 Certification Policies and Certificate Practice Statement.	
Certificate Transparency (optional)	(1.3.6.1.4.1.11129.2.4.4) This field MAY include two or more Certificate Transparency proofs from approved CT Logs.	
Subject Alternative Name	c=no; DNS = FQDN of Device (e.g., domain.com)	
Authority Information Access	c=no; Access Method= - Id-ad-ocsp (On-line Certificate Status Protocol - 1.3.6.1.5.5.7.48.1); URL =http://ocsp.quovadisglobal.com	
CRL Distribution Points	c = no; CRL HTTP URL =http://crl.quovadisglobal.com/QVSSLICA.crl or http://crl.quovadisglobal.com/qvsslg2.crl or http://crl.quovadisglobal.com/qvsslg3.crl	
cabfOrganizationIdentifier	cabfOrganizationIdentifier 2.23.140.3.1	Optional Refer to: CA/Browser Forum Ballot SC17

Purpose of EV SSL

EV SSL Certificates are intended for use in establishing web-based data communication conduits via TLS protocols. The primary purposes of a EV SSL Certificate are to:

- Identify the legal entity that controls a website;
- Provide a reasonable assurance to the user of an Internet browser that the website the user is accessing is controlled by a specific legal entity identified in the EV Certificate by name, address of Place of Business, Jurisdiction of Incorporation, and Registration Number; and
- Facilitate the exchange of encryption keys in order to enable the encrypted communication of information over the Internet between the user of an Internet browser and a website.

EV SSL also help establish the legitimacy of a business claiming to operate a website by confirming its legal and physical existence; provide a vehicle that can be used to assist in addressing problems related to phishing and other forms of online identity fraud; and assist law enforcement in investigations including where appropriate, contacting, investigating, or taking legal action against the Subject.

QuoVadis Certificates focus only on the identity of the Subject named in the Certificate, and not on the behaviour of the Subject. As such, QuoVadis Certificates are not intended to provide any assurances, or otherwise represent or warrant:

- That the Subject named in the Certificate is actively engaged in doing business;
- That the Subject named in the Certificate complies with applicable laws;

- That the Subject named in the Certificate is trustworthy, honest, or reputable in its business dealings; or
- That it is "safe" to do business with the Subject named in the Certificate.

Commitment to Comply with Guidelines

QuoVadis conforms to the current version of the CA/Browser Forum "Guidelines for the Issuance and Management of Extended Validation Certificates" (EV Guidelines) published at UUhttpUU://www.cabforum.org. In the event of any inconsistency between this document and those Guidelines, those Guidelines take precedence over this document.

Eligible Applicants

QuoVadis issues EV Certificates to Private Organizations, Government Entities, Business Entities and Non-Commercial Entities satisfying the requirements specified below:

i) Private Organization Subjects

- The Private Organization MUST be a legally recognised entity whose existence was created by a filing with (or an act of) the Incorporating or Registration Agency in its Jurisdiction of Incorporation (e.g., by issuance of a Certificate of incorporation) or is an entity that is chartered by a state or federal regulatory agency;
- The Private Organization MUST have designated with the Incorporating Agency either a Registered Agent or Registered Office (as required under the laws of the Jurisdiction of Incorporation) or equivalent;
- The Private Organization MUST NOT be designated on the records of the Incorporating Agency by labels such as
- "inactive," "invalid," "not current," or an equivalent facility;
- The Private Organization MUST have a verifiable physical existence and business presence.
- The Private Organization's Jurisdiction of Incorporation, Registration, Charter, or License and/or its Place of Business MUST NOT be in any country where QuoVadis is prohibited from doing business or issuing a Certificate by the laws of Bermuda; and
- The Private Organization MUST NOT be listed on any government denial list or prohibited list (e.g., trade embargo) under the laws of Bermuda.

ii) Government Entity Subjects

- The legal existence of the Government Entity MUST be established by the political subdivision in which it operates;
- The Government Entity MUST NOT be in any country where QuoVadis is prohibited from doing business or issuing a Certificate by the laws of Bermuda; and
- The Government Entity MUST NOT be listed on any government denial list or prohibited list (e.g., trade embargo) under the laws of Bermuda.

iii) Business Entity Subjects

Business Entities are entities that do not qualify as Private Organizations as defined in subSection (a) but do satisfy the following requirements. Business Entities may include general partnerships, unincorporated associations, sole proprietorships, and individuals (natural persons).

