

**TR-GRID**  
**CERTIFICATION AUTHORITY**

**CERTIFICATE POLICY**  
**AND**  
**CERTIFICATION PRACTICE STATEMENT**

Version 2.4

June 7, 2021

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# 1. INTRODUCTION

## 1.1 Overview

This document is organized according to the specifications proposed by the RFC 3647. It describes the procedure followed by TR-GRID (National Grid Initiative of Turkey) Certification Authority and is the combination of Certificate Policy and Certification Practice Statement (CP/CPS).

This document is a valid CP/CPS as of June 7, 2021, 09:00 UTC.

## 1.2 Document Name and Identification

Document Title

**TR-GRID CA Certificate Policy and Certification Practice Statement**

Document Version

**2.4**

Document Date

**June 7, 2021**

ASN.1 Object Identifier (OID)

**1.3.6.1.4.1.23658.10.1.2.4**

## 1.3 PKI Participants

### 1.3.1 Certification Authorities

The TR-GRID CA does not issue certificates to subordinate Certification Authorities.

### 1.3.2 Registration Authorities

TR-GRID CA is integrated with the e-Government System of Turkey as a part of Turkish Science e-Infrastructure (TRUBA).

The e-Government System can be used by all citizens of Turkey over the age of 18 for public services like tax payments, land transactions, health systems, etc. All citizens and foreigners have an identity number and a password for using the e-Government System. The password of the e-Government system is given by Republic of Turkey Ministry of Transport and Infrastructure Turkish Post Office (PTT) branches when a citizen requested personally with his/her photo ID card which includes his/her identity number.

Since PTT is a state institution that has at least one office in every province, district and neighborhood in Turkey, every researcher (citizens and foreigners) can easily access and obtain their passwords for the e-Government System. Every researcher who wants to benefit from TRUBA services is firstly registered to TRUBA Membership Portal. The researcher is authenticated by the online e-Identification system used by the e-Government system and redirected TRUBA Membership Portal for authentication.

In addition, TRUBA Membership Portal provides a link for authorization with the Council of Higher Education System (YOKSIS) via the web service. Researcher who is registered TRUBA Membership Portal to benefit from TRUBA services is authorized directly with the name of the university or research institution, title and education level which are provided from YOKSIS with the credentials coming from the e-Government System.

The researchers, who want to benefit from existing research infrastructures, can request user, host and service certificate directly from TRUBA Membership Portal. Since they have already authenticated with e-Government System and authorized with YOKSIS, TR-GRID CA Operator can check their requests from TRUBA Membership Portal.

The TR-GRID CA assigns the authentication and authentication of individual identity to TRUBA Membership Portal since it authenticates and authorized the person with e-Government System and YOKSIS. Therefore, there are no need RA Operator.

TR-GRID CA is based on this CP/CPS document, only TR-GRID CA Operators are allowed to issue certificates.

### **1.3.3 Subscribers**

TR-GRID CA provides PKI services to meet the requirements of Turkish academics and research communities including national or international Grid activities.

TR-GRID CA issues certificates to the following entities:

- Users (people)
- Computers (hosts)
- Services (host applications)

### **1.3.4. Relying Parties**

All entities that use public keys of certificates, issued by TR-GRID CA, for signature verification and/or encryption, will be considered as relying parties.

### **1.3.5 Other Participants**

No stipulation.

## **1.4 Certificate Usage**

### **1.4.1 Appropriate Certificate Uses**

User certificates can be used to authenticate a user that would like to benefit from the academic resources, services and activities including Grid resources.

Host certificates can be used to identify computers that have special tasks related to the Grid or other academic activities.

Service certificates can be used to recognize the host applications and, data or communication encryption (SSL/TLS).



In addition, user certificates can be used for e-mail signing and encryption (S/MIME).

User certificates must not be shared.

### **1.4.2 Prohibited Certificate Uses**

Notwithstanding the above, using certificates for purposes contrary to Turkish law is explicitly prohibited.

## **1.5 Policy Administration**

### **1.5.1 Organization Administering the Document**

TR-GRID Security Group at TUBITAK ULAKBIM is in charge of the management of TR-GRID CA.

Phone: +90 312 2989365

E-mail: [ca@truba.gov.tr](mailto:ca@truba.gov.tr)

Address: Universiteler Mah. ODTU Kampusu.  
MODSIMMER Binası Kat:2 06800  
Cankaya, Ankara  
Turkey

### **1.5.2 Contact Person**

The contact person that can deal with any questions related to this document or operational issues:

#### **Feyza Eryol**

Phone: +90 312 2989304

E-mail: [feyz.eryol@tubitak.gov.tr](mailto:feyz.eryol@tubitak.gov.tr)

Address: Universiteler Mah. ODTU Kampusu.  
MODSIMMER Binası Kat:2 06800  
Cankaya, Ankara  
Turkey

Website: <http://www.truba.gov.tr/index.php/en/certification-authority/>

### **1.5.3 Person Determining CPS Suitability for the Policy**

The person mentioned in 1.5.2.

### **1.5.4 CPS Approval Procedures**

The CP/CPS document and all CPS modifications should be approved by the EuGridPMA before being applied.

## **1.6 Definitions and Acronyms**

**Activation Data:** Data values, different from keys, that are required to operate cryptographic modules and that need to be protected such as a pin or a passphrase.

