

Certification Practice Statement (CPS)

ZOVAR

Version 5.2

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Colophon

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Revision history

Version	Date	Status	Comment
1.0	01/10/2007	Final	- External distribution.
1.1	06/12/2007	Final	- Version in connection with second generation CA hierarchy.
2.0	01/06/2008	Final	Version in connection with the coming into effect of the Use of Citizen Service Number in Healthcare Act [Wet gebruik burgerservicenummer in de zorg]. The following changes were also made: <ul style="list-style-type: none"> - Exclusion of driving licence as identification document during registration. - Supporting documents legal representative. - ZOVAR method in the case of the compromise of an algorithm. - New version of schedule of requirements PKI government. - Textual changes.
2.2.	12/03/2012	Final	- Changed procedure amendment (par. 9.12). - Changed liability trusting parties.
2.3	04/05/2012	Final	- Textual changes and layout.
2.4	28/06/2012		- CAB forum clause included (par. 1). - Preconditions for the routine renewal of certificates (par. 3.3.1). - Method of submitting PKCS#10 files (par. 4.1). - Acceptance of certificates (par. 4.4). - Circumstance of withdrawal on initiative of ZOVAR added (par. 4.9.1). - Textual changes.
2.5	15/04/2013	Final	- CRL issue frequency increased to every hour. - Passage decision period changed (par. 4.2). - Obligation subscriber with regard to a server certificate with a domain name (FQDN) which is addressable via the internet (par. 4.5.1). - Transition period in the event of name change or termination of subscriber (par. 4.11). - Basic attributes of StateOrProvinceName and Locality-Name added (par. 7.1.1). - Framework CPS in accordance with RFC 3647. - Textual changes.
2.6	27/06/2013	Final	- Only electronic withdrawals are guaranteed to be withdrawn within four hours (par. 4.9.5). - ZOVAR rates (par. 9.1). - Textual changes.
2.7	20/09/2013	Final	- Mobile issue of certificates (par. 4.3). Role of the certificate manager made clearer.
2.8	02/01/2014	Final	- Second generation CAs - end-of-life - Requirements relating to certificate holder specified in more detail (par. 3.2.5)

			- OCSF added (par. 4.9.9 and 7.3)
2.9	01/11/2014	Final	<ul style="list-style-type: none"> - Various small changes and spelling corrections (entire CPS) - It is no longer necessary to submit proof of the DNB registration (par. 3.2.2) - Clarifies that the 'department' field will not be assessed (par. 3.2.4) - Clarifies who may apply for certificates (par. 3.2.5) - Clarifies that a new key pair is always generated upon renewal (par. 3.3.1) - Withdrawal procedure modified (a WID copy is required less often) (par. 3.4, 4.9.3) - Clause added on the cancellation of certificate applications (par. 4.1: - Clarifies that ZOVAR does not accept driving licences as identification (par. 4.3: - Acceptance procedure described in more detail (par. 4.4: - Obligations for subscriber expanded in line with CAB forum requirements (par. 4.5.1) - Statement that ZOVAR does not support suspension (par. 4.9: - Text on the vulnerability analysis modified (par. 5.4.7) - Continuation of services after CSP termination modified (par. 5.8: - References to old CA environment deleted (H7) - Invoicing and payment clarified (par. 9.1.4, 9.1.6) - Insight into own personal details clarified (par. 9.4:
3.0	01/09/2015	Final	<ul style="list-style-type: none"> - The separate document entitled 'Trusting Party Conditions' has been combined with this CPS. Section 1.3 now refers to the obligations for all parties involved. - New PKI government SoR names implemented (par. 2.2, 7.1, 7.2, 8.4) - An email address can no longer be included in a server certificate (par. 3.2.3). - Statement that Certification Authority Authorization DNS details are not checked (par. 4.2: - CRLs are archived on CSP termination (par. 5.8: - Description of OCSF responder certificate added (par. 7.3: - ZOVAR guarantees clarified (par. 9.6.1)
3.1	20/03/2017	Final	- Validity of certificates modified (entire CPS)
4.00	01/06/2017	Final	<ul style="list-style-type: none"> - New ETSI standard - Term CSP (Certification Service Provider) replaced by TSP (Trust Service Provider) - Termination TSP clarified and reference made to the CA Termination Plan CIBG (par. 5.8: - Included that a new version of the CPS is to be reported to the Policy Authority (par. 9.11.1) - Reference to chapter 3.2.2.4.5 of the Baseline Re-

			<ul style="list-style-type: none"> quirements included (par. 3.2.3) - Withdrawal of UZI resources after failure to pay (par. 4.9.1 and 9.1.7) - Invoicing of UZI resources by e-mail added (par. 9.1.6) - Various small changes (entire CPS)
5.0	04-01-2018	Final	<ul style="list-style-type: none"> - The Private G1 hierarchy of the State of the Netherlands release
5.1	10-09-2018	Final	<ul style="list-style-type: none"> - General Data Protection Regulation (De Algemene verordening gegevensbescherming) - Limited liability with regard to performing the identification of the certificate manager added (par 9.8) - Change regarding Time required to process a withdrawal request modified (par 4.9.5) - Retention periods included (par. 5.5.2) - Change procedure modified (par. 9.12)
5.2	23-11-2018	Final	<ul style="list-style-type: none"> - Various small changes and spelling corrections (entire CPS) - The G2 hierarchy added - Reference to chapter 3.2.2.4. of the Baseline Requirements included. - Chapter 8 'Conformity assessment' updated

Table 1 Version history CPS ZOVAR

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Accord TSP Management

Versie: 5.2

Datum: 23-11-2018

1. Introduction

In order to facilitate the safe communication and consultation of confidential information in the care sector, three domains have been identified: the care consumers, the care insurers and healthcare administration offices, and the care providers. The Health insurers identification and authentication register (abbreviated to ZOVAR) is the register of health insurers designated by the Minister of Health, Welfare and Sport as referred to in Article 14 of the Act Additional provisions for the processing of personal data in the care [Wet aanvullende bepalingen verwerking persoonsgegevens in de zorg]. ZOVAR is the certificate service provider (TSP) that issues certificates for the unique identification and authentication of care insurers and healthcare administration offices. ZOVAR issues certificates with which care insurers and healthcare administration offices can request the citizen service number (BSN) from the Sectoral Healthcare Notifications Unit [Sectorale Berichten Voorziening in de Zorg] (SBV-Z). The authenticity and confidentiality functions are combined in the ZOVAR server certificates.

TSP ZOVAR complies with the current version of the Baseline Requirements for Issuance and Management of Publicly-Trusted Certificates, as published on <http://www.cabforum.org>. In the event of any inconsistency between this CPS and the Requirements in question, which means that, as a minimum, the stipulated minimum requirements are not taken into account, at the discretion of the PA, the stipulations in the Requirements will take precedence.

1.1 SHA-2 generatie (G21)

ZOVAR has issued server certificates until 4 January 2018 under the Root CA from the State of the Netherlands. This hierarchy uses signature of certificates and CRLs using a new cryptographic algorithm: SHA-2. This structure is shown in Figure 1: CA-model SHA-2 generation.

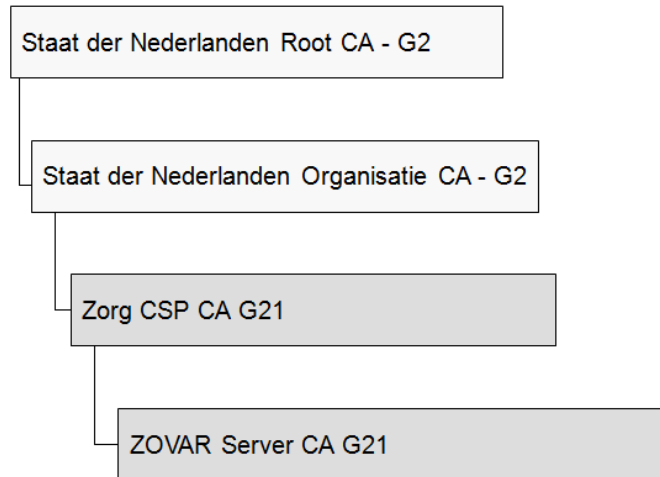


Figure 1 CA-model SHA-2 generation (G21)

1.2 Private G1 generatie

The end date of the SHA-2 (G21) hierarchy is 22 March 2020. Therefore, from 4 January 2018 ZOVAR issues server certificates under a new CA: the private Root CA G1 of PKIoverheid (Private G1). With the introduction of G1, the number of levels in the CA hierarchy is a maximum of 3.

The figure 1 below shows the CA model for the generation Private G1

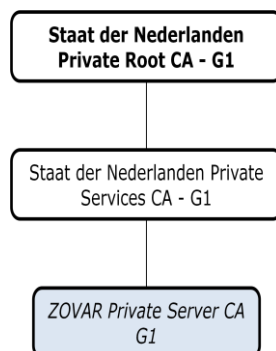


Figure 2 CA-model Private G1 generation

There are no cryptographic differences in the transition to the Public G3 / Private G1 hierarchy. The same algorithms and key lengths remain in use as in the SHA-2 generation.

1.3 Purpose, name and identification of the Certification Practice Statement (CPS)

1.3.1 Purpose of the CPS

The ZOVAR CPS describes how the services are interpreted. The CPS describes the processes, procedures and control measures for applying for, producing, issuing, managing and retracting of the certificates. By using this CPS, the parties involved can determine their confidence in the services delivered by ZOVAR.

The general framework of this CPS is based on the model as presented in Request for Comments 3647. The RFC 3647 applies internationally as the de facto standard for CPSes.

1.3.2 Relationship CP and CPS

ZOVAR issues certificates within the Government domain of the hierarchy of the PKI for the government (first and second generation) and within the Organisation domain (SHA-2 generation). The requirements imposed on the issue and use of a ZOVAR certificate are described in the Schedule of Requirements section 3b en 3h Certificate Policy Server Certificaten – Domein Private Services.

1.3.3 Name and references

This document is formally referred to as the 'ZOVAR Certification Practice Statement (CPS)', abbreviated to CPS. A paper version of the CPS can be obtained from the contact address included in paragraph 1.5.1. The references to the CPS are included in the table below.

CPS	Description
Naming	Certification Practice Statement, ZOVAR vX.x
Link	https://www.zorgcsp.nl/cps/zovar.html
Object Identifier (OID)	2.16.528.1.1007.5.1.1

Table 2 References to CPS ZOVAR

1.4 The parties involved

The following parties are involved in the ZOVAR:

- implementing ZOVAR organisation, including suppliers of products and services;
- user community consists of:
 - subscribers;
 - certificate holders;
 - trusting parties.

The CIBG fulfils the role of TSP and has the final responsibility for delivering the certification services. The CIBG is an implementing body of the Ministry of Health, Welfare and Sport. The CIBG in the role of TSP is referred to in the rest of this CPS as 'ZOVAR'.

Clauses about liability and guarantees of the TSP are included in sections 8.5.1, 8.6 and 8.7.

1.4.1 Certification Authority (CA)

The CA produces and publishes certificates and certificate revocation lists (CRLs). The CA arranges the production and publication of requested certificates on the basis of an authenticated request from the RA. Certificates are published directly after they have been created by the CA. After withdrawal, the CA publishes certificate serial numbers on the CRLs. Certificates are published on a CRL after the CA has received a message of withdrawal of the certificate from an authorised person. The CIBG has subcontracted the role of CA to KPN Corporate Market B.V. which, together with ATOS Nederland B.V. (the Consortium) as lead manager arranges the production process.

1.4.2 Registration Authority (RA)

The RA arranges the processing of certificate applications and all corresponding tasks. The RA physically collects the identification details, checks and registers these and carries out the verification checks described. After the checks the RA instructs the CA to produce and publish the certificates. CIBG fulfils the role of RA. CIBG has outsourced the process of establishing the identity of the certificate holder of a server certificate to the Consortium. Dynalogic establishes the identity of the applicant/certificate manager on behalf of the Consortium.

1.4.3 Dissemination Service (publication service)

ZOVAR is responsible for the website on which, among other things, this CPS is published. The CRL is also placed on this website (generated by the CA). This website also contains the online withdrawal page and provides a public search function for certificates.

1.4.4 Subscribers, certificate holders and certificate managers

The subscriber is the party on whose behalf the certificate holder (i.c. server/service) acts when using the certificate. A ZOVAR subscriber is a healthcare insurer or healthcare administration office.