- The Business Entity MUST be a legally recognised entity whose formation included the filing of certain forms with the Registration Agency in its Jurisdiction, the issuance or approval by such Registration Agency of a charter, Certificate, or license, and whose existence can be verified with that Registration Agency;
- The Business Entity MUST have a verifiable physical existence and business presence;
- At least one Principal Individual associated with the Business Entity MUST be identified and validated;

- The identified Principal Individual MUST attest to the representations made in the Subscriber Agreement;
- Where the Business Entity represents itself under an assumed name, QuoVadis MUST verify the Business Entity's use of the assumed name;
- The Business Entity and the identified Principal Individual associated with the Business Entity MUST NOT be located or residing in any country where QuoVadis is prohibited from doing business or issuing a Certificate under the laws of Bermuda; and
- The Business Entity and the identified Principal Individual associated with the Business Entity MUST NOT be listed on any government denial list or prohibited list (such as a trade embargo) under the laws of Bermuda.

iv) Non-Commercial Entity Subjects

Non-Commercial Entities are entities who do not qualify under subSections (a), (b) or (c) above, but that do satisfy the following requirements:

- The Applicant is an International Organization Entity, created under a charter, treaty, convention or equivalent instrument that was signed by, or on behalf of, more than one country's government. The CA/Browser Forum may publish a listing of International Organizations that have been approved for EV eligibility; and
- The International Organization Entity MUST NOT be headquartered in any country where the CA is prohibited from doing business or issuing a certificate by the laws of the CA's jurisdiction; and
- The International Organization Entity MUST NOT be listed on any government denial list or prohibited list (e.g., trade embargo) under the laws of the CA's jurisdiction.
- Subsidiary organizations or agencies of qualified International Organizations may also qualify for EV Certificates issued in accordance with the EV Guidelines.

Additional Warranties and Representations for EV Certificates

QuoVadis makes the following EV Certificate Warranties solely to Subscribers, Certificate Subjects, Application Software Vendors with whom QuoVadis has entered into a contract for inclusion of its Root Certificate in software distributed by such Application Software Vendors, and all Relying Parties that actually rely on such EV Certificate during the period when it is valid, that it followed the requirements of the EV Guidelines and this CP/CPS in issuing the EV Certificate and in verifying the accuracy of the information contained in the EV Certificate (EV Certificate Warranties).

The EV Certificate Warranties specifically include, but are not limited to, warranties that:

- Legal Existence: QuoVadis has confirmed with the Incorporating or Registration Agency in the Subject's Jurisdiction of Incorporation or Registration that, as of the date the EV Certificate was issued, the Subject named in the EV Certificate legally exists as a valid organisation or entity in the Jurisdiction of Incorporation or Registration;
- Identity: QuoVadis has confirmed that, as of the date the EV Certificate was issued, the legal name of the Subject named in the EV Certificate matches the name on the official government records of the Incorporating or Registration Agency in the Subject's Jurisdiction of Incorporation or Registration, and if an assumed name is also included, that the assumed name is properly registered by the Subject in the jurisdiction of its Place of Business;
- Right to Use Domain Name: QuoVadis has taken all steps reasonably necessary to verify that, as of the date the EV Certificate was issued, the Subject named in the EV Certificate has the exclusive right to use the domain name(s) listed in the EV Certificate;
- Authorisation for EV Certificate: QuoVadis has taken all steps reasonably necessary to verify that the Subject named in the EV Certificate has authorised the issuance of the EV Certificate;
- Accuracy of Information: QuoVadis has taken all steps reasonably necessary to verify that all of the other information in the EV Certificate is accurate, as of the date the EV Certificate was issued;

- Subscriber Agreement: The Subject named in the EV Certificate has entered into a legally valid and enforceable Subscriber Agreement with QuoVadis that satisfies the requirements of the EV Guidelines or the Applicant Representative has acknowledged and accepted the Terms of Use;
- Status: QuoVadis will follow the requirements of the EV Guidelines and maintains a 24/7 online-accessible Repository with current information regarding the status of the EV Certificate as Valid or Revoked; and
- Revocation: QuoVadis will follow the requirements of the EV Guidelines and revoke the EV Certificate upon the occurrence of any revocation event as specified in the EV Guidelines.

Verification Requirements

Before issuing an EV Certificate, QuoVadis ensures that all Subject organisation information in the EV Certificate conforms to the requirements of, and has been verified in accordance with, the EV Guidelines and matches the information confirmed and documented by the CA pursuant to its verification processes. Such verification processes are intended to accomplish the following:

i) Verify Applicant's existence and identity, including;

- Verify Applicant's legal existence and identity (as established with an Incorporating Agency),
- Verify Applicant's physical existence (business presence at a physical address), and
- Verify Applicant's operational existence (business activity).

ii) Verify Applicant (or a corporate parent/subsidiary) is a registered holder or has exclusive control of the domain name to be included in the EV Certificate;

iii) Verify Applicant's authorisation for the EV Certificate, including;

- Verify the name, title, and authority of the Contract Signer, Certificate Approver, and Certificate Requester;
- Verify that Contract Signer signed the Subscriber Agreement; and
- Verify that a Certificate Approver has signed or otherwise approved the EV Certificate Request.