**CA – Certification Authority:** The entity / system that signs X.509 identity certificates.

**CP – Certificate Policy:** A named set of rules that indicates the applicability of a certificate to a particular community and/or class of application with common security requirements.

**CPS – Certification Practice Statement:** A statement for the practices, that a certification authority applies in its operations.

**CRL – Certificate Revocation List:** A time stamped list displaying revoked certificates that are signed by a CA and made freely available in a public repository.

**PKI – Public Key Infrastructure:** IT infrastructure that enables users of a basically unsecure public network (such as the Internet) to securely and privately exchange data through the use of a public and a private cryptographic key pair that is obtained and shared through a trusted authority.

**Private Key:** In secure communication, an algorithmic pattern used to encrypt messages that only the corresponding public key can decrypt. The private key is also used to decrypt messages that were encrypted by the corresponding public key.

**Public Key:** The pattern used to confirm "signatures" on incoming messages or to encrypt a file or message so that only the holder of the private key can decrypt the file or message.

**PTT:** Republic of Turkey Ministry of Transport and Infrastructure Turkish Post Office. PTT is a state institution that has at least one office in every province, district and neighborhood in Turkey, every researcher (citizens and foreigners) can easily access and obtain their passwords for the e-Government System.

**RA – Registration Authority:** An entity that is responsible for identification and authentication of certificate subjects, but that does not sign or issue certificates.

**Relying Party:** A recipient who accepts a digital certificate and digital signature.

**Subscriber:** In the case of certificates issued to resources (such as web servers), the person responsible for the certificate for that resource. For certificates issued to individuals, same as certificate subject.

**TRUBA:** Turkish Science e-Infrastructure.

**TRUBA Membership Portal:** TRUBA membership portal is a portal designed to validate and authorize the identity information of the persons and individuals with e-Government System and YOKSIS systems, update any information changes directly, and keep the registration information of TRUBA researchers up-to-date. This portal is used by TRUBA researchers who want to benefit from TRUBA services which includes certification processes.

**YOKSIS:** Council of Higher Education Information System that holds research units, researchers and students' institution, faculty, department, title information. YOKSIS can be integrated with the other information system with web services.

## 2 PUBLICATION AND REPOSITORY RESPONSIBILITIES

### 2.1 Repositories

TR-GRID CA will maintain a secure online repository at <https://www.truba.gov.tr/index.php/en/certification-authority/> that includes:

- The TR-GRID CA root certificate
- A http URL of the PEM-formatted CA certificate
- A periodically updated http URL of the PEM formatted CRL
- A periodically updated http URL of the DER formatted CRL
- User and host certificates issued by the CA
- All versions (current and past) of its verified CP/CPS document
- An official contact e-mail address
- A physical contact address
- Other information that can be regarded as relevant to TR-GRID CA

The on-line repository runs on best-effort basis with an availability of 24x7, liable to reasonable scheduled maintenance.

## 2.2 Publication of Certification Information

See section 2.1.

## 2.3 Time or Frequency of Publication

- Certificates will be put to the TR-GRID CA website as soon as they are issued.
- CRL publication will be updated immediately after a revocation is issued and it will be updated at least 7 days before the expiration date of the CRL where CRL life time is 30 days.
- New versions of all TR-GRID CA documents will be published on the website as soon as they are updated.
- New versions of this CP/CPS document will be published soon after they are validated and former versions will be kept as a record in the repository.

## 2.4 Access Control on Repositories

The on-line repository is available on a 24x7 basis, liable to reasonable scheduled maintenance.

TR-GRID CA does not impose any access control on the policy, issued certificates, and the CRLs.

# 3 IDENTIFICATION AND AUTHENTICATION

## 3.1 Naming

### 3.1.1 Types of Names

The subject name in the end-entity certificates is in X.509v3 format and compliant with RFC3280. Any name under this CP/CPS is in the form of “C=TR, O=TRGrid, OU=unit”. The following part is the “CN” which is distinguished for each person or each host.

- Illustration of a full subject distinguished name for a user:  
C=TR, O=TRGrid, OU=TUBITAK-ULAKBIM, CN=Asli Zengin
- Illustration of a full subject distinguished name for a host:

- C=TR, O=TRGrid, OU=TUBITAK-ULAKBIM, CN=www.truba.gov.tr.
- Illustration of a full subject distinguished name for a service:  
C=TR, O=TRGrid, OU=TRUBA, CN=ldap.truba.gov.tr

### **3.1.2 Need for Names to be Meaningful.**

The Subject Name in a certificate must have a logical relation with the identity name of the subscriber, preferably, it can be the actual name of the user. If it is a host certificate, the CN must be stated as the fully qualified domain name (FQDN). Each host certificate must be linked to a single network entity.

### **3.1.3 Anonymity or Pseudonymity of Subscribers**

TR-GRID CA does not issue pseudonymous or anonymous certificates.

### **3.1.4 Rules for Interpreting Various Name Forms**

See section 3.1.1.

### **3.1.5 Uniqueness of Names**

The subject name included in the CN part of a certificate must be unique for all certificates issued by the TR-GRID CA. When essential, extra characters may be affixed to the original name to guarantee the uniqueness of the subject name.