A healthcare insurer means:

- A. Wlz implementing body as referred to in Article 1.1.1 of the Long-Term Care Act [Wet langdurige zorg] (Wlz);
- B. healthcare insurer as referred to in Article 1 under b of the Healthcare Insurance Act [Zorgverzekeringswet];
- C. insurance company as referred to in the Solvency II Directive insofar as this company offers or implements insurance policies pursuant to which the insured risk is the need for care to which, by virtue of or pursuant to the Long-Term Care Act, no entitlement exists and whereby the insured performance exceeds that arranged by virtue of or pursuant to the Healthcare Insurance Act;

Server certificates can be obtained for a subscriber's systems. These certificates indicate that a system exchanges details and/or offers services on behalf of the subscriber. The subscriber is responsible for the accuracy of the details in the server certificates of his systems. The applicant of a server certificate authorised on behalf of the healthcare insurer or healthcare administration office also fulfils the role of certificate manager. A certificate manager is a natural person that carries out activities on behalf of the subscriber relating to the certificate of the certificate holder. The subscriber

instructs the certificate manager to carry out the activities in question and records these as proof of certificate management. As TSP the CIBG guarantees the relationship to the subscriber and issues the server certificate after a face-to-face check and a check of the legal identity of the applicant/certificate manager. In the case of server certificates, the authenticity and confidentiality certificate are combined into a single certificate.

The obligations which are applicable to subscribers, certificate holders and certificate managers are included in CPS sections 4.5.1, 4.9.1 and 8.5.2.

1.4.5 *Trusting parties*

A trusting party is the party that acts on a certificate in trust.

The obligations which are applicable to trusting parties are included in sections 4.5.2 and 8.5.3.

1.5 **Certificate use**

The field of application of certificates issued by ZOVAR is limited to the user community as described in paragraph 1.3, section 3b of the Schedule of Requirements of the PKI for the government.

ZOVAR issues server certificates. The function of an authenticity certificate and a confidentiality certificate are combined in these certificates. These functions are clarified in more detail in Table 3: Field of application of server certificate.

Application	Purpose
Authenticity and Confidentiality	This certificate is used to protect communication between machines

Table 3 Field of application of server certificate

Certificates may only be used for the purpose indicated. Otherwise there are no restrictions on the use of the certificates.

1.6 **Organisation CPS management**

1.6.1 *Contact details*

Information about this CPS or the services of ZOVAR can be obtained via the following contact details. Comments on this CPS can be sent to the same address:

ZOVAR
Rijnstraat 50
2515 XP The Hague
Tel: 0900-232 4342
info@zovar.nl

PO Box 16114
2500 BC The Hague
www.zovar.nl

1.6.2 Amendment and approval CPS

The CIBG is entitled to amend or supplement the CPS. Changes apply as of the moment that the new CPS commences and is published on the website www.zovar.nl. The TSP management is responsible for correct compliance with the procedure as described in paragraph 9.12 and for the eventual approval of the CPS in accordance with this procedure.

1.7 Definitions and abbreviations

For an overview of the definitions and abbreviations used, please refer to Annex 1.

2. Publication and responsibility for electronic storage location

2.1 Electronic storage location

ZOVAR publishes certificates, as part of the issue procedure. Trusting parties, certificate holders and subscribers can consult certificates via the directory service.

The directory service can be accessed online and is adequately secured against manipulation. Information about the status of a certificate can be consulted twenty-four hours a day and seven days a week by means of a Certificate Revocation List (CRL).

2.2 Publication of TSP information

ZOVAR publishes TSP information on www.zovar.nl. Among other things, this location offers access to the following documents and services:

- CPS,
- Consultation and advisory memoranda relating to changing the CPS,
- Trusting party conditions,
- Certificate Revocation Lists (CRLs),
- TSP and CA certificates,
- Directory service.

For the Certificate Policies (CP) this site refers to www.logius.nl. In order to be able to identify the correct CP, the table below shows the relationship between the certificates, the functions of the certificates, the applicable CP and the Object Identifier (OID) of the CP.

Type of certificate		Applicable CP	OID CP
Name	Certificate (function)		
Server (SHA-2 generation)	authenticiteit en vertrouwelijkheid	PvE, deel 3e, Certificate Policy – Services, domein Organisatie	2.16.528.1.1003.1.2.5.6
Server (Private G3)	authenticity and confidentiality	PvE deel 3h: Certificate Policy Server Certificaten – Domein Private Services	2.16.528.1.1003.1.2.8.6

Table 4 Overview of certificates with OID of applicable CP

2.3 Publication of certificate

Certificates are published as defined in the Act Additional provisions for the processing of personal data in the care and other regulations.

2.4 Publication frequency

Certificates are published as part of the issue process. The CRL issue frequency is every hour.

2.5 Access to publication

Published information is public in nature and freely accessible. The published information can be consulted twenty-four hours a day and seven days per week.

The published certificates can only be accessed publicly via the search function on the website.

3. Identification and authentication

3.1 Naming

This paragraph describes how the applicant/certificate manager is identified and authenticated during the initial registration procedure and which criteria the ZOVAR imposes with regard to the names.

3.1.1 *Types of name formats*

The name of the certificate holder is included in the server certificate. This field consists of (X.500) attributes and is filled as follows:

Attribute	Server
Country (C)	'NL'
Organization (O)	Subscriber's name
OrganizationalUnit (OU)	Department (optional)
CommonName (CN)	System name
SerialNumber	<UZOVI number><ZOVAR number>

Table 5 Name of certificate holder (subject.DistinguishedName)

No attributes are used other than those indicated above. A clarification of the other parts of the certificates is included in chapter 7.

3.1.2 *Need for meaningful name*

The name used in the issued certificates is unambiguous in such a way that it is possible for the trusting party to establish irrefutably the identity of the certificate holder or subscriber.

3.1.3 *Anonymity or pseudonymity of certificate holders*

ZOVAR does not allow the usage of pseudonyms in the subscriber registration or certificate applications.

3.1.4 *Guidelines for interpreting the various name types*

The following points are relevant for the interpretation of the name:

- The subscriber name contains the name as used during the registration in the Trade Register of the Chamber of Commerce.
- Department contains the department name given by the subscriber. This is not verified by ZOVAR.
- System name contains, for example, the fully qualified domain name (fqdn) of the system.

All names are, in principle, taken literally from the identification documents submitted. However, it may be the case that the name details contain special characters which are not part of the standard character set in accordance with ISO8859-1 (Latin-1). If the name contains characters which are not part of this character set, ZOVAR will carry out a transition.

ZOVAR reserves the right to change the requested name upon registration if this is legally or technically necessary.

3.1.5 *Uniqueness of names*

ZOVAR guarantees that the uniqueness of the 'subject' field will be maintained. This means that the distinctive name which is used in an issued certificate can never be allocated to another subject. This is done using the ZOVAR number that is included in the subject.serialNumber, preceded by the UZOVI number.

In instances in which parties are unable to agree on the use of names, the TSP management will decide after weighing up the interests involved, insofar as this is not provided for in mandatory Dutch law or other applicable regulations.

3.1.6 *Recognition, authentication and the role of trademarks*

The name of a healthcare insurer or healthcare administration office as referred to in the certified excerpt from the Trade Register of the Chamber of Commerce will be adopted upon registration and used in the certificates.

Applicants/certificate managers of certificates bear full responsibility for any legal consequences of using the name they provide. In the event that brand names are used the ZOVAR will take the necessary care but is not obliged to initiate an investigation into possible violations of trademarks as a consequence of using a name which is part of the details included in the certificate. ZOVAR reserves the right to reject the application or change the requested name if it could be contrary to trademark law.

3.2 Initial identity validation

3.2.1 *Proof of ownership of 'private key belonging to the certificate to be issued'*

The key pairs are generated by the certificate manager of the subscriber. An application for certification of a public key of a server certificate is signed with the corresponding private key. In this way the certificate manager can demonstrate ownership of the private key.

3.2.2 *Authenticity of organisational identity*

If an organisation submits an application to be registered as a subscriber, the following must be submitted:

- A completed application form signed by the applicant of the registration containing
 - the full name of the organisation;
 - the address of the organisation;
 - the full name (full first names, prefixes birth name, birth name, prefixes surname and surname) and contact details of the legal representative of the organisation;
 - the full name and contact details of the employee or employees who are allowed to apply for and withdraw certificates on behalf of the organisation (the authorised applicant);
 - the UZOVI number.
- Proof that the names of the people referred to in the application form are correct. This proof must be submitted in the form of a copy of an identification document as referred to in the Compulsory Identification Act

[Wet op de identificatieplicht] (WID). All first names must be stated in full on the identification document. This does not include driving licences because, in most cases, these do not contain all the first names in full. ZOVAR archives the copies of the submitted identification documents.

- Proof that the name of the organisational entity is up-to-date and correct. This proof can take the form of:
 - the registration number under which the organisational entity is listed in the Trade Register of the Chamber of Commerce and which shows the accuracy of the name;
- Proof that the legal representative is authorised to represent the organisation. This proof can take the form of:
 - The registration number under which the organisational entity is listed in the Trade Register of the Chamber of Commerce and which shows who is authorised to represent the organisation;
 - If the organisation is not registered with the Chamber of Commerce, a copy of the appointment of the legal representative can be submitted.

Organisations that have a licence granted by the Dutch Central Bank [Nederlandsche Bank] belong to the ZOVAR domain. These organisations do not have to submit any proof.

ZOVAR checks the submitted documents and details for authenticity, completeness and accuracy. ZOVAR checks whether a stated UZOVI number corresponds to the UZOVI number in the Vektis registration. ZOVAR informs the subscriber of the success or rejection of the registration request. In the event of a rejection, the reason for the rejection will be stated.

3.2.3 *Authentication of personal identity*

The personal identity is authenticated upon establishment of identity within the framework of the issue of a server certificate.

A certificates application must be made by (an authorised applicant on behalf of) the subscriber that also fulfils the role of certificate manager. The following must also be submitted:

- A completed application form signed by the subscriber's applicant/certificate manager containing
 - the name of the subscriber;
 - the subscriber number;
 - the name of the applicant/certificate manager of the subscriber;
 - the name of the system or the server for which certificates are being applied.
- If a subscriber is not the owner of a domain name, ZOVAR checks if the subscriber can use the domain name.¹

In all cases ZOVAR checks the authenticity, completeness and accuracy of the submitted documents. ZOVAR checks, on the basis of the submitted documents, whether the applicant is actually authorised to apply for the certificates. In the case of the recognised registers (Foundation for Internet Domain Registration in the Netherlands [Stichting Internet Domeinregistratie Nederland] (SIDN) or Internet Assigned Numbers Authority (IANA)) ZOVAR checks to determine whether the subscriber owns the domain name. ZOVAR informs the subscriber of the issue of a certificate or the rejection of the

¹ The method used by ZOVAR is prescribed in chapter 3.2.2.4. of the Baseline Requirements.

certificate application. If the certificate application is rejected, the reason for the rejection will be stated.

3.2.4 *Unverified details*

ZOVAR verifies the name of the subscriber on the basis of recognised documents (see paragraphs 3.2.2 and 3.2.3).

ZOVAR verifies all details included in the certificate, with the exception of the optional 'department' field. The 'department' field optionally contains the department name given by the subscriber. This is not verified by ZOVAR. Details which are only recorded for correspondence purposes, such as correspondence name, academic titles and telephone numbers are not verified. ZOVAR adopts details which are not verified from the application form signed by an authorised applicant on behalf of the subscriber.

3.2.5 *Certificate holder authorisation*

The subscriber's legal representative can, upon registration, record which people are allowed to apply for certificates for the subscriber. These applicants are also certificate managers and are entitled to receive a certificate for a certificate holder on behalf of the subscriber. ZOVAR checks the authenticity of this application by the legal representative. ZOVAR archives this proof.

Only a legal representative can indicate who may apply for certificates on behalf of the subscriber. The method used to authenticate the legal representative is described in paragraph 3.2.2. In the event of a server certificate application ZOVAR checks, on the basis of a copy of an identity document, whether the application has been signed by an authorised applicant.

3.3 Identification and authentication in the event of renewal of the certificate

3.3.1 *Routine renewal of the certificate*

The procedures and checks relating to identification and authentication in the event of renewal of the certificate are the same as those which apply to initial registration. A new key pair is always generated when a renewal request is executed.

The certificate can be renewed using a certificate renewal application form. These application forms will be submitted on time by ZOVAR together with the renewal letter. Only original certificate renewal application forms which have been sent out by ZOVAR will be processed. The renewal letter and the application form must be sent out no less than 3 months before the expiry date. When renewing certificates, a check must always be carried out in advance to see whether all the requirements of paragraphs 3.1 and 3.2 have been fulfilled.

3.3.2 *Renewing keys after withdrawal of the certificate*

Keys are renewed after withdrawal of the certificate in accordance with an initial application. A new key pair is always generated when a renewal request is executed. See the procedure in section 3.3.1 'Routinematige vernieuwing van het certificaat'.