The vetting regime of the EV Guidelines includes detailed verification procedures, which vary by Subscriber, and may include direct confirmation with Incorporating Agencies as well as correlation of information from certain qualified commercial data providers, site visits, and independent confirmations from senior officers of the Applicant. Verified opinion letters from attorneys and accountants representing the Applicant, as well as bank account verifications, may also be used to fulfil aspects of the vetting process.

Applicant Contacts

The EV Guidelines specify a number of Applicant roles involved in the EV verification process. All must be filled by natural persons (i.e., specific individuals as opposed to generic titles or automated systems). The Applicant may authorise one individual to occupy two or more of these roles. The Applicant may authorise more than one individual to occupy any of these roles.

QuoVadis requires Applicants for EV Certificates to execute an EV Authority Letter to identify and authorise the various Applicant contacts, as well as to enable the use of online confirmations and approvals for various aspects of the EV process.

- Certificate Requester: The initial contact that submits the Certificate Application to QV on behalf of the Applicant. This person does NOT need to be an employee of the Applicant, but must be an authorised agent with express authority to represent the Applicant. Certificate Requesters are formally recognised by QuoVadis only after QuoVadis has confirmed their appointment with the Applicant.
- Certificate Approver: MUST be either the Applicant, 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 Requester, and (ii) to approve EV Certificate Requests submitted by other Certificate Requesters.

- Contract Signer: MUST be either the Applicant, employed by the Applicant, or an authorised agent who has express authority to represent the Applicant, and who has authority on behalf of the Applicant to sign Subscriber Agreements.
- Confirming Person: Must be a senior officer of the Applicant (e.g., Secretary, President, CEO, CFO, COO, CIO, CSO, Director, etc.) able to sign the QV Authority Letter on behalf of the Applicant.

Subscriber Agreement

Each Applicant must enter into a Subscriber Agreement with QuoVadis which specifically names both the Applicant and the individual Contract Signer signing the Agreement on the Applicant's behalf, and contains provisions imposing on the Applicant the following obligations and warranties:

- Accuracy of Information: An obligation and warranty to provide accurate and complete information at all times to the QuoVadis, both in the EV Certificate Request and as otherwise requested by the QuoVadis in connection with the issuance of the EV Certificate(s) to be supplied by the QuoVadis;
- Protection of Private Key: An obligation and warranty by the Subscriber or a subcontractor (e.g. hosting provider) to take all reasonable measures necessary to maintain sole control of, keep confidential, and properly protect at all times the Private Key that corresponds to the Public Key to be included in the requested EV Certificate(s) (and any associated access information or device – e.g., password or token);
- Acceptance of EV Certificate: An obligation and warranty that it will not install and use the EV Certificate(s) until it has reviewed and verified the accuracy of the data in each EV Certificate;
- Use of EV Certificate: An obligation and warranty to install the EV Certificate only on the server accessible at a domain name listed on the EV Certificate, and to use the EV Certificate solely in compliance with all applicable laws, solely for authorised company business, and solely in accordance with the Subscriber Agreement;
- Reporting and Revocation Upon Compromise: An obligation and warranty to promptly cease using an EV Certificate and its associated Private Key, and promptly request the QuoVadis to revoke the EV Certificate, in the event that:
- (a) any information in the EV Certificate is or becomes incorrect or inaccurate, or (b) there is any actual or suspected misuse or compromise of the Subscriber's Private Key associated with the Public Key listed in the EV Certificate; and
- Termination of Use of EV Certificate: An obligation and warranty to promptly cease all use of the Private Key corresponding to the Public Key listed in an EV Certificate upon expiration or revocation of that EV Certificate.

Application Process

During the Certificate approval process, QuoVadis Validation Specialists employ controls to validate the identity of the Subscriber and other information featured in the Certificate Application to ensure compliance with the Guidelines.

Step 1: The Certificate Requester provides a signed Certificate Application to QuoVadis, which includes information about the Applicant, personnel within the organisation who have authority to approve the request and also agreement to the Subscriber Agreement. In addition, the Certificate Requester provides a PKCS#10 CSR as well as billing information for processing the request and issuing the EV Certificate.