### **3.1.6 Recognition, Authentication, and Role of Trademarks**

No stipulation.

## **3.2 Initial Identity Validation**

### **3.2.1 Method to Prove Possession of a Private Key**

Requests are submitted via SSL protected HTTP transport, either in PKCS10 or SPKAC format. Host or service certificates can be submitted by signed e-mail. In all cases, signature is verified by the CA.

### **3.2.2 Authentication of Organization Identity**

Not yet assigned.

### **3.2.3 Authentication of Individual Identity**

Certificate of a person:

- The subject should contact personally the PTT branches in order to validate his/her identity.
- The subject authentication is fulfilled by providing an official document (ID-card, driving license or a passport) declaring that the subject is a valid end entity by PTT officers.
- PTT branches provide to the subject an e-Government password to be able to authenticate e-Government system.
- The subject authenticated by e-Government Authentication System to be a member of TRUBA Membership Portal.
- The subject is authorized by YOKSIS to verify the knowledge of being in an academic institution.

- CA Operator checks all authentication and authorization information through the TRUBA Membership Portal.

The authentication and authorization process is described in detailed in Section 1.3.2. After the person becomes a member of the TRUBA Membership Portal, his identity is verified by the e-Government system at each TRUBA Membership Portal entry. Moreover, YOKSIS information is checked by the CA Operator for the authorization of the person in each certificate process.

Certificate of a host:

Host certificates can only be requested by the administrator responsible for the particular host. In order to request a host certificate, the administrator must already possess a valid personal TR-GRID certificate.

### **3.2.4 Non-verified Subscriber Information**

No stipulation..

### **3.2.5 Validation of Authority**

No stipulation.

### **3.2.6 Criteria of Interoperation**

No stipulation.

## **3.3 Identification and Authentication for Re-key Requests**

### **3.3.1 Identification and Authentication for Routine Re-key**

Expiration warnings will be sent to subscribers before it is re-key time. Re-key before expiration can be executed by stating a re-key request signed with the personal certificate of the subscriber but after 3 years face-to-face identity validation is required as described in 3.2.3. Re-key after expiration uses completely the same authentication procedure as new certificate.

### **3.3.2 Identification and Authentication for Re-key after Revocation**

A revoked certificate shall not be renewed. The procedure for re-authentication is exactly the same with an initial registration.

## **3.4 Identification and Authentication for Revocation Request**

Certificate revocation requests should be authenticated in one of the following ways:

- By signing a revocation request e-mail via a valid personal TR-GRID certificate
- By personal authentication as described in 3.2.3.

# 4 CERTIFICATE LIFE-CYCLE OPERATIONAL REQUIREMENTS

## 4.1 Certificate Application

### 4.1.1 Who can Submit a Certificate Application

The essential procedures that must be conformed in a certificate application request are as follows:

- The subject must be appropriate to the specifications stated in this policy.
- The key length of a certificate must be at least 2048 bits.
- Each applicant generates his/her own key by using OpenSSL or similar software.
- Maximum life time of a certificate is 1 year.
- Message digests of the certificates must be generated by SHA256 algorithm.
- Host and service certificate requests must be submitted via SSL protected HTTP transport or via e-mail signed by a valid TR-GRID CA certificate to the appropriate RA.
- For host and service certificates, the requester must be appropriately authorized by the owner of the FQDN.
- User certificate requests must be submitted via SSL protected HTTP transport.

### 4.1.2 Enrollment Process and Responsibilities

As the essential procedures that must be conformed in an end-entity certificate application procedure stated in section 3.2.3, the enrollment processes are as follows:

- User enrollment:
  - The subject who contact personally the PTT branches officer in order to validate his/her identity before and authenticated with his/her official identity document by PTT branches officer to be able to get e-Government password. After he/she is identified by the PTT branches, the subject could use e-Government system and also connect to TRUBA Membership Portal to be a member.
  - When the subject connected to TRUBA Membership Portal with his/her identity number and e-Government password:
    - TRUBA Membership Portal is getting the subject all identity information including Name, Surname, Second Surname (if it is existing), Date of Birth, Date of Place, etc. for Certificate Subject from e-Government System.
    - Also, TRUBA Membership Portal is connected with YOKSIS to get up-to-date institute, department, title and other academic information of the subject.
  - The subject can request personal certificate from TRUBA Membership Portal. All needed information for the certificate DN is filled from e-Government and YOKSIS.

All communications of TRUBA Membership Portal and the other information systems are via SSL protected protocols.

- The subject private key is generated on the browser of the user and the request is taken by TRUBA Membership Portal.
- TRUBA Membership Portal send an e-mail to CA Operator for this new certificate request.

CA operator checks the authentication procedures of the subject and issues the certificate and informs the requester via e-mail which describes how to download the certificate from the TRUBA Membership Portal with the browser from which the request is submitted.

- Host enrollment:

Host certificates can only be requested by the administrator responsible for the particular host. In order to request a host certificate, the administrator must already possess a valid personal TR-GRID CA certificate. Applicants can make host/service certificate requests to the CA Operators via e-mail signed by a valid TR-GRID CA certificate. Applicant's public keys are delivered to the CA Operators in an email containing the certificate request. CA Operator should ensure that the applicant is appropriately authorized by the owner of the associated FQDN.