3.4 Identification and authentication in the event of withdrawal requests

The legal representative of an authorised applicant can submit withdrawal requests on behalf of the subscriber. Requests to withdraw certificates can be made electronically, by email or by post. It is not possible to withdraw server certificates by telephone.²

In the event of **electronic withdrawal** identification and authentication take place on the basis of a number and a withdrawal code. The number and the withdrawal code are sent to the subscriber in writing when the certificate is issued.

In the event of withdrawal by **non-electronically signed email or by post**, identification and authentication will take place on the basis of a request signed by the person authorised to withdraw. ZOVAR checks whether the signature on the withdrawal request corresponds to the archived copy of an identification document as referred to in the WID.

- If the signature corresponds, ZOVAR will carry out the withdrawal request.
- If the signature does not correspond, ZOVAR will telephone the subscriber using the contact details registered with the ZOVAR. The applicant will then be asked to place the signature in accordance with the WID archived with ZOVAR. If the signature on the WID is changed, the applicant will be asked to send a valid copy of the WID to ZOVAR. After another check of the signature, ZOVAR will carry out the withdrawal request. ZOVAR archives the new copy of the WID.

In the event of withdrawal via **electronically signed email** the requirement will be that the email is signed by the person authorised to withdraw with a qualified non-repudiation certificate (such as on a PKI government card).

² This decision is taken after a risk analysis. The withdrawal of a server certificate can have consequences as regards connecting a subscriber to the care infrastructure. Because the possibility of a wrongful withdrawal is greater in the case of a telephone request than when other channels are used, ZOVAR does not offer the option of withdrawing by telephone.

4. Operational requirements applicable to certificate life cycle

4.1 Certificate applications

Applications for certificates can only be submitted by an applicant/certificate manager. These applicants/certificate managers are authorised by the subscriber to submit applications. Applications must always be submitted in writing. PKCS#10 files can only be sent via the website or via electronically signed mail.

It is not possible to cancel an application after submission to ZOVAR. Exceptions are possible, in exceptional cases, at the discretion of the TSP management. These include, for example, the situation in which the applicant discovers an irregularity in the application immediately after submission, and the application is not yet being processed by ZOVAR.

4.2 Method used in relation to certificate applications

Before certificates can be applied for, the subscriber must be registered with ZOVAR. For this, the following steps have to be completed:

- The intended subscriber submits a completed and signed application form, including the documents indicated in paragraph 3.2. The intended subscriber can fill in forms via the ZOVAR website or can request these from ZOVAR. Before completing the application form the subscriber must be familiar with all the applicable conditions in the CPS. ZOVAR will not process any incomplete applications.
- ZOVAR carries out the checks referred to in paragraph 3.2 and informs the subscriber of the result. If ZOVAR has informed the subscriber in writing that they cannot be registered, the subscriber will have six weeks to submit an objection.

A subscriber can apply for server certificates after registration. For this, the following steps have to be completed:

- The applicant/certificate manager submits a completed and signed application form including the documents indicated in paragraph 3.2.3. The applicant/certificate manager can obtain forms via the website (www.zovar.nl). Before completing the application form the applicant/certificate manager must be familiar with all the applicable conditions in the CPS. ZOVAR will not process any incomplete applications.
- ZOVAR carries out the checks referred to in paragraph 3.2 and informs the subscriber of the issue of the certificate or the rejection of the application. If the application is rejected, the reason for the rejection will be stated and the subscriber will have six weeks to submit an objection.
- ZOVAR archives the submitted documents so that they can be used as proof in the event of reconstruction.

The maximum turnaround time applied by ZOVAR is no more than eight weeks from receipt of the completed application until the ZOVAR server certificate is available. ZOVAR may require more time during extremely busy

periods. Information on this will be issued on the website www.zovar.nl.

ZOVAR does not check Certification Authority Authorization DNS details on behalf of any 'certificate pinning' by the subscriber.

4.3 Issuing certificates

The server certificates are issued after the applicant/certificate manager of the subscriber has appeared in person:

- The applicant/certificate manager must appear in person at the address indicated by the authorised applicant.
- The applicant/certificate manager submits a valid identification document. Valid identification documents are those designated as such in Article 1 of the Compulsory Identification Act [Wet op de identificatieplicht] (WID). This does not include driving licences because, in most cases, these do not contain all the first names in full.
- The employee checks the validity and authenticity of the submitted identification document. The employee records the identification and provides feedback on this to ZOVAR. The applicant/certificate manager signs the proof of identification. Both parties receive a signed copy of this.
- After the signed proof of identification has been processed by ZOVAR, instructions will be given to produce the server certificates.
- After the certificate has been produced, ZOVAR sends the certificate by email to the applicant/certificate manager. ZOVAR also sends a withdrawal code to the subscriber's correspondence address for the attention of the applicant/certificate manager.

4.4 Accepting certificates

The conditions for the use of certificates of ZOVAR are stated in the CPS. The CPS is published on the website. The subscriber can also indicate that they wish to receive the conditions by post. References to the CPS are included during the application process and in the instruction sent to the certificate holder.

ZOVAR asks the certificate manager of a server certificate to confirm receipt of the certificate by email. By confirming receipt of the certificate the certificate manager indicates that they are conversant with, and agree to, the rights and obligations as referred to in the CPS and agree with the content of the certificate. If ZOVAR does not receive the confirmation from the certificate manager, ZOVAR will send a reminder to the certificate manager by email. If ZOVAR has not received a confirmation of receipt, the server certificate will be withdrawn after 8 weeks. The costs of any new service certificate will be for the subscriber's account.

The certificates are published in the directory service immediately after the certificate has been signed by the CA during the production process.

4.5 Key pair and certificate use

4.5.1 Obligations of the subscriber and certificate holder

- The subscriber is obliged to inform ZOVAR immediately and to withdraw the certificates if an irregularity occurs as indicated in paragraph 4.9.1.
- The subscriber and the certificate holder are obliged to stop using the certificates and the corresponding private keys if instructed to do so by ZOVAR. ZOVAR can provide an indication like this in the event that a CA

- key is compromised.
- The subscriber guarantees that all submitted details are correct and complete. This concerns the details relating to the subscriber registration, the certificate application and other details. The subscriber must confirm to ZOVAR immediately in writing (by email) that they have received the server certificates and that the subscriber approves of the content of the certificate.
 - The subscriber must ensure that the key material is exclusively generated in a safe resource that complies with EAL 4+ or equivalent security criteria.
 - The subscriber is obliged to save the keys which belong to server certificates in a Secure User Device (SUD). The subscriber must secure the SUD in which the private keys are saved in a manner suitable for securing critical company resources. The subscriber can deviate from this if compensatory measures are taken in the field of physical access security, logical access security, logging, audit and functional separation in the environment of the system that contains the keys of the server certificates. The keys can also be protected using software. The compensating measures must be of such quality that it is practically impossible to steal or copy the keys without being noticed.
 - The subscriber is obliged to keep the activation details, which are used to obtain access to the private key, separate from the SUD.
 - If the domain name (FQDN) as referred to in a server certificate is identifiable and addressable via the internet, the subscriber guarantees that the server certificate is only placed on a server that is at least accessible using one of the FQDNs in this server certificate.
 - The subscriber confirms that the CIBG is entitled to withdraw the certificate if the subscriber violates the applicable conditions³ or if the CIBG establishes that the certificate is being used in conjunction with criminal activities, for example phishing attacks, fraud, or the distribution of malware.
 - The above obligations for the subscriber will, insofar as they can be designated as too uncertain, be developed in more detail in ZOVAR guidelines and/or more detailed regulations.

4.5.2 *Obligations of the trusting party*

The obligations of the trusting party are applicable when trusting a certificate issued by ZOVAR. The trusting party is obliged:

- to assess on a case-by-case basis whether it is justified to trust the certificate;
- to check the validity and authenticity of the hierarchy within which the certificate is issued, meaning the validity of certificates of the more superior CAs as well as of the master certificate of the State of the Netherlands;
- to verify the validity of the certificate by means of the most recently published Certificate Revocation List (CRL) or via the Online Certificate Status Protocol (OCSP);
- always to use the most recently published Certificate Revocation List (CRL) in the event of calamities and/or incidents whereby the Online Certificate Status Protocol (OCSP) is inaccessible;
- to take cognizance of all obligations regarding the use of the certificate as referred to in this CPS and the trusting party conditions, including

³ The conditions for the subscribers are included in CPS sections 4.5.1 and 9.6.2.

- explicitly all restrictions on the certificate's use;
- to take all other precautionary measures which can reasonably be taken by trusting parties;
- to be aware that previous checks only authenticated the integrity of the details and the identity of the server or service and did not constitute a judgement on the content of the details.

4.6 Renewing certificates

Certificate holders' keys will not be reused after the end of the period of validity or after the corresponding certificates have been withdrawn. Renewing certificates will also mean renewal of the key pair.

4.7 Re-keying certificates

If, after the (threatened) expiry of the period of validity or after the withdrawal, new server certificates are applied for, new key pairs and new certificates will be generated. The procedures, checks and method of working used in relation to the application, production and issuing are the same as the procedures, checks and method of working relating to the first issue.

4.8 Amending certificates

If certificates have to be modified, the existing certificates will have to be withdrawn and new certificates with amended details applied for.

4.9 Withdrawal and suspension of certificates

Requests to withdraw certificates can be submitted as described below. ZOVAR ensures that date and time of withdrawal of certificates can be established exactly. In the event of any doubt the time determined by ZOVAR will apply as the moment of withdrawal. If a certificate is withdrawn, it cannot be declared valid again.

ZOVAR does not permit the (temporary) suspension of certificates.

4.9.1 Circumstances which lead to withdrawal

The subscriber is obliged to submit a withdrawal request to ZOVAR and to terminate the use of the certificate in the following circumstances:

- observed or suspected misuse or compromise;
- termination of the subscriber's existence;
- inaccuracies in, or changes to, the details shown on the certificates;
- system/server no longer used;
- permission to use the domain name is withdrawn.

Withdrawal on the initiative of ZOVAR will take place in the following circumstances:

- All certificates of a subscriber can be withdrawn if the subscriber does not comply with the obligations in the CPS⁴.
- All certificates of a subscriber are withdrawn if the Dutch Central Bank no longer designates them as a healthcare insurer or if the Ministry of Health, Welfare and Sport no longer designates them as a healthcare administration office.
- A server certificate is withdrawn if the owner of the domain name reports to ZOVAR that the permission to use the domain name has been withdrawn.

⁴ The conditions for the subscribers are included in CPS sections 4.5.1 and 9.6.2.

- One or more certificates of a subscriber are withdrawn if ZOVAR observes inaccuracies in the details included in the certificate, for example due to a name change.
- The certificates of a subscriber can be withdrawn if the private key belonging to the certificates, or the key of the TSP or PKI government has been compromised.
- The certificates of a subscriber or certificate holder are withdrawn if the technical content of the certificate implies an irresponsible risk for subscribers, trusting parties and third parties (for example browser parties).
- A server certificate is withdrawn if the invoice is not paid for by the set deadline⁵.

The reasons for each withdrawal initiated by ZOVAR are to be documented, archived and signed by the TSP management.

4.9.2 *Who is allowed to submit a withdrawal request?*

A request to withdraw certificates may be submitted by:

- an authorised applicant on behalf of the subscriber in the role of certificate manager;
- the legal representative of the subscriber;
- the curator that acts if the subscriber itself is no longer authorised to perform legal actions with intended legal consequence;
- the management responsible for ZOVAR.

A trusting party cannot make a withdrawal request but can report the suspicion of a circumstance which may cause the withdrawal of a certificate. In such an instance ZOVAR will investigate the report and will withdraw the certificate if necessary.

4.9.3 *Procedure for a withdrawal request*

Requests to withdraw certificates can be made by a certificate holder, an appropriately authorised person of the subscriber, or by the certificate holder electronically, or by email or by post. It is explicitly pointed out that, in the event that the withdrawal serves an urgent interest, the withdrawal should take place electronically via the website of ZOVAR (www.zovar.nl). This form of withdrawal is available twenty-four hours per day, seven days per week.

In the event of **electronic** withdrawal, the applicant/certificate manager fills in a number that has been communicated with the corresponding withdrawal code on the website of ZOVAR (www.zovar.nl). If the withdrawal code and smart card number are correct, the certificate will be withdrawn. The applicant will be notified on the website. If the withdrawal code and smart card number are incorrect, notification will be given that the withdrawal will not be carried out. ZOVAR has taken measures to make it impossible to make unlimited incorrect withdrawal requests.

In the event of withdrawal **by non-electronically signed email or by post** the following must be submitted:

- A withdrawal request signed by an appropriately authorised person, containing:
 - the name of the subscriber;
 - the name of the person making the withdrawal request;

⁵ As stated in section 9.1.7, the deadline is set at six weeks after receipt of the reminder.