Step 2: QuoVadis independently verifies all information that is required to be verified by the EV Guidelines using a variety of sources.

Step 3: QuoVadis requests and receives a signed EV Authority Letter from the Applicant (unless a valid EV Authority Letter from the Applicant is already in its possession). Alternate procedures may also be used to authenticate the identity and authority of individuals involved in the Certificate Application.

Step 4: The Certificate Approver is contacted to obtain approval of Certificate issuance.

Step 5: All signatures by Certificate Requesters, Certificate Approvers and Contract Signers are verified through follow- up procedures or telephone calls.

Step 6: QuoVadis obtains and documents further explanation or clarification from the Applicant, Certificate Approver, Certificate Requester, and/or other sources of information as necessary to resolve discrepancies or details requiring further explanation. QuoVadis procedures ensure that a second Validation Specialist who is not responsible for the collection and review of information reviews all of the information and documentation assembled in support of the EV Certificate and looks for discrepancies or other details requiring further explanation. Two QuoVadis Validation Specialists must approve issuance of the Certificate.

Step 7: QuoVadis creates the EV Certificate.

Step 8: The EV Certificate is delivered to the Certificate Requester.

QuoVadis may not issue an EV Certificate until the entire corpus of information and documentation assembled in support of the EV Certificate is such that issuance of the EV Certificate will not communicate inaccurate factual information that QuoVadis knows, or by the exercise of due diligence should discover, from the assembled information and documentation. If satisfactory explanation and/or additional documentation are not received within a reasonable time, QuoVadis will decline the EV Certificate Request and notify the Applicant accordingly.

Renewal

Under the EV Guidelines, renewal requirements and procedures are generally the same as those employed for the validation and issuance for new Applicants. The maximum validity period for validated data that can be used to support issuance of an EV Certificate (before revalidation is required) is thirteen months, except for the identity and authority of individuals identified in the EV Authority Letter.

In the case of outdated information, QuoVadis repeats the verification processes required by the EV Guidelines. If a company is no longer in good standing, or if any of the other required information cannot be verified, the Certificate is not renewed.

11.3. QUOVADIS QUALIFIED WEBSITE AUTHENTICATION CERTIFICATE (QCP-W)

QuoVadis Qualified Website Authentication Certificates (QCP-w) (QWAC) are issued under the requirements of ETSI EN 319 411-2 aim to support website authentication based on a Qualified Certificate defined in articles 3 (38) and 45 of the eIDAS Regulation.

QCP-w Certificates issued under these requirements endorse the requirement of EV Certificates whose purpose is specified in clause 5.5 of ETSI EN 319 411-1 [2]. QWACs issued under this policy provide a means by which a visitor to a website can be assured that there is a genuine and legitimate entity standing behind the website as specified in the eIDAS Regulation.

The QuoVadis QWAC is designed to comply with:

- CA/Browser Forum EV Guidelines;
- ETSI EN 319 411-2 Electronic Signatures and Infrastructures (ESI); Requirements for Trust Service Providers issuing EU Qualified Certificates;
- ETSI EN 319 412-4 Electronic Signatures and Infrastructures (ESI); Certificate profile for web site certificates; and
- ETSI EN 319 412-5 Electronic Signatures and Infrastructures (ESI); QCStatements

Field	**Value**	**Comments**
Version	V3 (2)	
Serial Number	Unique system generated random number assigned to each certificate, containing at least 64 bits of output.	
Issuer Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)	
Issuer Distinguished Name	Unique X.500 CA DN. CN = QuoVadis Qualified Web ICA G1 O = QuoVadis Trustlink B.V. Org Id = NTRNL-30237459 C = NL	
Validity Period	397 days.	
Subject Distinguished Name		
Organization Name	subject:organisationName (2.5.4.10)	This field MUST contain the Subject's full legal organisation name as listed in the official records of the Incorporating or Registration Agency in the Subject's Jurisdiction of Incorporation. In addition, an assumed name or d/b/a name used by the Subject MAY be included at the beginning of this field, provided that it is followed by the full legal organisation name in parenthesis. If the combination of the full legal organisation name and the assumed or d/b/a name exceeds 64 characters as defined by RFC 5280, only the full legal organisation name will be used.