CA operator checks the authentication procedures of the subject and issues the certificate and informs the applicant via e-mail.

In addition, applicants can make host/service certificate requests via SSL protected HTTP certification request service provided by the TRUBA Membership Portal. Applicant can upload certificate request file to TRUBA Membership Portal. CA Operator should ensure that the applicant is appropriately authorized by the owner of the associated FQDN.

CA operator checks the authentication procedures of the subject and issues the certificate and informs the applicant via TRUBA Membership Portal which send an automatic e-mail to the applicant.

## **4.2 Certificate Application Processing**

### **4.2.1 Performing Identification and Authentication Functions**

For a certificate to be issued, the subject authentication must be successful and proper as specified in this document. Applicants will be informed about the status of their certificate via e-mail whether it is issued or rejected.

### **4.2.2 Approval or Rejection of Certificate Applications**

If the certificate request does not meet one or more of the criteria in 4.1.1, it will be rejected and the requester will be informed via e-mail.

### **4.2.3 Time to Process Certificate Applications**

Each certificate application will take no more than 5 working days to be processed.

## **4.3 Certificate Issuance**

### **4.3.1 CA Actions during Certificate Issuance**

CA will check that identity validation is properly performed as described in 3.2.3.

### **4.3.2 Notification to Subscriber by the CA of Issuance of Certificate**

Applicants will be notified via e-mail when the certificate is issued and the issued certificate will be hosted at the online CA repository.

## **4.4 Certificate Acceptance**

### **4.4.1 Conduct Constituting Certificate Acceptance**

Subscribers of TR-GRID CA are required to agree with the following issues:

- acknowledgment of conditions and loyalty to the procedures interpreted in this document
- permanent provision of correct information to the TR-GRID CA and avoidance of unnecessary information out of purposes of this document
- use of the certificate for only authorized purposes that are stated in this document
- admission of restrictions to liability defined in section 9.8
- admission of statements about confidentiality of information emphasized in section 9.4
- key pair (public key and private key) generation using a secure method
- acceptable precautions against loss, disclosure or illegal use of the private key
- notifying TR-GRID CA in case private key is compromised or lost
- notifying TR-GRID CA in case of information change in the certificate
- notifying TR-GRID CA in case the subscriber requests to revoke the certificate

### **4.4.2 Publication of the Certificate by the CA**

All the certificates issued by TR-GRID CA will be published at the on-line CA repository.

### **4.4.3 Notification of Certificate Issuance by the CA to Other Entities**

See section 4.3.2.

## **4.5 Key Pair and Certificate Usage**

### **4.5.1 Subscriber Private Key and Certificate Usage**

See section 1.4.1.

### **4.5.2 Relying Party Public Key and Certificate Usage**

So as to use TR-GRID CA certificates, relying parties must consider the following specifications:

- loyalty to all the statements in this document
- use of the certificate for only authorized purposes
- checking CRL list from the website before validating a certificate



## **4.6 Certificate Renewal**

### **4.6.1 Circumstance for Certificate Renewal**

Certificate renewal is not permitted. Subscribers must follow the re-key procedure, described in 3.3.1.

### **4.6.2 Who may Request Renewal**

See section 4.6.1.

### **4.6.3 Processing Certificate Renewal Requests**

See section 4.6.1.

### **4.6.4 Notification of New Certificate Issuance to Subscriber**

See section 4.6.1.

### **4.6.5 Conduct Constituting Acceptance of a Renewal Certificate**

See section 4.6.1.

### **4.6.6 Publication of the Renewal Certificate by the CA**

See section 4.6.1.

### **4.6.7 Notification of Certificate Issuance by the CA to Other Entities**

See section 4.6.1.

## **4.7 Certificate Re-key**

### **4.7.1 Circumstances for Certificate Re-key**

The following circumstances require certificate re-key:

- expiration of subscriber's certificate,
- revocation of subscriber's certificate.

### **4.7.2 Who may Request Certification of a New Public Key**

Any subscriber holding a valid TR-GRID CA end entity certificate can request certificate re-key.

### **4.7.3 Processing Certificate Re-keying Requests**

See sections 3.3.1 and 3.3.2.

### **4.7.4 Notification of New Certificate Issuance to Subscriber**

See section 4.3.2.

### **4.7.5 Conduct Constituting Acceptance of a Re-keyed Certificate**

See section 4.4.1.

### **4.7.6 Publication of the Re-keyed Certificate by the CA**

See section 4.4.2.

#### **4.7.7 Notification of Certificate Issuance by the CA to Other Entities**

See section 4.4.3.

### **4.8 Certificate Modification**

#### **4.8.1 Circumstances for Certificate Modification**

No stipulation.

#### **4.8.2 Who may Request Certificate Modification**

No stipulation.

#### **4.8.3 Processing Certificate Modification Requests**

No stipulation.

#### **4.8.4 Notification of New Certificate Issuance to Subscriber**

No stipulation.

#### **4.8.5 Conduct Constituting Acceptance of Modified Certificate**

No stipulation.

#### **4.8.6 Publication of the Modified Certificate by the CA**

No stipulation.

#### **4.8.7 Notification of Certificate Issuance by the CA to Other Entities**

No stipulation.