- the reference to the certificate or the certificates for which the request applies.

ZOVAR checks whether the signature on the withdrawal request corresponds to the archived copy of an identification document as referred to in the WID.

- If the signature corresponds, ZOVAR will carry out the withdrawal request.
- If the signature does not correspond, ZOVAR will telephone the subscriber using the contact details registered with the ZOVAR. The applicant will then be asked to place the signature in accordance with the WID archived with ZOVAR. If the signature on the WID is changed, the applicant will be asked to send a valid copy of the WID to ZOVAR. After another check of the signature, ZOVAR will carry out the withdrawal request. ZOVAR archives the new copy of the WID.

The following requirement applies in the case of withdrawal by **electronically signed email**:

- The email is signed by the person authorised to withdraw with a qualified non-repudiation certificate (as on a PKI government card).

ZOVAR checks whether the party submitting the withdrawal request is authorised to make the application. ZOVAR also checks the identity of the party submitting the withdrawal request on the basis of the submitted identity document and a previously archived copy of the identity document. After carrying out the checks ZOVAR withdraws the certificates and places them on the Certificate Revocation List (CRL). A confirmation that the withdrawal has been accepted, or a notification that the withdrawal request has been rejected, will be sent in writing to the subscriber.

4.9.4 *Postponement of withdrawal request*

The certificate holder or the subscriber are obliged to submit a withdrawal request immediately and without delay in situations referred to in paragraph 4.9.1.

4.9.5 *Time required to process a withdrawal request*

Electronic requests are dealt with immediately online. ZOVAR advises parties to use the electronic withdrawal facilities on the ZOVAR website. These facilities are available twenty-four hours per day and seven days per week. In the event of electronic withdrawal, the maximum delay between receiving a request and changing the revocation status information (CRL) is four hours.

4.9.6 *Requests for withdrawals that come in by e-mail or post will only be processed within four hours if the request is received on working days during office hours.*

Requests outside office hours will not be processed until the next business day within four hours of receipt at the earliest. Checking requirements when consulting certificate status information. Trusting parties are obliged to check the current status (withdrawn/not withdrawn) of a certificate by consulting the most recently published CRL or via the OCSP facility. Trusting parties are also obliged to check the CRL's electronic signature, including the corresponding certification path.

4.9.7 *CRL issue frequency*

The CRL issue frequency is every hour and the CRL is valid for 48 hours. In the event of system defects, service activities or other factors outside ZOVAR's control, ZOVAR also ensures that withdrawal requests which are submitted via the website are carried out within four hours after submission. With this in mind a fallback scenario has been designed which is regularly tested.

If the processes which rely on the ZOVAR certificates require the certificate status to be more up-to-date, we urgently advise using the facility for an online check of the withdrawal status (see paragraph 4.9.9).

Withdrawn certificates will remain on the CRL as long as their original date of validity has not expired.

4.9.8 *Time between generation and publication*

The CRL is published immediately after generation.

4.9.9 *Online withdrawal/status check*

In addition to the publication of CRLs, ZOVAR also offers certificate status information via the Online Certificate Status Protocol (OCSP) facility. The OCSP is structured in accordance with IETF RFC 2560.

OCSP validation is an online validation method whereby ZOVAR sends the trusting party an electronically signed message (OCSP response) after the trusting party has sent a specific request for status information (OCSP request) to the OCSP service (OCSP responder) of ZOVAR. The OCSP response will include the requested status of the certificate in question. The status can be expressed as one of the following values: good, withdrawn or unknown. If we do not receive an OCSP response, for whatever reason, no conclusion can be drawn in relation to the certificate's status. The URL of the OCSP responder with which the withdrawal status of a certificate can be validated is stated in the AuthorityInfoAccess.uniformResourceIndicator attribute of the certificate.

A OCSP response is always sent and signed by the OCSP responder. A trusting party must verify the signature under the OCSP response with the system certificate which accompanies the OCSP response. This system certificate is issued by the same Certification Authority (CA) as the CA that issued the certificate of which the status is being requested.

The information issued via the OCSP responder may be more up-to-date than the information communicated via the CRL. This is only the case if a withdrawal has taken place and the regular renewal of the CRL has not yet occurred.

4.9.10 *Requirements applicable to online check withdrawal status*

Not applicable

4.10 **Certificate status service**

ZOVAR issues a new CRL every hour. OCSP can be used to request the current status information.

In the event of a disruption to these services, ZOVAR will ensure that they are again available within four hours after the disruption has been discovered. This only applies to the CRL. In the event of disruptions the CRL must always be used and not, therefore, the OCSP.

4.11 Termination of subscriber relationship

No end date applies, in principle, to the subscriber registration. If the relationship between the subscriber and ZOVAR is terminated, the subscriber will be deleted from the register.

With a request to delete the registration the subscriber indicates that they no longer wish to use the services of the ZOVAR. The subscriber is then removed from ZOVAR. A request for deletion of a registration (and therefore withdrawal of the certificates issued to the registered party) must be submitted in writing. ZOVAR authenticates the applicant in accordance with the authentication procedure which applies to registration applications.

In the event of a name change or termination of a subscriber, a transition period of three months will come into effect. This transition period implies the following:

- the server certificates will remain active,
- the subscriber registration will remain active.

After the transition period all server certificates will be withdrawn and the subscriber registration deleted.

4.12 Key escrow and recovery

Not applicable

5. Physical, procedural and personnel security

5.1 Physical security

The services of ZOVAR are provided from various locations. The registration work is carried out at CIBG's premises. The certification takes place at the computing centre of KPN Corporate Market B.V. The work in relation to the mobile identification of the certificate manager takes place on location.

The necessary physical security measures have been taken for all locations. These measures have been taken on the basis of risk analyses and security plans. The measures taken guarantee a protected and properly protected registration, certification, issue and withdrawal process which prevents unauthorised access to, or violation of, these processes or the locations where they are being carried out. For example, the work relating to the certification takes place in a high security environment at the computing centre of KPN Corporate Market B.V. in Apeldoorn. This environment fulfils the law and regulations imposed by the government, including the Protection of State Secrets Act 1951 [Wet Bescherming Staatsgeheimen 1951]. Numerous measures have been taken at all locations to prevent emergency situations and to limit any emergency-related damage. Examples of these measures are lightning conductors, power supplies, structural measures and access procedures.

ZOVAR has separate test, acceptance and production systems. The transfer of software from one environment to the other takes place in a controlled fashion via a change management procedure. This change management procedure covers, among other things, monitoring and recording of versions, changes and emergency repairs to all operational software. Before software can be put into production, ZOVAR carries out tests on the basis of predetermined test plans.

The integrity of TSP systems and information is protected against viruses, malware and unauthorised software and other possible sources which can lead to a disruption of the services by means of a combination of suitable physical, logical and organisational measures. These measures are preventive, repressive and corrective in nature. Examples of these measures are logging, firewalls, intrusion detection and redundancy of systems, system elements and network components.

System storage media which are used are treated safely in order to protect them from damage, theft and unauthorised access. Storage media are carefully removed whenever they are no longer needed.

The capacity usage is monitored and predictions are done of the capacity required in the future in order to ensure sufficient processing capability and storage capacity in the future.

ZOVAR takes prompt and coordinated action to respond quickly to incidents

and to limit the effect of any security violation. All relevant incidents are immediately reported to the organisations stipulated in the law and regulations whenever they occur. Incidents relating to a category specified in advance by the Policy Authority of the PKI for the government are reported to said Policy Authority.

5.2 Procedural security

5.2.1 Confidential positions

Personnel with access to cryptographic material or people who also operate in a confidential role have a position which is qualified as confidential. They will have undergone, in the past and for as long as possible, a B screening carried out by the (former) National Security Service. Now that the possibility for carrying out a B screening for normal civil servants is no longer available, KPN Corporate Market B.V. has reorganised the screening for confidential positions. The background check includes pre-employment screening and a certificate of good conduct in accordance with Justice System Data Act [Wet justitiële gegevens]. All personnel in confidential functions are screened to check for conflicts of interests which could affect the impartiality of the activities of ZOVAR.

5.2.2 Number of people required per task

The services of ZOVAR are organised in such a way that it is impossible for a single person to compromise the reliability level of the services. Registration, personalisation, certification and issue are organisationally separated tasks. The four-eyes principle and/or functional separation is applied to registration tasks.

5.2.3 Identification and authentication in relation to TSP functions

No specific provisions.

5.2.4 Functional separation

ZOVAR applies functional separation to implementation, decision-making and verification tasks. In addition, there is functional separation between system management and operation of the TSP systems, as well as between Security Officer(s), System auditor(s), system administrator(s) and TSP operator(s).

5.3 Personnel security

5.3.1 Job requirements

All employees involved in the services of ZOVAR have the required knowledge and experience in the field of certification services. Employees who are responsible for checking identification documents have the knowledge required to check the authenticity of the documents.

Security tasks and responsibilities, including those for confidential positions, are documented in job descriptions. These have been drawn up on the basis of the separation of tasks and authorities and a specification of the sensitivity of the position.

Employee authorisations are granted based on the 'need-to-know' principle. Procedures have been drawn up and implemented for all confidential and administrative tasks which affect the provision of certification services.

5.3.2 *Background check*

Background checks are carried out on all employees involved in certification work. ZOVAR asks all employees involved in registration and identification to submit a certificate of good conduct.

All employees who carry out tasks for ZOVAR are able to take part in training and awareness activities which are relevant for the execution of their task.

5.3.3 *Training requirements*

ZOVAR deploys sufficient personnel who have enough specialist knowledge, experience and qualifications necessary for the TSP services. Managers are fully aware of the nature of the certification services and corresponding quality level.

5.3.4 *Training and education*

Specific training is obligatory for all personnel. An annually updated training plan is used to monitor training.

5.3.5 *Frequency of job circulation and career planning*

No specific provisions.

5.3.6 *Sanctions for unauthorised actions*

Any employee that performs an authorised action is immediately denied access to all systems. The TSP management decides on the duration and the conditions of the access denial and any additional actions and sanctions to be taken.

5.3.7 *Hiring personnel*

The aforementioned requirements apply to hired personnel. Personnel are hired on the basis of master contracts.

5.3.8 *Making documentation available to employees*

ZOVAR employees will be demonstrably provided with the documentation which is necessary for the proper fulfilment of the task assigned to them.

5.4 **Security audit procedures**

5.4.1 *Recording events*

ZOVAR maintains overviews of:

- Creating accounts.
- Installation of new software or software updates.
- Date and time and other descriptive information concerning backups.
- Date and time of all hardware changes.
- Date and time of audit log dumps.
- Shutting down and (re)starting of systems.
- All registration activities relating to the application and withdrawal of certificates and any changes to registration details.

ZOVAR manually or automatically monitors the following events:

- Life cycle events relating to the CA key, including:
 - generating keys, backup, storage, recovery, archiving and destruction;
 - life cycle events relating to the cryptographic equipment.
- Life cycle events relating to the management of certificates, including:

- certificate applications, reissue and withdrawal;
 - successful or unsuccessful processing of applications;
 - generating and issuing certificates and CRLs.
- Security incidents, including:
 - successful and unsuccessful attempts to gain access to the system;
 - PKI and security activities undertaken by personnel;
 - reading, writing or deleting security-sensitive files or records;
 - changes to the security profile;
 - system crashes, hardware failure, and other irregularities.

The parts of the loggings contain the following elements:

- Date and time.
- Serial number.
- Author identity.
- Type.

5.4.2 *Loggings interval*

Loggings are investigated randomly and as part of internal quality processes.

5.4.3 *Logging retention periods*

The consolidated loggings are kept for a period of at least seven years.

5.4.4 *Security of audit logs*

Events which are included electronically and manually in audit log files are protected against unauthorised perusal, change, deletion or other undesirable changes by means of physical and logical access control resources.

5.4.5 *Saving audit logs*

All audit logs are saved internally on the systems. In addition, logging is archived off-site. The most important log details are also archived each quarter at the CIBG.

5.4.6 *Notification of logging event*

ZOVAR carries out a more detailed investigation if the logging reveals malicious activities.

5.4.7 *Vulnerability analysis*

At least once a year ZOVAR carries out a risk analysis, which includes a vulnerability analysis. On the basis of the outcomes of these analyses ZOVAR implements suitable measures as necessary.

5.5 **Archiving documents**

5.5.1 *Events*

ZOVAR archives all relevant information relating to events, details, files and forms. The following is recorded as a minimum:

- Applications for registration and applications for certification (application forms).
- Documents submitted during the application procedure (including a copy of the identity document, excerpt from the Trade Register of the Chamber of Commerce).
- Storage location of copies of applications and identity documents.