Organization Identifier	subject:organisationIdentifier (2.5.4.97)	Refer to: CA/Browser Forum Ballot SC17
Organisation Unit	subject:organisationUnit (2.5.6.5)	Not permitted
Common Name	subject:commonName (2.5.4.3) cn = Common name	SubjectAlternativeName:dNSName is found below in this table. This field MUST contain one or more host domain name(s) owned or controlled by the Subject and to be associated with Subject's publicly accessible server. Such server may be owned and operated by the Subject or another entity (e.g., a hosting service). Wildcard Certificates are not allowed for EV Certificates.
City or Town of Incorporation	subject:jurisdictionOfIncorporationLocalityName (1.3.6.1.4.1.311.60.2.1.1)	ASN.1 - X520LocalityName as specified in RFC 5280 Full name of Jurisdiction of Incorporation for an Incorporating or Registration Agency at the city or town level, including both country and state or province information as follows.
State/ Province of Incorporation	subject:jurisdictionOfIncorporationStateOrProvinceName (1.3.6.1.4.1.311.60.2.1.2)	ASN.1 - X520StateOrProvinceName as specified in RFC 5280 Full name of Jurisdiction of Incorporation for an Incorporating or Registration Agency at the state or province level, including country information as follows, but not city or town information above.
Country of Incorporation	subject:jurisdictionOfIncorporationCountryName (1.3.6.1.4.1.311.60.2.1.3)	ASN.1 - X520countryName as specified in RFC 5280 Jurisdiction of Incorporation for an Incorporating or Registration Agency at the country level would include country information but would not include state or province or city or town information. Country information MUST be specified using the applicable ISO country code.
Registration Number	Subject:serialNumber (2.5.4.5)	For Private Organisations and Business Entities, this field MUST contain the unique Registration Number assigned to the Subject by the Incorporating or Registration Agency in its Jurisdiction of Incorporation. If the Incorporating or Registration Agency does not provide Registration Numbers, then the field will contain the date of incorporation or registration. For Government Entities, that do not

		have a Registration Number or verifiable date of creation, the field will contain the label “Government Entity”.
Business Category	Subject:businessCategory (2.5.4.15)	This field MUST contain one of the following strings: "Private Organization", "Government Entity", "Business Entity", or "Non-Commercial Entity", depending on which Section of the EV Guidelines applies to the Subject.
City or town	subject:localityName (2.5.4.7)	City or town
State or province (if any)	subject:stateOrProvinceName (2.5.4.8)	State or province (if any)
Country	subject:countryName (2.5.4.6)	Country
Subject Public Key Information	2048-bit RSA key modulus, rsaEncryption (1.2.840.113549.1.1.1)	Subject Public Key Information
Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)	Signature Algorithm
Extension	**Value**	
Authority Key Identifier	c=no; Octet String – Same as Issuer's Subject Key Identifier	
Subject Key Identifier	c=no; Octet String – Same as calculated by CA from PKCS#10	
Key Usage	c=yes; Digital Signature, Key Encipherment (a0)	
Extended Key Usage	c=no; Server Authentication (1.3.6.1.5.5.7.3.1) Client Authentication (1.3.6.1.5.5.7.3.2)	
Certificate Policies	c=no; [1] Certificate Policy: Policy Identifier=0.4.0.194112.1.4 [2] Certificate Policy: Policy Identifier= 1.3.6.1.4.1.8024.0.2.100.1.2 [3] Certificate Policy: Policy Identifier= 1.3.6.1.4.1.8024.1.450 [3,1] Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: http://www.quovadisglobal.com/repository	[1] QCP-W policy from ETSI EN 319 411-2 [2] QuoVadis EV policy OID [3] QuoVadis Qualified (not on QSCD policy OID [4] CAB Forum EV OID

	[4] Certificate Policy: Policy Identifier=2.23.140.1.1	
Certificate Transparency (optional)	(1.3.6.1.4.1.11129.2.4.4) This field MAY include two or more Certificate Transparency proofs from approved CT Logs.	
Subject Alternative Name	c=no; DNS = FQDN of Device (e.g., domain.com)	
Authority Information Access	c=no; Access Method= - Id-ad-ocsp (On-line Certificate Status Protocol - 1.3.6.1.5.5.7.48.1); URL =http://ocsp.quovadisglobal.com Access Method=Certification Authority Issuer (1.3.6.1.5.5.7.48.2); URL = http://trust.quovadisglobal.com/qvqwebg1.crt	
CRL Distribution Points	c = no; CRL HTTP URL = http://crl.quovadisglobal.com/qvqwebg1.crl	
cabfOrganizationIdentifier	cabfOrganizationIdentifier 2.23.140.3.1	Optional Refer to: CA/Browser Forum Ballot SC17
qcStatements		
id-etsi-qcs- QcCompliance	id-etsi-qcs (1 0.4.0.1862.1.1) esi4-qcStatement-1: Claim that the certificate is an EU Qualified Certificate in accordance with Regulation EU No 910/2014	Refer to: ETSI EN 319 412-5
id-etsi-qcs-QcType	id-etsi-qcs-6 (0.4.0.1862.1.6) esi4-qcStatement-6 : Type of certificate Id-etsi-qct-web (0.4.0.1862.1.6.3) id-etsi-qcs-QcType 3 = Certificate for website authentication as defined in Regulation EU No 910/2014	Refer to: ETSI EN 319 412-5
id-etsi-qcs-QcPDS	id-etsi-qcs-5 (0.4.0.1862.1.5) URL= https://www.quovadisglobal.com/repository Language = EN	Refer to: ETSI EN 319 412-5
id-qcs-pkixQCSyntax-v2	1.3.6.1.55.7.11.2	