### **4.9 Certificate Revocation and Suspension**

#### **4.9.1 Circumstances for Revocation**

A certificate will be revoked in the following situations:

- The subscriber does not need the certificate any more.
- The subscriber has not obeyed the stated obligations.
- The information in the certificate is incorrect.
- The private key of a certificate is lost, compromised or suspected to be compromised.

In one of the conditions above, end entity must request revocation of the certificate as soon as possible but within one working day.

#### **4.9.2 Who can Request Revocation**

The CA, RA, subscriber of the certificate or any other entity holding evidence of a revocation circumstance about that certificate can request revocation.

#### **4.9.3 Procedure for Revocation Request**

Revocation requests should be submitted in one of the following ways:

- by email sent to [ca@truba.org.tr](mailto:ca@truba.org.tr)
- personally at the CA
- by TRUBA Membership Portal

All revocation requests should be properly authenticated as described in 3.4.

#### **4.9.4 Revocation Request Grace Period**

No stipulation.

#### **4.9.5 Time within which CA must Process the Revocation Request**

TR-GRID CA will process all revocation requests within 1 working day.

#### **4.9.6 Revocation Checking Requirement for Relying Parties**

A relying party must verify the certificate that it uses considering the most recently issued CRL.

#### **4.9.7 CRL Issuance Frequency**

See section 2.3.

#### **4.9.8 Maximum Latency for CRLs**

No stipulation.

#### **4.9.9 On-line Revocation/status Checking Availability**

At present, no on line service for this purpose is available.

CRL will be published immediately after a revocation is issued and it will be updated at least 7 days before the expiration date of the CRL where CRL life time is 30 days.

#### **4.9.10 On-line Revocation Checking Requirements**

See section 4.9.9.

#### **4.9.11 Other Forms of Revocation Advertisements Available**

No stipulation.

#### **4.9.12 Special Requirements Re-key Compromise**

No stipulation.

#### **4.9.13 Circumstances for Suspension**

TR-GRID CA does not suspend certificates.

#### **4.9.14 Who can Request Suspension**

See section 4.9.13.

#### **4.9.15 Procedure for Suspension Request**

See section 4.9.13.

#### **4.9.16 Limits on Suspension Period**

See section 4.9.13.

### **4.10 Certificate Status Services**

#### **4.10.1 Operational Characteristics**

TR-GRID CA online repository contains list of valid certificates and list of revoked certificates (CRL). Both lists are continuously updated.

#### **4.10.2 Service Availability**

The online repository is available on a 24x7 basis, liable to reasonable scheduled maintenance.

#### **4.10.3 Optional Features**

No stipulation.

### **4.11 End of Subscription**

No stipulation.

### **4.12 Key Escrow and Recovery**

#### **4.12.1 Key Escrow and Recovery Policy and Practices**

No stipulation.

#### **4.12.2 Session Key Encapsulation and Recovery Policy and Practices**

No stipulation.

## **5 FACILITY, MANAGEMENT, AND OPERATIONAL CONTROLS**

### **5.1 Physical Controls**

#### **5.1.1 Site Location and Construction**

The TR-GRID CA operates in a controlled and protected room in TUBITAK ULAKBIM building.

#### **5.1.2 Physical Access**

Physical access to the hardware is restricted to the authorized personnel.

#### **5.1.3 Power and Air Conditioning**

No stipulation.

#### **5.1.4 Water Exposures**

No stipulation.

#### **5.1.5 Fire Prevention and Protection**

TUBITAK ULAKBIM building has a fire alarm system.

#### **5.1.6 Media Storage**

Backups are to be stored in removable storage media.

#### **5.1.7 Waste Disposal**

No stipulation.

#### **5.1.8 Off-site Backup**

No stipulation.

### **5.2 Procedural Controls**

#### **5.2.1 Trusted Roles**

No stipulation.

#### **5.2.2 Number of Persons Required per Task**

No stipulation.

#### **5.2.3 Identification and Authentication for Each Role**

No stipulation.

#### **5.2.4 Roles Requiring Separation of Duties**

No stipulation.

### **5.3 Personnel Controls**

#### **5.3.1 Qualifications, Experience and Clearance Requirements**

Access to servers and applications is limited to the TR-GRID CA Security Personnel who are staff in TUBITAK ULAKBIM.

#### **5.3.2 Background Check Procedures**

No stipulation.

#### **5.3.3 Training Requirements**

Internal training is available and applied to the TR-GRID CA operators.

#### **5.3.4 Retraining Frequency and Requirements**

TR-GRID CA will perform operational audit of the CA operators once a year. Retraining is applied if the audit results are not satisfactory.

### **5.3.5 Job Rotation Frequency and Sequence**

No stipulation.

### **5.3.6 Sanctions for Unauthorized Actions**

No stipulation.

### **5.3.7 Independent Contractor Requirements**

No stipulation.

### **5.3.8 Documentation Supplied to Personnel**

Operational manual for CA operators is supplied to the new TR-GRID CA personnel.

## **5.4 Audit logging procedures**

### **5.4.1 Types of Events Recorded**

The login/logout/reboot information of the issuing machine is archived. In addition, annual operational audits of CA staff must be performed.

### **5.4.2 Frequency of Processing Log**

No stipulation.

### **5.4.3 Retention Period for Audit Log**

Minimum retention period is three years.

### **5.4.4 Protection of Audit Log**

Archives are kept in a separate room with limited access.