- Information which is relevant for the identification of a subscriber.
- Information concerning the checks carried out.
- Correspondence relating to registration application or certificate application.
- Proof of date and time of issue of the certificates.
- Information concerning withdrawal requests of certificates or deletion from the registration.
- Complaints and objections and correspondence received in relation to complaints objections.
- Requests for information received in writing and other correspondence related to the Personal Data Protection Act [Wet bescherming persoonsgegevens] or the Government Information (Public Access) Act [Wet openbaarheid van bestuur].

5.5.2 *Archive retention period*

All archived events are stored in accordance with chapter 10.4 of the selection list⁶ throughout the period of validity of the qualified certificate and for a period of at least seven years after the date on which the validity of the qualified certificate expires.

Alle archived events with regard to the subscription registration are stored for a period of at least seven years from the date on which the subscription registration is deleted.

5.5.3 *Archive security*

ZOVAR ensures the integrity and accessibility of the archived details. ZOVAR arranges careful and secure storage and archiving.

5.5.4 *Archiving backup procedures*

Incremental backups of the registration system and of digital documents are created on a daily basis. Full backups are carried out on a weekly basis and are also archived at an external location. No backup is made of the paper archive.

5.5.5 *Conditions and time indication of recorded events*

All information on paper is accompanied by a date and/or a date of receipt.

Electronically stored information is accompanied by an indication of the date and time from the processing system used to perform the action. The processing systems are synchronised in accordance with the Network Time Protocol using a reliable time source based on the atomic clock in Frankfurt.

The date and time of the issue of a certificate is recorded upon issue.

5.5.6 *Archiving system*

Electronic archiving takes place at physically separated locations (online data synchronisation). Paper dossiers are stored at a single physical location.

5.5.7 *The acquisition and verification of archived information*

No specific provisions.

⁶ Generieke Selectielijst voor de archiefbescheiden van het CIBG Dienst voor registers vanaf 1995-vallend onder het zorgdragerschap van het Ministerie van Volksgezondheid, Welzijn en Sport en Stichting Donorgegevens Kunstmatige Bevruchting vanaf 1995

5.6 Renewing keys after CA re-key

If the CA starts using a new key pair, the new CA certificates will be made available in the directory and on the website.

5.7 Violations and continuity

ZOVAR has drawn up a calamities plan to minimise the consequences of any calamity that might occur. The Business Management Continuity Plan describes procedures and methods relating to fallback services.

In the event of any compromising of keys, or in the event of calamities, ZOVAR can instigate an investigation, but is not obliged to do so. In the event of compromise of (one of) the private key(s) of ZOVAR, ZOVAR will take the following action as a minimum:

- ZOVAR will inform trusting parties, subscribers and certificate holders as soon as possible by publishing the information on <https://www.zovar.nl>.
- ZOVAR will inform the subscribers in question via an email sent to the email address provided at registration.
- If such is necessary, ZOVAR will immediately withdraw the certificates in question and publish them on the applicable CRL.
- ZOVAR will immediately inform the PKI Policy Authority for the government, Radiocommunications Agency Netherlands 9 (AT), certifying authority and optionally Dutch Data Protection Authority (AP) in the event of a calamity.

In the event of compromise of one of the algorithms used by ZOVAR, ZOVAR will consult with the Policy Authority of the PKI for the government. In principle ZOVAR will follow the Policy Authority's guidelines. Before proceeding with large-scale revocation as a consequence of a compromise of an algorithm, coordination will take place with the Ministry of Health, Welfare and Sport.

5.8 TSP termination

In the event that Zovar terminates the certification services, this will be done in accordance with a controlled process as described in more detail in the Zovar CA Termination Plan. This termination can be voluntary or involuntary in nature and this will determine the activities to be carried out.

Elements of the plan in the event of termination include:

- Communication with subscribers, trusting parties and other TSPs with which relationships exist or other forms of regular cooperation;
- Decommissioning of the relevant private CA keys;
- The publication service must continue to be active at least six months after termination;
- The Consortium will be instructed to perform the LunaCA Zeroization and Destruction Key Ceremony on a date yet to be determined. The Consortium will submit an official document to the CIBG as proof of the destruction.
- Doc-Direkt will be instructed to destroy the dossiers. In accordance with Doc-Direkt PDC (see Central Government Portal).

6. Technical security

6.1 Generating and installing key pairs

6.1.1 *Generating key pairs*

When generating key pairs, ZOVAR uses reliable procedures in a secure environment which complies with objective and internationally recognised standards. The keys of the CAs of ZOVAR were generated in a FIPS 140-2 level 3 certified Hardware Security Module (HSM). The keys of the CAs are 4096 bit RSA. This involves the use of the 'SHA256RSA'.

In the case of user certificates, the subscriber will submit the public key to the RA via a Public Key Certificate Signing request (PKCS#10).

6.1.2 *Transfer of private keys and SSCD to the user*

The private key is not transferred. The certificate and the certified public key are sent to an email address provided upon application after the certificate manager on behalf of the subscriber has appeared in person.

6.1.3 *Transfer of public keys to the CA*

In the case of server certificates, the key pair is generated by the subscriber. The public keys are sent via secured connections in signed messages to the CA for signing.

6.1.4 *Transfer of the public key from the TSP to end users*

The public key of the ZOVARCA has been signed by the Domain CA of the Policy Authority, as a result of which the integrity and origin of the public key is safeguarded. These public keys are made available to trusting parties in the form of CA certificates, via www.zovar.nl.

6.1.5 *Key lengths*

The key length in a server certificate is 2048 bit RSA. Hardware/software key generation
ZOVAR does not generate any keys for server certificates.

6.1.6 *Intended key use (as referred to in X.509 v3)*

The certificates, including the corresponding key pairs, are exclusively intended for the purposes described in this CPS. The purposes for which a key may be used are included in the certificate (field: KeyUsage).

6.2 Private key protection

6.2.1 Standards for cryptographic modules

For operational use the cryptographic details are stored in a Hardware Security Module (HSM). The HSM fulfils the requirements described in FIPS 140-2 level 3 or higher.

6.2.2 Functional separation management of private keys

The private keys of the CAs of ZOVAR cannot be read in one go. A backup is made of the private keys of the CAs of ZOVAR. The backup is saved in cryptographic modules in several encrypted parts. The backup can only be used if several parties are present with their section of the key.

6.2.3 Escrow of private keys of certificate holders

ZOVAR does not take private keys of certificate holders in escrow.

6.2.4 Backup of the private keys of certificate holders

ZOVAR does not make a backup of the private keys of certificate holders.

6.2.5 Archiving of private keys of end users and TSP

ZOVAR does not archive any private keys of certificate holders.

6.2.6 Access to private keys in cryptographic module

In the case of private keys saved in a cryptographic hardware module, access security is used which ensures that the keys cannot be used outside the module.

6.2.7 Saving private keys

Private keys are saved securely throughout the entire lifespan.

6.2.8 Activating private keys

The private keys of the CAs of ZOVAR can only be activated by means of a key ceremony and in the presence of the necessary officials. ZOVAR ensures a careful procedure in a secured environment.

6.2.9 Method for deactivating private keys

In instances to be determined by ZOVAR, the private keys will be deactivated with due regard for the applicable due diligence procedures.

6.2.10 Method for destroying private keys

The private keys with which certificates can be signed, cannot be reused after the end of their life cycle. ZOVAR arranges adequate destruction to ensure that it is impossible to trace the destroyed keys from the remnants.

6.2.11 Safe resources for generating electronic signatures

The Hardware Security Modules used within the ZOVAR systems have been certified in accordance with FIPS 140-2 level 3. As a consequence, cryptographic material cannot be changed during storage, use and transport without this being noticed. The supplier will supply the HSMs in tamper-evident bags so that any form of corruption can be detected. Each consignment is checked immediately after the arrival on the basis of the corresponding out-of-band list.

6.3 Other aspects of key pair management

Tables 6 and 7 provide an overview of the validity of the key pairs and CA certificates of the SHA-2 generation (G2) and the Private G1 hierarchy..

Certificaat	Geldig tot
Root Certificate	March, 23 2020
Domain Certificate	March 23, 2020
TSP Certificate	March, 22 2020

Table 6 validity CA Certificaten Public G3/Private G1 hiërarchie

Certificaat	Geldig tot
Root Certificate	November 14, 2028
Domain Certificate	November 13, 2028
TSP Certificate	November 12, 2028

Tabel 1 validity CA Certificaten Public G3/Private G1 hiërarchie

6.3.1 Archiving public keys

Public keys are archived by ZOVAR for at least seven years after the end of the original period of validity of a certificate, in a physically secure environment.

6.3.2 Period of use of public/private key

A period of validity of a maximum of six years applies to the key pairs and certificates of the CAs of ZOVAR.

The user certificates are subject to a maximum period of validity of two years after the production date.

6.4 Activation details

ZOVAR only issues server certificates. The subscriber must take suitable measures in accordance with the obligations in paragraph 4.5.

6.5 TSP systems access security

6.5.1 General system security measures

ZOVAR will take adequate measures to safeguard availability, integrity and exclusivity. Computer systems will be secured in a suitable manner against unauthorised access and other threats. ZOVAR has an information security plan which details the measures in question. The measures will be developed into service level agreements with suppliers. Management activities will be logged.

6.5.2 Specific system security measures

The registration systems of ZOVAR include suitable checks and security measures. Partly as a result of this it is impossible for a certificate application to be processed by one employee of ZOVAR.

6.5.3 Management and classification of resources

ZOVAR classifies the resources used on the basis of a risk analysis.

6.6 Technical life cycle control measures

6.6.1 *System development control measures*

ZOVAR does not engage in system development itself. An independent EDP auditor has issued an audit certificate for the systems used on the basis of CWA 14167-1. ZOVAR carries out tests before the systems are put to use. Testing takes place on the basis of test plans drawn up in advance.

6.6.2 *Security management control measures*

ZOVAR has separate test, acceptance and production systems. The transfer of software from one environment to the other takes place in a controlled fashion via a change management procedure. This change management procedure covers, among other things, monitoring and recording of versions, changes and emergency repairs to all operational software.

The integrity of TSP systems and information is protected against viruses, malware and unauthorised software and other possible sources which can lead to a disruption of the services by means of a combination of suitable physical, logical and organisational measures. These measures are preventive, repressive and corrective in nature. Examples of these measures are logging, firewalls, intrusion detection and redundancy of systems, system elements and network components.

System storage media which are used are treated safely in order to protect them from damage, theft and unauthorised access. Storage media are carefully removed whenever they are no longer needed.

The capacity usage is monitored and predictions are done of the capacity required in the future in order to ensure sufficient processing capability and storage capacity in the future.

6.6.3 *Life cycle of security classification*

The security classification is assessed annually and modified as necessary.

6.7 **Network security**

Measures have been implemented for network security in such a way that safeguards the availability, integrity and exclusivity of the details.

Communication about public networks between systems of the TSP takes place in a confidential manner.

The link between the public networks and the networks of ZOVAR is subject to stringent safety measures (up-to-date firewall, virus scanners, proxy).

6.8 **Time-stamping**

No specific provisions.

7. Certificate, CRL and OCSP profiles

7.1 Certificate profiles

The ZOVAR certificates comply with the following standards:

- X.509 v3 standard;
- Part 3e and 3h of the Schedule of Requirements of the PKI for the Government, (see www.logius.nl);

An X.509 certificate consists of a collection of objects. Each object has a name, and each object consists of a number of attributes. An attribute can contain various items such as keys, algorithms, names, types, other objects, etc. A certificate profile describes which objects are used and which values the attributes of these objects can contain. This chapter provides a general overview of the ZOVAR certificate profiles. This means, in particular, the fields which contain details which are relevant to certificate holders.

The basic structure of a certificate consists of a to-be-signed section (tbsCertificate) and a signature of the issuer. The tbsCertificate consists of a number of obligatory basic attributes followed by extensions. The basic attributes and extensions are shown in the following subparagraphs.

7.1.1 Basic attributes

The ZOVAR certificates have the following basic attributes:

Field	Value
Version	2 (X.509v3)
Certificate.SerialNumber	Contains the unique serial number of the certificate
Signature	The algorithm used is: - SHA256 withRSAEncryption'
Issuer	Contains the name of the CA and is shown by the attributes OrganizationName, CommonName, organizationIdentifier and CountryName. OrganizationName CIBG (G1) Agentschap Centraal Informatiepunt Beroepen Gezondheidszorg' (G21) organizationIdentifier 'NTRNL-50000535' CommonName "ZOVAR Private Server CA G1" "ZOVAR Server CA G21" CountryName 'NL' (in accordance with ISO 3166).
Validity	The period of validity of the certificate is set to three years.