Verification Requirements

The verification requirements for a QuoVadis Qualified Website Authentication (QCP-w) certificate are consistent with the vetting requirements for a QuoVadis EV SSL certificate, with the additional verification:

QuoVadis policy is that QuoVadis Qualified Website Authentication (QCP-w) certificates are only issued to legal persons and not natural persons. The identity of the legal person and, if applicable, any specific attributes of the legal person, shall be verified:

I. by the physical presence of an authorised representative of the legal person; or

II. using methods which provide equivalent assurance in terms of reliability to the physical presence of an authorised representative of the legal person and for which QuoVadis can prove the equivalence.

11.4. QUOVADIS QCP-W-PSD2

ETSI TS 119 495 defines QWAC profiles and TSP policy requirements under the Payment Services Directive (EU) 2015/2366, which are supplemented by Ballot SC17 of the CA/Browser Forum.

QuoVadis QCP-w-psd2 follow the same profile as QuoVadis QCP-w Certificates with the following variations:

Field	**Value**	**Comments**
Subject Distinguished Name		
Organization Identifier	subject:organisationIdentifier (2.5.4.97)	PSD2 Authorisation Number Refer to: ETSI TS 119 495 5.1 CA/Browser Forum Ballot SC17
Extension	**Value**	
Certificate Policies	c=no; [1] Certificate Policy: Policy Identifier=0.4.0.194112.1.4 [2] Certificate Policy: Policy Identifier= 1.3.6.1.4.1.8024.0.2.100.1.2 [3] Certificate Policy: Policy Identifier= 1.3.6.1.4.1.8024.1.450 [3,1] Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: http://www.quovadisglobal.com/repository [4] Certificate Policy: Policy Identifier=2.23.140.1.1 [5] Certificate Policy: Policy Identifier=0.4.0.19495.3.1	[1] QCP-W policy from ETSI EN 319 411-2 [2] QuoVadis EV policy OID [3] QuoVadis Qualified (not on QSCD policy OID [4] CAB Forum EV OID [5] PSD2 OID QCP-w-PSD2
cabfOrganizationIdentifier		
cabfOrganizationIdentifier	cabfOrganizationIdentifier 2.23.140.3.1	Refer to: CA/Browser Forum Ballot SC17
qcStatements		
id-etsi-qcs- QcCompliance	id-etsi-qcs (1 0.4.0.1862.1.1) esi4-qcStatement-1: Claim that the	Refer to: ETSI EN 319 412-5

	certificate is an EU Qualified Certificate in accordance with Regulation EU No 910/2014	
id-etsi-qcs-QcType	id-etsi-qcs-6 (0.4.0.1862.1.6) esi4-qcStatement-6 : Type of certificate Id-etsi-qct-web (0.4.0.1862.1.6.3) id-etsi-qcs-QcType 3 = Certificate for website authentication as defined in Regulation EU No 910/2014	Refer to: ETSI EN 319 412-5
id-etsi-qcs-QcPDS	id-etsi-qcs-5 (0.4.0.1862.1.5) URL= https://www.quovadisglobal.com/repository Language = EN	Refer to: ETSI EN 319 412-5
Etsi-psd2-qcstatement	id-etsi-psd2-qcStatement (0.4.0.19495.2) PSD2QcType ::= SEQUENCE{ rolesOfPSP RolesOfPSP, nCAName NCAName, nCAId NCAId }	Refer to: ETSI TS 119 495 5.1
id-qcs-pkixQCSyntax-v2	1.3.6.1.55.7.11.2	

Verification Requirements

The verification requirements for a QuoVadis Qualified Website Authentication (QCP-w-PSD) certificate are the same for QCP-w with additional steps to verify PSD2 specific attributes including name of the National Competent Authority (NCA), the PSD2 Authorisation Number or other recognized identifier, and PSD2 rolesQuoVadis also confirms the PSD2 role(s) of the Certificate Applicant (RolesOfPSP) in accordance with the rules for validation provided by the NCA, if applicable:

Authorisation Number

The PSD2 Authorisation Number within the certificate takes the following format:

PSD	**NL**	**-**	**DNB**	**-**	**12345Ab**
“PSD" as 3 character identifier for the Registration Scheme					
	2 character ISO 3166 [7] country code representing the NCA country				
		Hyphen-minus "-" (0x2D (ASCII), U+002D (UTF-8))			
			2-8 character NCA identifier (A-Z uppercase only, no separator)		
				hyphen-minus "-" (0x2D (ASCII), U+002D (UTF-8))	
					PSP identifier (Authorisation Number as specified by the NCA)

NCAs are described by a name "NCAName" and an identifier "NCAId". A list of valid values for "NCAName" and "NCAId" is provided by the EBA (European Banking Authority) and published in ETSI TS 119 495, Annex D.

Note: PSP identifiers MAY contain hyphens, but Registration Schemes, ISO 3166 country codes, and NCA identifiers do not. Therefore if more than one hyphen appears in the final PSP identifier, the leftmost hyphen is a separator and the remaining hyphens are part of the PSP identifier.

PSD2 Roles

The NCA can assign one or more roles (RolesOfPSP) to payment service providers. QuoVadis also confirms the PSD2 role of the Certificate Applicant (RolesOfPSP):

i) account servicing (PSP_AS)
   - OID: id-psd2-role-psp-as { 0.4.0.19495.1.1 }
     Role: PSP_AS

ii) payment initiation (PSP_PI)
   - OID: id-psd2-role-psp-pi { 0.4.0.19495.1.2 }
     Role: PSP_PI

iii) account information (PSP_AI)
   - OID: id-psd2-role-psp-ai { 0.4.0.19495.1.3 }
     Role: PSP_AI

iv) issuing of card-based payment instruments (PSP_IC)
   - OID: id-psd2-role-psp-ic { 0.4.0.19495.1.4 }
     Role: PSP_IC

Revocation Requests

Based on an authenticated request from an NCA, in accordance with ETSI TS 119 495 Section 6.2.6, QuoVadis shall revoke a PSD2 certificate within 24 hours if:

- the Authorisation of the PSP has been revoked;
- any PSP role included in the certificate has been revoked.

QuoVadis will investigate unauthenticated requests from an NCA, and shall revoke the affected certificate(s) if necessary. Unauthenticated NCA notifications need not be processed within 24 hours.

11.5. CODE SIGNING

Field	**Value**	**Comments**
Version	V3	
Serial Number	Unique system generated random number assigned to each certificate, containing at least 64 bits of output.	
Issuer Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)	
Issuer Distinguished Name	CN = QuoVadis Code Signing CA G1 O = QuoVadis Limited C = BM	
Validity Period	1, 2, or 3 years expressed in UTC format	
Subject Distinguished Name		
Organisation Name	subject:organisationName (2.5.4.10)	Required field. The Subject's verified legal name.
Organisation Unit	subject:organisationUnit (2.5.6.5)	Optional field. Must not include a name, DBA, tradename, trademark, address, location, or other text that refers to a specific natural person or Legal Entity unless QuoVadis has verified this information
Common Name	subject:commonName (2.5.4.3)	Required field. The Subject's verified legal name.
State or province (if any)	subject:stateOrProvinceName (2.5.4.8)	Required if the subject:localityName field is absent. Optional if the subject:localityName fields is present.
Locality	subject:locality (2.5.4.6)	Required if the subject:stateOrProvinceName field is absent. Optional if the subject:stateOrProvinceName field is present.
Country	subject:countryName (2.5.4.6)	Required field.
Subject Public Key Information	2048-bit RSA key modulus, rsaEncryption (1.2.840.113549.1.1.1)	
Signature Algorithm	sha256RSA (1.2.840.113549.1.1.11)	
Extension	**Value**	
Authority Key Identifier	c=no; Octet String	
Subject Key Identifier	c=no; Octet String	
Key Usage	c=yes; Digital Signature (80)	
Extended Key Usage	c=no; 1.3.6.1.5.5.7.3.3 (codeSigning)	
Field	**Value**	**Comments**