### **5.4.5 Audit Log Backup Procedures**

Audit logs are kept in removable storage media in a safe room with restricted access.

### **5.4.6 Audit Collection System (Internal vs. External)**

Audit log collection system is internal to TR-GRID CA.

### **5.4.7 Notification to Event-causing Subject**

No stipulation.

### **5.4.8 Vulnerability Assessments**

No stipulation.

## **5.5 Records Archival**

### **5.5.1 Types of Event Recorded**

The TR-GRID CA will archive the following items:

- Application data (certificate and revocation requests from TRUBA Membership Portal records)
- Issued certificates and CRLs
- The login/logout/reboot information of the issuing machine

### **5.5.2 Retention Period for Archive**

Minimum retention period is three years.

### **5.5.3 Protection of Archive**

Archives are kept in an auditable form with limited access.

### **5.5.4 Archive Backup Procedures**

All archive data are copied to removable storage media.

### **5.5.5 Requirements for Time-stamping of Records**

No stipulation.

### **5.5.6 Archive Collection System (Internal or External)**

The archive collection system is internal to the TR-GRID CA.

### **5.5.7 Procedures to Obtain and Verify Archive Information**

No stipulation

## **5.6 Key Changeover**

Lifetime of TR-GRID CA is 20 years and lifetime of end entity certificates is 1 year. The CA's private key is changed periodically; from that time on, the new key will be valid in order to sign new certificates or CRL lists of new certificates. The overlap of the old and new key must be at least one year. The older but still valid certificate must be available to verify old signatures and its private key must be used to sign CRLs until all the certificates signed using the associated key have expired or been revoked.

## **5.7 Compromise and Disaster Recovery**

### **5.7.1 Incident and Compromised Handling Procedures**

If the CA private key is compromised or destroyed in some way, the CA will perform the following tasks:

- Inform the EuGridPMA
- Inform all the nodes, RAs and other relying parties
- Conclude the issuance and distribution of certificates and CRLs
- Generate a new CA certificate with a new key pair that will be soon available on the website.

### **5.7.2 Computing Resources, Software, and/or Data are Corrupted**

The CA software or any data are corrupted in the CA machine or CA machine hardware failure, the

system will be restored from the kept backups.

### **5.7.3 Entity Private Key Compromise Procedures**

No stipulation.

### **5.7.4 Business Continuity Capabilities after a Disaster**

No stipulation.

## **5.8 CA or RA Termination**

TR-GRID CA will do the following tasks before it terminates its Grid-related services:

- Inform the subscribed users
- Stop to issue certificates and CRLs
- Notify the relevant security contacts
- Declare its termination on the website
- Annihilate all copies of private keys

# **6. TECHNICAL SECURITY CONTROLS**

## **6.1 Key Pair Generation and Installation**

### **6.1.1 Key Pair Generation**

Keys for the TR-GRID CA root certificate are generated on a dedicated machine, not connected to any type of network. The software used for key generation is OpenSSL.

Each subscriber must generate his/her own key pair.

### **6.1.2 Private Key Delivery to Subscriber**

As each applicant generates his/her own key pair, CA has no access to subscribers' private keys.

### **6.1.3 Public Key Delivery to Certificate Issuer**

Applicants can make host/service certificate requests to the CA operators via e-mail signed by a valid TR-GRID CA certificate or via TRUBA Membership Portal. Applicant's public keys are delivered to the CA Operator in an email containing the certificate request.

Applicants can make user/host/service certificate requests via SSL protected HTTP certification request service provided by the TRUBA Membership Portal.

### **6.1.4 CA Public Key Delivery to Relying Parties**

The TR-GRID CA root certificate is available on the website:  
<http://www.truba.gov.tr/index.php/en/certification-authority/>

### **6.1.5 Key Sizes**

For a user or host certificate the key size is 1024 or 2048 bits. The TR-GRID CA key size is 2048 bits.



### **6.1.6 Public Key Parameters Generation and Quality Checking**

No stipulation.

### **6.1.7 Key Usage Purposes (as per X.509 v3 Key Usage Field)**

TR-GRID certificates may be used only for authentication and signing proxy certificates, e-mail signing and encryption.

TR-GRID CA private key will only be used to issue CRLs and new certificates and to revoke certificates.

## **6.2 Private Key Protection and Cryptographic Module Engineering Controls**

### **6.2.1 Cryptographic Module Standards and Controls**

The TR-GRID CA uses SHA256 with RSA encryption as a signature algorithm.

### **6.2.2 Private Key (n out of m) Multi-person Control**

No stipulation.

### **6.2.3 Private Key Escrow**

No stipulation.

### **6.2.4 Private Key Backup**

A backup of the TR-GRID CA private key is kept encrypted in multiple copies in USB flash drive and CD-ROM in a safe location. The password for the private key is kept separately in paper form with an access control. Only authorized CA personnel have access to the backups.

### **6.2.5 Private Key Archival**

TR-GRID CA does not archive end entities private keys apart from the private key corresponding to the root certificate of TR-GRID CA.

### **6.2.6 Private Key Transfer into or from a Cryptographic Module**

TR-GRID CA does not use cryptographic module.

### **6.2.7 Private Key Storage on Cryptographic Module**

See section 6.2.6.