Field	Value
Subject	<p>The name of the subject is shown as a Distinguished Name (DN), and is shown by at least the following attributes: CountryName, CommonName, OrganizationName, StateOrProvinceName, LocalityName and SerialNumber. The attributes which are used to describe the subject refer to the subject in a unique way.</p> <p>CommonName name of the system. OrganizationName name of the subscriber. OrganizationalUnitName server department. StateOrProvinceName province of the subscriber. LocalityName place name of the subscriber. CountryName country of the subscriber (in accordance with ISO 3166). SerialNumber the UZOVI number directly followed by the ZOVAR number.</p>
subjectPublicKeyInfo	Contains the 2048 bit RSA PublicKey of the Subject

Table 5: Basic attributes of certificate profiles

7.1.2

Extensions

The certificate contains the following standard and private extensions:

Field	Essential	Value
AuthorityKeyIdentifier	No	KeyIdentifier is set to 160 bit SHA-1 hash of the public key of the CA that issued the certificate.
SubjectKeyIdentifier	No	KeyIdentifier is set to 160 bit SHA-1 hash of the public key of the subject.
KeyUsage	Yes	Contains the DigitalSignature and KeyEncipherment bits.
BasicConstraints	Yes	The CA bit is set to 'False' and pathLenConstraint to 'none'.
CertificatePolicies	No	<p>Contains:</p> <ul style="list-style-type: none"> the Object Identifier (OID) for the applicable Certificate Policy of the PKI for the Government (see Table 3); A link to the CPS of ZOVAR (see Table 1); a user text (UserNotice): 'The field of application of this certificate is limited to communication within the Government domain as indicated in the Schedule of Requirements of the PKI for the Government. See www.logius.nl.
SubjectAltName	No	In this attribute various members are included in the subjectAltName.otherName, see par. 7.1.3.
CrlDistributionPoints	No	Contains the URI where the CRL can be retrieved. See par. 7.2.3.

Table 6: Standard extensions of certificate profiles

7.1.3

SubjectAltName.otherName

This paragraph describes how the subjectAltName.othername is included in the ZOVAR certificates.

PKI government specifies a subjectAltName.othername with an OID-like structure, as follows: <OID CA>-<Subject ID>. The <OID CA> and the

<Subject ID> are separated by a '-'.

Values SubjectAltName.otherName: <OID CA>

The following table shows the values of the <OID CA> in the production environment.

CA	OID
TSP CA	2.16.528.1.1003.1.3.5.5.1
ZOVAR Server CA	2.16.528.1.1003.1.3.5.5.6

Table 8: <OID CA> production environment SHA-2 generation

Values SubjectAltName.otherName: <Subject ID>

The <Subject ID> in ZOVAR is a compound field, consisting of fields separated by a '-':

<Subject ID> = <version-no.>-<subject-no.>-<card type>-<UZOVI-no.>-<recognition>

The following table clarifies the fields:

Field	Type	Value	Explanation
version no.	1NUM	1	Version number of the <Subject ID> specification for possible future developments.
subject-no.	13NUM	<UZOVI number><ZOVAR number>	A unique number for ZOVAR server certificate.
card type	1CHAR	The following coding is used: 'V' : Server certificates	
UZOVI no.	4NUM	UZOVI number	The Vektis UZOVI number
recognition	2CHAR	Type of recognition: 'ZV': Health insurer	The recognition will, in the first instance, always be filled in with 'ZV' because only care insurers can be ZOVAR subscribers

Table 9: Fields <Subject ID> in SubjectAltName.otherName

7.2 CRL profiles

The CRL profile is compiled in accordance with section 3e and 3h of the Schedule of Requirements of the PKI for the government (see www.logius.nl). The profile of the CRL for the certificates contains a number of attributes and extensions. These are shown in the following subparagraphs.

7.2.1 Attributes

The CRL for certificates of ZOVAR has the following attributes:

Field	Value
Version	1 (X.509 version 2)
signatureAlgorithm	sha-256 WithRSAEncryption

- the lack of the Subject.AltName
- the subject.CommonName is: 'OCSP responder ZOVAR Server CA G21'
- the use of KeyUsage=Digital Signature
- the use of extendedKeyUsage=id-kp-OCSPSigning
- the use of a so-called ocsf-nocheck extension: (iso(1) identified-organization(3) dod(6) internet(1) security(5) mechanisms(5) pkix(7) ad(48) ocsf(1) no-check(5))

7.3.2 OCSP responses

The OCSP responses of ZOVAR are of the 'basic' type - as specified in RFC 2560 OCSP- that must be supported by all OCSP clients.

This means:

- the response has been signed by an authorised CA Responder that has a specific server certificate which has been signed by the same CA as the CA that issued the certificate which is being validated. This provides an indication that the responder is authorised to answer requests about the status of these certificates. This certificate is sent out with each response so that the trusting party can check the response.
- a (basic) OCSP response consists of:
 - a version number of the response syntax;
 - the name of the responder.
 - a response for each of the certificates in the request;
 - operational extensions. Currently that is only the OCSP Nonce;
 - an OID that indicates the signature algorithm used;
 - a signature of the response.

For each of the certificates in a request the response contains:

- a certificate identifier;
- the certificate status;
- the period of validity of the response;
- optional extensions, currently that is only the OCSP Nonce;

The certificate status is one of the 3 following values:

- 'Good'.
- 'Revoked'.
- 'Unknown'.

The status 'good' indicates, as a minimum, that the certificate has not been withdrawn, but does not guarantee that the certificate is still valid at that point in time. The 'revoked' status indicates that the certificate has been withdrawn. The 'unknown' status indicates that the OCSP responder of ZOVAR does not know the status of the certificate. This is, for example, the case if the status of a test certificate is requested from the OCSP responder of the production environment.

8. Conformity assessment

The TSP service of ZOVAR were certified as per 22-11-2004 on the basis of the 'Scheme for certification of Certification Authorities against ETSI TS 102 042 and therefore fulfils the requirements imposed on certification service providers. The certification of CIBG for ETSI 102 042 (policies NCP+, OVCP and PTC-BR) has been followed up by 319 411-1 as of 1 July 2016

This certification was renewed on 22-11-2017 by BSI Group The Netherlands B.V. (hereafter referred to as: BSI).

A copy of the EN 319 411-1 certificate can be found on the ZOVAR website (see certification policy).

As a certificate service provider ZOVAR is registered with the AT under registration number 940473, as a verified issuer of qualified certificates to the public and is therefore a certificate service provider within the meaning of the Telecommunications Act.

7.4 Audit cycle

The audit cycle is performed in accordance with the ETSI EN 319 403 certification schedule. Zovar undergoes a certification audit once every 2 years. In the interim years a full verification audit is carried out every year. If larger changes are implemented at a policy or technical level, an interim conformity audit can be carried out.

Besides these audits Zovar carries out internal audits and self-assessments itself.

7.5 Certifying body

Certification audits and verification audits are performed by an organisation accredited by the Dutch Accreditation Council.

7.6 Relationship with the certifying body

The auditors that perform the audits are independent. Otherwise there is no additional relationship between CIBG as TSP and the certifying body.

7.7 Focus of the audit

During the audits an assessment is carried out to determine to what extent the management system for the issuing of certificates permanently fulfils the requirements in the standards ETSI EN 319 411-1 (policies NCP+, OVCP and PTC-BR), and part 3e en 3h of the Schedule of Requirements of PKI government.

The audit is performed on the following issues and processes:

- Registration Service;
- Certificate Generation Service;
- Dissemination Service;
- Revocation Management Service;
- Revocation Status Service
- Subject Device Provision Service.

7.8 Audit results

If shortcomings are discovered during the audit, the CIBG draws up, within 3 weeks after receipt of the audit report, an action plan to analyse the observed deviations and take effective corrective measures.

7.9 Availability of conformity certificates

The conformity certificates of the most recent audits will be available on the ZOVAR website and in the electronic storage location of the Policy Authority of the PKI for the government. The TSP services of the CIBG also comply with the framework of standards of the PKI for the government as stipulated in the Schedule of Requirements (see www.logius.nl).

9. General conditions and provisions.

8.1 Applications for, invoicing and payment of the ZOVAR server certificate

8.1.1 Rate applicable to the issuing of the ZOVAR server certificate

The application for the ZOVAR server certificate, by a healthcare insurer registered in ZOVAR (subscriber), is subject to a cost-covering rate. This rate is applicable to both the initial application and the subsequent application, including renewal, of the ZOVAR server certificate. The rates for the ZOVAR server certificate can be found on www.zovar.nl.

8.1.2 Rate changes

The rate for the ZOVAR server certificate may change periodically. If the rate is changed, the Regulation on the Use of the Citizen Service Number in Healthcare [Regeling gebruik burgerservicenummer in de zorg] will be changed accordingly and notification of this change will be given on www.zovar.nl.

8.1.3 Registration with ZOVAR

Before the ZOVAR server certificate can be applied for, the subscriber must be registered in ZOVAR. The registration procedure is described in chapter 3 ('Identification and authentication').

8.1.4 Application for the ZOVAR server certificate

An application for the ZOVAR server certificate must be made by the subscriber or an authorised party. To this end an application must be submitted using an application form. The procedure relating to the application and issue of the ZOVAR server certificate is recorded in detail in chapter 3 ('Identification and authentication') and chapter 4 ('Operational requirements applicable to certificate life cycle').

No costs are charged for rejected applications.

8.1.5 Production of the ZOVAR server certificate

After the identification and authentication (chapter 3 'Identification and authentication') have been carried out and approved by ZOVAR, the ZOVAR server certificate applied for will be produced.

8.1.6 Invoicing and payment

Three weeks after the production date of the ZOVAR Certificate, the subscriber will receive a related invoice at the postal address registered with ZOVAR. In addition, the invoice will be sent in digital form to the applicant's email address.

ZOVAR has outsourced the invoicing activities to X-Pact B.V. The invoice will be sent out on the basis of the details issued to X-Pact B.V., such as the postal address of the subscriber and the email address of the card applicant.

ZOVAR will not honour a request for a modification to an invoice.

The card applicant is responsible for choosing the right ZOVAR certificate. If the card applicant applies for a certificate which turns out to be incorrect, for example due to a wrong PKCS#10 file, the full costs will be charged.

8.1.7 *Payment term*

The payment term after invoicing is thirty days. In the event of late payment, ZOVAR is entitled to instigate collection measures and/or engage a third party to collect the claim. In the event of late payment the ZOVAR certificate will be withdrawn by ZOVAR. The withdrawal of the ZOVAR certificate will take place six weeks after the reminder has been sent.

8.1.8 *Validity of ZOVAR server certificate*

The period of validity of a ZOVAR server certificate is three years after the production date.

8.1.9 *Delivery and initial usage of ZOVAR server certificate*

The Zovar server certificate is delivered in accordance with the technical and/or functional specifications referred to in the Certification Practice Statement (CPS). The subscriber will start using the ZOVAR server certificate within three months after its receipt. If it transpires, upon initial usage, that the Zovar server certificate is not functioning optimally, the subscriber or its authorised representative will immediately inform the UZI register to this effect.

8.1.10 *Replacement conditions*

If the ZOVAR server certificate does not work in accordance with the technical and/or functional specifications described in the CPS, ZOVAR will replace this certificate free of charge during the first three months after transfer of the ZOVAR server certificate.

8.1.11 *Risk, ownership and duty of care*

The risk of destruction, loss or theft, damage or deterioration of the Zovar server certificate transfers to the subscriber at the moment of receipt of the Zovar server certificate. The subscriber is not entitled to make any changes to the Zovar server certificate. The issued ZOVAR server certificate will continue to be owned by ZOVAR. ZOVAR is authorised to withdraw the use of the ZOVAR-server certificate by a subscriber. Zovar server certificates cannot be transferred to third parties. The subscriber or its authorised representative must ensure that the Zovar server certificate is used and stored in a careful, safe and prudent manner.

8.2 **Confidentiality of company data**

On the basis of the Government Information (Public Access) Act [Wet openbaarheid van bestuur] (Wob) anyone can ask ZOVAR to submit documents relating to a governmental matter.

If ZOVAR outsources work to third parties, this work will be carried out under the responsibility of ZOVAR. The agreements between third parties and ZOVAR have been laid down in contracts.

If the issuing of documents or details could harm the services of ZOVAR, the purchasers of its services, or of one of the third parties engaged by ZOVAR, these will not be made available to others, except those parties that have to have access to those documents in connection with their work. Examples of such documents are those that contain company-sensitive information in relation to infrastructure, security and finances.

8.3 Confidentiality of personal details

A record will be kept of all activities carried out which are important in the registration process. During the process as few personal details will be recorded as possible. In any event no (personal) details will be recorded which are not important for the registration process or for one of the facilitating services of ZOVAR.