Certificate Policies	c=no; Certificate Policies; {1.3.6.1.4.1.8024.0.2.200.1.1 } Certificate Policies; { 2.23.140.1.4.1 } [1,1] Policy Qualifier Info: Policy Identifier Id=CPS Qualifier: http://www.quovadisglobal.com/repository	1.3.6.1.4.1.8024.0.2.200.1.1 is the QuoVadis Code Signing OID. 2.23.140.1.4.1 is the Code Signing Minimum Requirements OID.
Authority Information Access	c=no; Access Method= - Id-ad-ocsp (On-line Certificate Status Protocol - 1.3.6.1.5.5.7.48.1); URL =http://ocsp.quovadisglobal.com - id-ad-caIssuers (Certification Authority Issuer - 1.3.6.1.5.5.7.48.2); URL = http://trust.quovadisglobal.com/qvcscag1.crt	
CRL Distribution Points	c = no; CRL HTTP URL =http://crl.quovadisglobal.com/qvcscag1.crl	

Purposes of Code Signing

The primary purpose of QuoVadis Code Signing Certificates is to establish that executable code originates from a source identified by QuoVadis. QuoVadis Certificates focus only on the identity of the Subject named in the Certificate, and not on the behaviour of the Subject. As such, Certificates are not intended to provide any assurances, or otherwise represent or warrant:

- That the Subject named in the Certificate is actively engaged in doing business;
- That the Subject named in the Certificate complies with applicable laws;
- That the Subject named in the Certificate is trustworthy, honest, or reputable in its business dealings; or
- That it is “safe” to do business with the Subject named in the Certificate.

Eligible Applicants

QuoVadis only issues Code Signing Certificates to Organisational Applicants and does not issue such certificates to Individual Applicants.

An Individual Applicant is an Applicant that is an individual and requests a Certificate that will list the Applicant’s legal name as the Certificate subject.

An Organisational Applicant is an Applicant that requests a Certificate subject other than the name of an individual. Organisational Applicants include private and public corporations, LLCs, partnerships, government entities, non-profit organizations, trade associations, and other entities.

Private Key Protection

Subscriber Key Pairs must be generated and protected in one of the following options:

- A Trusted Platform Module (TPM) that generates and secures a Key Pair and that can document the Subscriber’s Private Key protection through a TPM key attestation

- A hardware cryptographic module with a unit design form factor certified as conforming to at least FIPS 140 Level 2, Common Criteria EAL 4+, or equivalent.
- Another type of hardware storage token with a unit design form factor of SD Card or USB token (not necessarily certified as conformant with FIPS 140 Level 2 or Common Criteria EAL 4+). The Subscriber MUST also warrant that it will keep the token physically separate from the device that hosts the code signing function until a signing session is begun.

Verification Requirements

Before issuing a Code Signing Certificate, QuoVadis performs limited procedures to verify that all Subject information in the Certificate is correct, and that the Applicant is authorised to sign code in the name to be included in the Certificate.

Prior to issuing a Code Signing Certificate to an Organisational Applicant, QuoVadis:

i) Verifies the Applicant's possession of the Private Key;

ii) Verifies the Subject's legal identity, including any Doing Business As (DBA) as described in Section 3.2.2.2 of the Baseline Requirements,

iii) Verifies the Subject's address, and

iv) Verifies the Certificate Requester's authority to request a certificate and the authenticity of the Certificate request using a verified method of communication.

A Declaration of Identity is a written document that consists of the following:

i) the identity of the person performing the verification,

ii) a signed declaration by the verifying person stating that they verified the identity of the Applicant,

iii) a unique identifying number from an identification document of the verifier,

iv) a unique identifying number from an identification document of the Applicant,

v) the date and time of the verification, and

vi) a declaration of identity by the Applicant that is signed in handwriting in the presence of the person performing the verification.

Application Process

During the Certificate approval process, QuoVadis Validation Specialists employ controls to validate the identity of the Applicant and other information featured in the Certificate Application to ensure compliance with this CP/CPS.

Step 1: The Applicant provides a signed Certificate Application to QuoVadis, which includes identifying information to assist QuoVadis in processing the request and issuing the Certificate, along with a PKCS#10 CSR and billing details.

Step 2: QuoVadis independently verifies information using a variety of sources in accordance with the "Verification Requirements" Section above.

Step 3: The Applicant accepts the Subscriber Agreement and approves Certificate issuance. Step 4: All signatures are verified through follow-up procedures or telephone calls.

Step 5: QuoVadis obtains and documents further explanation or clarification as necessary to resolve discrepancies or details requiring further explanation. If satisfactory explanation and/or additional documentation are not received within a reasonable time, QuoVadis will decline the Certificate Request and notify the Applicant accordingly. Two QuoVadis Validation Specialists must approve issuance of the Certificate.

Step 6: QuoVadis creates the Code Signing Certificate.

Step 7: The Certificate is delivered to the Applicant.