### **6.2.8 Method of Activating Private Key**

TR-GRID CA private key is protected by a passphrase of at least 15 characters and only known by authorized CA personnel.

The subscriber is required to generate a secure pass phrase, at least 12 characters long for the private key. Private key cannot be shared and it is subscriber's responsibility to protect the private key properly.

### **6.2.9 Method of Deactivating Private Key**

No stipulation.

### **6.2.10 Method of Destroying Private Key**

No stipulation.

### **6.2.11 Cryptographic Module Rating**

No stipulation.

## **6.3 Other Aspects of Key Pair Management**

No stipulation.

### **6.3.1 Public Key Archival**

As a part of the certificate archival, the public key is archived.

### **6.3.2 Certificate Operational Periods and Key Pair Usage Periods**

TR-GRID CA root certificate has a validity of twenty years. For subscribers, the maximum validity period for a certificate is one year.

## **6.4 Activation Data**

### **6.4.1 Activation Data Generation and Installation**

TR-GRID CA does not generate activation data for subscribers. The subscriber is required to generate a secure pass phrase, at least 12 characters long as activation data for the private key.

TR-GRID CA private key is protected by a passphrase of at least 15 characters.

### **6.4.2 Activation Data Protection**

The TR-GRID CA does not have access to or generate the private keys of a subscriber. The key pair is generated and managed by the client and it is subscriber's responsibility to keep the private key secure.

The passphrase for the private key of CA root certificate is kept separately in paper form with an access limited to CA personnel.

### **6.4.3 Other Aspects of Activation Data**

No stipulation.

## **6.5 Computer Security Controls**

### **6.5.1 Specific Computer Security Technical Requirements**

- The CA server is a dedicated machine and it is not connected to any type of network.
- The operating systems of CA servers are protected at a high degree of security by applying all the relevant patches.
- To discover invalid software applications, monitoring is used.
- System configuration is reduced to minimum.

### **6.5.2 Computer Security Rating**

No stipulation.

## 6.6 Life Cycle Technical Controls

### 6.6.1 System Development Controls

No stipulation.

### 6.6.2 Security Management Controls

No stipulation.

### 6.6.3 Life Cycle Security Controls

No stipulation.

## 6.7 Network Security Controls

Certificates are issued on a machine, not connected to any kind of network. Protection of other machines is provided by firewalls.

## 6.8 Time Stamping

No stipulation.

# 7. CERTIFICATE, CRL AND OCSP PROFILES

## 7.1 Certificate Profile

### 7.1.1 Version Number

X.509 v3

### 7.1.2 Certificate Extensions

TR-GRID CA supports and uses the following X.509 v3 Certificate extensions:

- CA root certificate extensions:
  - Basic Constraints: critical, CA:TRUE
  - Key Usage: critical, CRL Sign, Key Cert Sign
  - Subject Key Identifier
  - Authority Key Identifier
  - CRL Distribution Points
- End entity certificate extensions for users:
  - Basic Constraints: critical, CA:FALSE
  - Key Usage: critical, Digital Signature, Key Encipherment, Data Encipherment
  - Extended Key Usage: TLS Web Client Authentication, E-mail Protection
  - CRL Distribution Points
  - Authority Key Identifier
  - Subject Key Identifier

- Certificate Policies
- Subject Alternative Name: Email=e-mail address of user, optional
  
- End entity certificate extensions for hosts:
  - Basic Constraints: critical, CA:FALSE
  - Key Usage: critical, Digital Signature, Key Encipherment, Data Encipherment
  - Extended Key Usage: TLS Web Client Authentication, TLS Web Server Authentication
  - CRL Distribution Points
  - Authority Key Identifier
  - Subject Key Identifier
  - Certificate Policies
  - Subject Alternative Name: DNS Name=FQDN for hosts

### **7.1.3 Algorithm Object Identifiers**

The following hash/digest algorithm is used for CA:

- Secure Hash Algorithm-1 (x500 oid:1.3.14.3.2.26)

The following hash/digest algorithm is used for end-entities:

- Secure Hash Algorithm-256 (x500 oid:2.16.840.1.101.3.4.2.1)

The following signature algorithm is used:

- RSA (x500 oid: 1.2.840.113549.1.1.5)

### **7.1.4 Name Forms**

See section 3.1.1.

### **7.1.5 Name Constraints**

See section 3.1.2.

### **7.1.6 Certificate Policy Object Identifier**

See section 1.2.

### **7.1.7 Usage of Policy Constraints Extension**

No stipulation.

### **7.1.8 Policy Qualifiers Syntax and Semantics**

No stipulation.

### **7.1.9 Processing Semantics for the Critical Certificate Policies Extension**

No stipulation.

## **7.2 CRL Profile**

### **7.2.1 Version Number(s)**

CRLs are in X.509 v2 format, compliant with RFC 5280. SHA1 algorithm is used to generate CRLs.

### **7.2.2 CRL and CRL Entry Extensions**

The CRL extension Authority Key Identifier and CRL Number will be used in CRLs.

## **7.3 OCSP Profile**

No stipulation.

### **7.3.1 Version Number(s)**

No stipulation.

### **7.3.2 OCSP Extensions**

No stipulation.