The certificate managers are entitled to meet and correct their personal details.

8.3.1 Confidential information

The information obtained by ZOVAR about a person, being a natural person or legal entity, will be treated as confidential. The requirements imposed in the General data protection [Algemene verordening gegevensbescherming] (AVG) are explicitly applicable to this. The following documents, at least, contain information which is regarded as confidential and will therefore, in principle, not be issued to third parties:

- information relating to the registration and certification of parties;
- agreements with suppliers and service providers;
- security procedures and measures;
- Administrative Organisation (AO) procedures;
- audit reports.

8.3.2 Non-confidential information

The published details of certificates can only be publicly consulted using the search function on the website. The information issued in relation to published and withdrawn certificates is limited to that referred to in chapter 7 'Certificate, CRL and OCSP profiles' of this CPS.

Information in relation to withdrawal of certificates is available via the CRL. The information provided there relates only to the certificate number, the moment of withdrawal and the status (valid/withdrawn) of the certificate.

8.3.3 Release of information

If, within the framework of a criminal or disciplinary law investigation, non-public information is requested from ZOVAR by an authorised investigating officer, this information will be released by the director of the CIBG, after submission of a legal summons. The requirements imposed in the AVG are explicitly applicable to this.

If a subscriber requests non-public information from ZOVAR in a civil procedure for the purposes of proof of certification, this information will be released by the director of the CIBG if, in the opinion of the latter, there is no substantial interest that stands in the way of the data issue referred to. If data is going to be issued, the party in question will be informed accordingly.

Confidential details will only be issued in order to provide proof to parties

other than the subscriber, on the basis of the prior written permission of the subscriber.

Notwithstanding the above, no details belonging to certificate holders will be released to third parties, unless this is necessary on the basis of legislation and regulations or if the subscribers have given their explicit permission.

8.4 Intellectual property rights

This CPS is owned by ZOVAR. Unchanged copies of this CPS may be distributed and published without permission provided the sources are mentioned.

The certificates issued by ZOVAR will continue to be owned by ZOVAR. All intellectual property rights related to the certificates, including the rights relating to software, databases and logos are vested in ZOVAR. The rights cannot be transferred to third parties.

ZOVAR guarantees vis-à-vis its subscribers that the certificates it has issued, including the corresponding and delivered documentation, do not violate intellectual property rights, including copyrights, brand rights and used software which are vested in its suppliers.

8.5 Liability and guarantees

8.5.1 Liability of the TSP

With the introduction of the Online Administrative Business Act [Wet elektronisch bestuurlijk verkeer] the legislator has stipulated that with regard to liability a link has to be sought with the liability provisions in electronic legal transactions, in particular the liability of the certificate service provider that issues qualified certificates as laid down in Book 6 of the Dutch Civil Code.

In its capacity of certificate service provider the CIBG is liable for damage suffered by natural persons or legal entities, that reasonably trust an issued ZOVAR certificate and act on the grounds thereof, in conjunction with the accuracy, at the time of issue, of all details included in the certificate and the inclusion of all details prescribed for this certificate.

The CIBG can be held liable if it fails to register withdrawal of a ZOVAR certificate, including the updating and publishing of the CRL, and a person has acted accordingly in reasonable trust.

The CIBG cannot be held liable, on the basis of the above grounds, if it can submit proof that ZOVAR has not acted carelessly.

ZOVAR excludes all liability for damage if the certificate is not used in accordance with the certificate usage described in paragraph 1.4.

ZOVAR guarantees that procedures have been set up and measures implemented so that this CPS is complied with.

ZOVAR does not accept any liability vis-à-vis the trusting party for damage it suffers, in whatever form, apart from exceptions referred to below:

- ZOVAR is, in principle, liable in those instances in which a trusting party

suffers damage, pursuant to paragraphs 1 to 3 inclusive of Article 6:196b of the Dutch Civil Code, on the understanding that:

- the phrase 'a qualified certificate as referred to in Article 1.1. section ss of the Telecommunications Act' is read as 'an authenticity certificate';
 - the word 'signatory' is read as 'certificate holder';
 - the term 'electronic signatures' is read as 'authenticity characteristics'.
- ZOVAR is, in principle, liable in those instances in which a trusting party suffers damage, pursuant to paragraphs 1 to 3 inclusive of Article 6:196b of the Dutch Civil Code, on the understanding that:
 - the phrase 'a qualified certificate as referred to in Article 1.1. section ss of the Telecommunications Act' is read as 'a confidentiality certificate';
 - the word 'signatory' is read as 'certificate holder';
 - the phrase 'generating electronic signatures' is read as 'generating encrypted data';
 - the phrase 'verifying electronic signatures' is read as 'deciphering encrypted data'.

8.5.2 *Liability of subscribers and certificate holders*

Subscribers and certificate holders are obliged to observe the stipulations of ZOVAR in relation to the purchase of certification services as laid down in the CPS. They must also observe instructions communicated to them by ZOVAR when the certificates are issued and/or made known to them at a later point in time.

If subscribers of certificate holders do not comply with the stipulations, this may result in damage for the ZOVAR, the subscriber, certificate holders or third parties. In such instances the subscriber will, in principle, be held liable for not complying with the stipulations. The following stipulations are supplementary to paragraph 4.5.1 of this CPS.

- The subscriber will only and exclusively purchase certification services from ZOVAR for its systems, databases and websites.
- The subscriber guarantees that it is legally authorised to bind the organisation to ZOVAR. In addition, the subscriber can designate one or more representatives, referred to as the applicant/certificate manager(s), for whom the subscriber will have final responsibility. This applicant/certificate manager(s) will be charged, on behalf of the subscriber, with the actual execution of the applications for and withdrawal of ZOVAR certificates in accordance with the procedures of the CPS. If the subscriber registration of (the organisation of) the subscriber is to be deleted, only the subscriber will be authorised to do so.
- The subscriber is always responsible for the choice and (physical) protection of its software, equipment and telecommunications facilities and the availability of its information and communication systems, with which it can set up the electronic communication within the organisation. For example, the subscriber will take suitable measures to protect its system against viruses and other software with inappropriate elements.
- The subscriber will issue correct, full and up-to-date details to ZOVAR, including details of the systems for the generation and issue of certificates. The subscriber will report changes in address, organisation, organisation name, positions, contact persons or personal details of the

subscriber or other relevant changes, to ZOVAR no later than 24 hours after the change in question has occurred.

- The subscriber is obliged to set up and execute a procedure on the basis of which the subscriber or the applicant/certificate manager(s) can check whether the system, website or database for which a server certificate is being applied for is actually used for the organisation.
- The subscriber and certificate holder cannot transfer rights and obligations resulting from the relationship with ZOVAR to third parties, unless determined otherwise by ZOVAR.
- The subscriber will himself ensure timely replacement close to the end of the period of validity, and an emergency replacement in the event of compromise and/or other types of calamities relating to the certificate or master certificates. The subscriber is expected to take adequate measures to ensure the continuity of certificate use.⁷

The above obligations for the subscriber will, insofar as they can be designated as too uncertain, be developed in more detail in ZOVAR guidelines and/or more detailed regulations.

8.5.3 *Liability of trusting parties*
No specific provisions.

8.6 **Exclusion of guarantee**

In the event of system defects, service activities, or factors outside the control of ZOVAR, ZOVAR will do all it possibly can to ensure that the services can be reached again as quickly as possible. The publication service will be available again by no later than within 24 hours. With this in mind a fallback scenario has been designed which is regularly tested. ZOVAR is not responsible for the non-availability of the services due to natural disasters or other circumstances for which ZOVAR cannot be held responsible.

8.7 **Limitation on liability**

ZOVAR accepts no liability for damage that occurs in conjunction with natural persons or legal entities in the event of:

- Damage if the certificate is not used in accordance with the described field of application.
- Damage which results from use of the certificate whereby the restrictions indicated on the certificate are violated.
- Damage as a consequence of non-attributable failures in the fulfilment (force majeure), including among other things delay and defects in the execution of work which can be attributed to non-technical malfunctions, such as transmission errors, equipment and system software malfunctions, defects in the equipment and software, intent, which includes fraud, illegal use of software, sabotage, theft of details and operating mistakes by third parties, errors by third parties resulting in network failure, a power cut, fire, lightning strike, substantial water damage, a break in the telephone cable, war-related violence, acts of terror, natural disasters and, more generally, causes which do not concern the reasonable care taken by ZOVAR.
- Damage which arises due to subscribers, certificate holders and/or trusting parties not fulfilling the obligations described in this CPS.
- Damage as a consequence of misuse, loss, theft or other disappearance

⁷ In the event of calamities at ZOVAR, the Ministry of Health, Welfare and Sport will take adequate measures.

- of the certificate, withdrawal code and the private key.
- Damage which arises due to the issue of a certificate on the grounds of incorrect information provided by the subscriber, insofar as ZOVAR could not, on the basis of the procedures and checks referred to in this CPS, reasonably have discovered that the information was incorrect.
 - Damage as a consequence of the use of a certificate after the time of withdrawal of the certificate and publication on the CRL.
 - Damage as a consequence of errors caused by the transfer of details by the subscriber, the software, the equipment or telecommunication facilities used by the subscriber.
 - Damage as a consequence of a defect and/or incorrect information in the sent message or in the sending or receipt thereof, which leads to serious damage such as physical injury, death or environmental damage, including but not limited to damage within the framework of using medical applications.
 - Damage caused by the courier company performing the identification of the certificate manager outside the agreed time window.

Damage caused by the courier company having been unable to carry out the correct identification of the certificate manager/holder due to the actions of the certificate manager / holder.

Insofar as the interests involved in the trust are disproportional compared to the level of reliability offered by the certificate, the trusting party will be regarded as not having trusted the certificate reasonably, even if the trusting party has fulfilled all other obligations.

8.8 Compensation

Compensation will be available only if it can be irrefutably established that ZOVAR can be held liable for the damage suffered.

8.9 Period of validity of the CPS

The CPS is valid as from the date of publication on the website www.zovar.nl. The CPS is valid as long as the services of ZOVAR continue, or until the CPS is replaced by a newer version. Newer versions will be designated by a higher version number (vX.x). In the event of drastic changes, the version number will be increased by 1. In the event of editorial changes, the version number will be increased by 0.1. Newer versions are to be published on the website of ZOVAR.

If one or more stipulations of this CPS are declared inapplicable by legal judgement or otherwise, this will not affect the validity and applicability of all other stipulations. In that case the parties will be bound by a stipulation with the same purport, wherever possible, which cannot be rendered invalid.

8.10 Internal communication by the parties involved

No specific provisions.

8.11 Changes

8.11.1 Change procedure

The effect of the applicable CPS will be assessed and updated by ZOVAR at least annually. Changes apply as of the moment that the new CPS is published and reported to the Policy Authority. The management of the CIBG is responsible for correct compliance with the procedure as described in paragraph 9.12 and for the eventual approval of the CPS in accordance with

this procedure.

8.11.2 *Change and classification requests*

Subscribers, certificate holders, trusting parties and any other interested parties can submit a written change request supported by arguments. ZOVAR can itself submit a change request, for example as a result of an internal review or audit, a change to the schedule of requirements of the PKI for the government, changing legislation or suchlike. All change proposals are to be directly recorded. The party submitting the request will be sent a confirmation of receipt.

The management and staff will classify the change requests. Where necessary, specialist legal or technical knowledge will also be applied. In the event of classification the urgency of the change request will also be determined. Changes to the CPS will be implemented in batches wherever possible.

8.11.3 *Publication of changes*

ZOVAR publishes the CPS on the website: www.zovar.nl. In addition, the CPS can be requested using the contact information referred to in paragraph 1.5.1 'Contact details'. This application can only be made in writing.

8.12 Conflict resolution

If a conflict arises regarding the interpretation of the stipulations of this CPS, the CPS will indicate the interpretation of the ZOVAR stipulations. This interpretation must take account of the general objective of ZOVAR. If this clarification does not produce a satisfactory result for the party/parties involved, the conflict will be submitted to a conflict mediator who is acceptable to all parties involved before any other judicial or extrajudicial steps are taken. Agreements about the financing of this conflict mediation will be made at that point in time. If the above does not lead to a settlement of the dispute, it will be submitted exclusively to the competent court in The Hague.

In the event of complaints concerning services delivered by ZOVAR, the complaint must be submitted in writing to the CIBG, for the attention of the cluster head responsible for ZOVAR, stating the reference 'Complaint'. ZOVAR will then process the complaint in accordance with the CIBG complaints procedure, as stipulated in chapter 9 of the General Administrative Law Act [Algemene wet bestuursrecht] (Awb).

If a conflict arises between two purchasers of services offered by ZOVAR, the cluster head of ZOVAR can mediate, or designate an independent mediator, if the parties cannot reach agreement on the basis of mutual consultation.