# **8 COMPLIANCE AUDIT AND OTHER ASSESSMENTS**

## **8.1 Frequency or Circumstances of Assessment**

TR-GRID CA accepts being audited by other accredited CAs to verify its adherence to the rules and procedures specified in its CP/CPS document.

## **8.2 Identity/qualifications of Assessor**

No stipulation.

## **8.3 Assessor's Relationship to Assessed Entity**

No stipulation.

## **8.4 Topics Covered by Assessment**

No stipulation.

## **8.5 Actions Taken as a Result of Deficiency**

No stipulation.

## **8.6 Communication of Results**

No stipulation.

## **9 OTHER BUSINESS AND LEGAL MATTERS**

### **9.1 Fees**

#### **9.1.1 Certificate Issuance or Renewal Fees**

For any service supplied, TR-GRID CA charges no fee.

#### **9.1.2 Certificate Access Fees**

See section 9.1.1.

#### **9.1.3 Revocation or Status Information Access Fees**

See section 9.1.1.

#### **9.1.4 Fees for Other Services**

See section 9.1.1.

#### **9.1.5 Refund Policy**

See section 9.1.1.

### **9.2 Financial Responsibility**

TR-GRID CA rejects any financial or any other sort of responsibility for damages arising from its operations.

#### **9.2.1 Insurance Coverage**

Not applicable.

#### **9.2.2 Other Assets**

Not applicable.

#### **9.2.3 Insurance or Warranty Coverage for End-entities**

Not applicable.

### **9.3 Confidentiality of Business Information**

No stipulation.

#### **9.3.1 Scope of Confidential Information**

Not applicable.

#### **9.3.2 Information not within the Scope of Confidential Information**

Not applicable.

#### **9.3.3 Responsibility to Protect Confidential Information**

Not applicable.

## **9.4 Privacy of Personal Information**

TR-GRID CA does not collect any confidential or private information except authentication and authorization data of an end entity that is taken from e-Government System and YOKSIS for certificate request. TR-GRID CA guarantees that this personal information will not be used for any other purposes.

### **9.4.1 Privacy Plan**

See section 9.4.

### **9.4.2 Information Treated as Private**

See section 9.4.

### **9.4.3 Information not Deemed Private**

Information stated in issued certificates and CRLs is not considered to be confidential. TR-GRID CA collects the following information, which is not deemed as private, from the subscriber:

- Organizational e-mail address
- Name and surname
- Organization

### **9.4.4 Responsibility to Protect Private Information**

See section 9.4.

### **9.4.5 Notice and Consent to Use Private Information**

No stipulation.

### **9.4.6 Disclosure Pursuant to Judicial or Administrative Process**

No stipulation.

### **9.4.7 Other Information Disclosure Circumstances**

No stipulation.

## **9.5 Intellectual Property Rights**

Parts of this document are inspired by:

- RFC 2527
- RFC 3647
- Cern CA Policy
- Grid Canada CP/CPS
- HellasGrid CA CP/CPS

## **9.6 Representations and Warranties**

### **9.6.1 CA Representations and Warranties**

No stipulation.

**9.6.2 RA Representations and Warranties**

No stipulation.

**9.6.3 Subscriber Representations and Warranties**

No stipulation.

**9.6.4 Relying Party Representations and Warranties**

No stipulation.

**9.6.5 Representations and Warranties of Other Participants**

No stipulation.

**9.7 Disclaimers of Warranties**

No stipulation.

**9.8 Limitations of Liability**

Based on this document, TR-GRID CA accepts neither explicit nor implicit liability for its actions.

TR-GRID CA does not guarantee the security or appropriateness of a service that is identified by a TR-GRID certificate. The certification service is run with an optimum level of security and it tries to supply the best-effort conditions. It assures its procedures described in this document, but it will take no responsibility for the improper use of the issued certificates.

TR-GRID CA rejects any financial or any other sort of responsibility for damages arising from its operations.

**9.9 Indemnities**

No stipulation.

**9.10 Term and Termination****9.10.1 Term**

No stipulation.

**9.10.2 Termination**

No stipulation.

**9.10.3 Effect of Termination and Survival**

No stipulation.

**9.11 Individual Notices and Communications with Participants**

No stipulation.



## **9.12 Amendments**

### **9.12.1 Procedure for Amendment**

Subscribers will not be informed in advance if the CP / CPS document is changed. Changes are announced to EUGridPMA and get approved before the new CP/CPS is declared on the website as defined in section 2.3. Changes are published on the website as well.

### **9.12.2 Notification Mechanism and Period**

See section 9.12.1.

### **9.12.3 Circumstances under which OID must be Changed**

OID must change whenever the CP/CPS document is updated.

## **9.13 Dispute Resolution Provisions**

No stipulation.

## **9.14 Governing Law**

Applicability, interpretation, construction and validity of this document must be treated according to Turkish Republic laws.

## **9.15 Compliance with Applicable Law**

No stipulation.

## **9.16 Miscellaneous Provisions**

No stipulation.

### **9.16.1 Entire Agreement**

No stipulation.

### **9.16.2 Assignment**

No stipulation.

### **9.16.3 Severability**

No stipulation.

### **9.16.4 Enforcement (Attorneys' Fees and Waiver of Rights)**

No stipulation.

### **9.16.5 Force Majeures**

No stipulation.

**9.17 Other Provisions**

No stipulation.