8.13 Applicable law

The services of ZOVAR and this CPS are subject to Dutch law.

8.14 Compliance with relevant legislation

As the implementing body of the services of ZOVAR the CIBG is a certificate service provider within the meaning of the Telecommunications Act. As a result it is bound by all European and national legislation and regulations which is related to its capacity of TSP and the services that it delivers. The

CIBG is an administrative body within the meaning of the Awb.

8.15 Other stipulations

If one or more stipulations of the CPS are declared inapplicable by legal judgement or otherwise, this will not affect the validity and applicability of all other stipulations.

10. Annex 1: Definitions and abbreviations

The definitions of the terms used were drawn up on the basis of the following points of departure:

- In a number of cases, a decision was taken to use the English terms. The reason for this is that, often, there is no correct Dutch translation for the English term in question. If a Dutch term is used alongside an English term with the same meaning, both terms will be included in the list (the most usual term is included in the list followed immediately by the translation in italics).
- In the case of 'PKI terms' (PKI = Public Key Infrastructure), the terms will link up wherever possible with the general definitions used by the PKI for the government and in the specialist literature on this issue.

The glossary consists of three columns: Abbreviation, Term and Definition. The terms are arranged alphabetically based on the 'Term' column. In a number of cases clarification is provided immediately after the definition and, if applicable, the source of the information with an empty line in between.

Abbreviation	Term	Definition
	Subscriber	Healthcare insurer of healthcare administration office in accordance with the definition used by ZOVAR, which purchases certificate services from ZOVAR. The subscriber is the party on whose behalf a server/service acts when using a certificate. The name and the subscriber number of the subscriber are stated in the certificate.
	Surname	The surname is the (correspondence) name as used on a daily basis by the person.
	Asymmetric key pair	A public and private key which are linked to each other mathematically in such a way that, in a cryptographic calculation, they are each other's counterpart. See also 'Private key' and 'Public key'.
AT	Radiocommunications Agency Netherlands [Agentschap Telecom]	Radiocommunications Agency Netherlands is both the implementing body and the regulator of legislation and regulations in the field of telecommunications, Source: www.agentschaptelecom.nl
	Authentication	The process whereby someone's identity can be confirmed or with which the integrity and origin of submitted details can be verified. See also 'Authentication certificate', 'Authorisation' and 'Identification'.
	Authentication certificate	A certificate that should exclusively be used for authentication - or electronic identification.
	Authorisation	Granting someone the authority to carry out certain activities (examples of activities: inspecting, modifying or processing details).
AP	Authority personal data (autoriteit persoonsgegevens)	The AP makes sure that personal details are used carefully and are protected and that privacy is also guaranteed in the future.
AVG	General data protection regulation [Verordening algemene gegevensbescherming.	The General Data Protection Regulation (AVG) has been applicable since 25 May 2018. This regulation ensures that the same privacy legislation applies throughout

Abbreviation	Term	Definition
	BSN services	Citizen Service Number (BSN) services include: <ul style="list-style-type: none"> - the requesting and verifying of a citizen service number, - the requesting of personal details - the Compulsory Identification Act [Wet op de identificatieplicht] (WID) check.
BSN	Citizen service number	The unique identifying number allocated to a natural person pursuant to the Citizen Service Number [General Provisions] Act [Wet algemene bepalingen burgerservicenummer].
	CA certificate	A certificate from a Certification Authority that contains, among other things, the public key and has been issued and signed by a higher CA.
CIBG	CIBG	The CIBG is an implementing body of the Ministry of Health, Welfare and Sport, that is charged with a number of legal implementation tasks. See also: www.cibg.nl
	Certificate	Electronic confirmation which links details for the verification of a certain person with details concerning the confidentiality and authenticity and/or electronic signature and therefore confirms the person's identity. A certificate is encrypted with the private key of the Certification Authority which has issued the public key, whereby the certificate cannot be falsified. A certificate contains at least: <ul style="list-style-type: none"> - the identification and the country of establishment of the issuing certificate service provider; - the name of the signatory; - the statement of the times at which the period of validity of the certificate starts and ends; - the identity code of the certificate; - any restrictions concerning the use of the certificate, and - any limits relating to the value of transactions for which the certificate can be used.
	Certificate holder	A natural person or legal entity on whose behalf a certificate has been issued and whose identity can be established using the certificate. In the case of server certificates the certificate holder will be a machine or server.
	Certificate manager	The role of certificate management is only important for products whereby the certificate holder is a system or a group/position, in other words for server certificates. In the case of these products, ZOVAR has opted for the applicant of these products to act as certificate manager as well, on behalf of a subscriber.
	Certificate profile	A description of the content of a certificate. Each type of certificate (signature, confidentiality, etc.) has its own content and, with that, its own description. This contains, for example, agreements regarding names, etc.
CP	Certificate Policy - <i>certification-policy</i>	A document with a collection of requirements referred to that indicates the frameworks within which ZOVAR issues certificates. The CP is drawn up by the Policy Authority of the PKI for the Government. By using, among other things, the CP, certificate holders and trusting parties can determine how much trust they place in ZOVAR.
CRL	Certificate Revocation List - <i>certificate revocation list</i>	A list of withdrawn (= revoked) certificates. This list can be accessed and consulted by the general public. The list is made available by and under the responsibility of ZOVAR. The CRL is itself also electronically signed by the CA of ZOVAR.
	Certification services	The issuing, managing and withdrawal of certificates by certification service providers, as well as other services related to the use of electronic signatures, identity and confidentiality.
CA	Certification Authority	The part of ZOVAR that arranges the signing of the certificates and that is trusted by end users.

Abbreviation	Term	Definition
CPS	Certification Practice Statement	A document that describes the procedures pursued, and the measures taken, by the CIBG regarding all aspects of the services. The CPS describes how ZOVAR fulfils the requirements stipulated in the Certificate Policy (CP).
	Compromise	Any violation of the trust in the exclusive use of a component by authorised persons. Within the framework of the PKI for the government, the term component usually means the private key. A key is regarded as compromised in the event of: <ul style="list-style-type: none"> • Unauthorised access or suspected unauthorised access; • Lost or presumably lost private key or bearer; • Stolen or presumably stolen private key or bearer; • Destroyed private key or bearer. A compromise constitutes a reason for placing a certificate on the Certificate Revocation List.
	Directory service	The directory service is a service of ZOVAR which is intended to make issued certificates available and accessible on the Internet.
	Electronic identity	A unique electronic representation of an identity, for example in the form of a X.500 Distinguished Name structure. These electronic details are added to, or linked in a logical way with, other electronic details. They act as a unique characteristic of the owner's identity.
	Escrow (Key Escrow)	'Key guarantee'. A method for storing a copy of a private key which is given to a trusted third party to keep, referred to as a 'Key Escrow Agency' (KEA).
ETSI	European Telecommunication Standards Institute	The ETSI is an independent institute in the field of telecommunications standardisation.
	Birth name	The birth name is the name as included in the passport or identity document (also known as maiden name or family name).
	Authorised applicant	A person who is authorised by the legal representative of the subscriber to submit applications for the issue of certificates on behalf of the subscriber.
HSM	Hardware Security Module	A resource that contains the private key(s) of systems, protects this/these key(s) against compromise and executes electronic signature, authentication or decryption on behalf of the system.
	Hierarchy	A chain of authority of mutually trusting Certification Authorities (CA).
	Identification	The process whereby the identity of a person or business is established.
	Proof of identity or identity document	A document as referred to in the Compulsory Identification Act (WID) used to establish the identity of a natural person.
	Integrity	The certainty that details are complete and unchanged.
ISO	International Organization for Standardization.	Organisation that issues a number of standards and guidelines for quality management systems orientated around the quality of the main process of an organisation. The ISO standards and guidelines are internationally accepted and are revised every five years.
	Withdrawal code	Code with which the certificate holder can submit and authorise a withdrawal request for certificates.
	Private key	See 'Private key'.

Abbreviation	Term	Definition
PA	Policy Authority	Authority under the responsibility of the Minister of the Interior and Kingdom Relations which determines the certification policy (CP/Certificate Policy) of ZOVAR. See also www.logius.nl
	Private key	The key of an asymmetric key pair which only has to be known to its holder and must be kept strictly secret. Sometimes the terms secret or personal key are used. See also: 'asymmetric key pair' and 'public key'.
PKI	Public Key Infrastructure	A combination of architecture, technology, organisation, procedures and rules based on asymmetric key pairs. The purpose is to facilitate reliable electronic communication and reliable electronic services.
	Public key	The key of an asymmetric key pair which can be made public. Sometimes the term public key is used. See also: 'asymmetric key pair' and 'personal key'.
RA	Registration Authority -	The part of ZOVAR that carries out the registration work in order to process the certificate applications.
	Revocation	Revocation concerns making a certificate invalid (withdrawal). A certificate is revoked by placing the serial number of the certificate on the Certificate Revocation List (CRL) (revocation = rescind/withdraw).
	Root CA	The highest point of trust in the hierarchy of a Public Key Infrastructure (PKI).
	Key(s)	See respectively: <ul style="list-style-type: none"> • Asymmetric key pair • Private key • Public key
	Key pair	See also asymmetric key pair.
	Server certificate	A certificate with which a service or device, for example a server is linked to a legal entity or other organisation. In the case of a server the certificate is submitted to a browser which seeks access to the server. In this way, a trusting party can be certain regarding the identity of the server's owner. A server certificate is not a qualified certificate.
	Root certificate	This is the certificate belonging to the place where the trust in all PKI for the government issued certificates originated. There is no higher CA from which the trust is derived. This certificate is signed by the holder, the party responsible for policy at the highest point of trust. All underlying certificates are issued by the holder of the root certificate.
TSP	Trusted Service Provider <i>certificatiedienst</i> □ <i>verlener</i>	A natural person or legal entity that issues the certificates and/or provides other services connected to the electronic signatures, including identity and confidentiality within the meaning of Article 1.1 under tt of the Telecommunications Act.
UZOVI	Insurance Company Identification	The address details and the unique UZOVI number are registered and maintained in the UZOVI register. Since 1 January 2006 the register has contained the details of the care insurers, authorised insurance intermediaries, healthcare administration offices, label organisations and branches.
	Confidentiality	The guarantee that details are actually and exclusively available to the party to whom they are intended, without anybody else being able to decipher them. Outside the private sector, the term exclusivity is also used.

Abbreviation	Term	Definition
	Confidentiality certificate	A certificate that belongs with the key pair that has to be used in confidentiality applications.
	Trusting party	The natural person or legal entity that is the recipient of a certificate and that acts in trust on the basis of that certificate.
	Legal representative	The person who, in accordance with the excerpt from the Chamber of Commerce or document of establishment, is authorised to bind the organisation legally to ZOVAR.
Wet aanvullende Bepalingen verwerking Persoonsgegevens in de Zorg	Use of Citizen Service Number in Healthcare Act [Act Additional provisions for the processing of personal data in the care	The Use of Citizen Service Number in Healthcare Act regulates that the citizen service number is used in the care sector. The citizen service number has to be used in the care sector in order to determine unequivocally which details belong with which client.
WID	Compulsory Identification Act [Wet op de identificatieplicht]	The Compulsory Identification Act refers to the passport and identity card as valid means of identification. A number of documents are regarded as equivalent to the passport and identity card, namely a driving licence, diplomatic passport, service or official passport, travel document for refugees or foreign nationals and other travel documents stipulated by the Minister, such as the Dutch identity card. The emergency passport and the laissez passer are not valid means of identification.
X.509	X.509	This is an electronic certificate that is compiled in accordance with a standardised structure.
	Healthcare administration office	A Wlz implementing body designated for certain region pursuant to <u>the second paragraph of Article 4.2.4;</u>
	Health insurer	This means: 1°. Wlz implementing body as referred to in <u>Article 1.1.1 of the Long-Term Care Act [Wet langdurige zorg] (Wlz);</u> 2°. healthcare insurer as referred to in <u>Article 1, under b, of the Healthcare Insurance Act;</u> 3°. insurance company as referred to in the Solvency II Directive insofar as this company offers or implements insurance policies pursuant to which the insured risk is the need for care to which, by virtue of or pursuant to the Long-Term Care Act, no entitlement exists and whereby the insured performance exceeds that arranged by virtue of or pursuant to the <u>Healthcare Insurance Act;</u> 1. Solvency II Directive 2009/138/EC is the new, risk-based supervision framework for insurers that came into effect on 1 January 2016. The primary purpose of the framework is to protect the interests of policyholders. This is achieved via quantitative capital requirements, qualitative requirements on the quality of operations and transparency to the public and the regulator. Solvency II does not apply to funeral expenses and benefits in kind insurers and most small insurers.