

Independent Auditor's Assurance Report

To the management of Telia Company AB:

Scope

We have examined [the statement](#) by the management of Telia Company AB (Telia) that in providing its Certification Authority (CA) services known as Telia CA in Finland and Sweden, Telia, during the period from April 1, 2016 through March 31, 2017:

- ▶ disclosed its business, key life cycle management, certificate life cycle management, and CA environmental control practices in its Certification Practice Statements and policies in its Certificate Policies:
 - [Telia Root Certificate Policy and Certification Practice Statement v2.2](#);
 - [Telia Server Certificate Policy and Certification Practice Statement v1.7](#);
 - [Telia Gateway Certificate Policy and Certification Practice Statement v1.4](#);
 - [Telia Organizational User Certificate Policy and Certification Practice Statement v1.3](#);
 - [TeliaSonera Customer CA Certificate Policy and Certification Practice Statement v1.2](#); and
 - [Telia Production Certification Practice Statement v2.5](#)
- ▶ maintained effective controls to provide reasonable assurance that
 - Telia CA's Certification Practice Statements were consistent with its Certificate Policies; and
 - Telia CA provided its services in accordance with its Certificate Policies and Certification Practice Statements
- ▶ maintained effective controls to provide reasonable assurance that
 - the integrity of keys and certificates it manages was established and protected throughout their life cycles;
 - the integrity of subscriber keys and certificates it manages was established and protected throughout their life cycles;
 - the Subscriber information was properly authenticated (for the registration activities performed by Telia); and
 - subordinate CA certificate requests were accurate, authenticated, and approved
- ▶ maintained effective controls to provide reasonable assurance that
 - logical and physical access to CA systems and data was restricted to authorized individuals;
 - the continuity of key and certificate management operations was maintained; and
 - CA systems development, maintenance, and operations were properly authorized and performed to maintain CA systems integrity

in accordance with the [Trust Services Principles and Criteria for Certification Authorities v.2.0](#) for the following CAs:

Distinguished name of the CA	Issuer	SHA1 fingerprint of the CA certificate
CN = Sonera Class2 CA O = Sonera, C = FI	Self-signed	37 f7 6d e6 07 7c 90 c5 b1 3e 93 1a b7 41 10 b4 f2 e4 9a 27
CN = TeliaSonera Root CA v1 O = TeliaSonera	Self-signed	43 13 bb 96 f1 d5 86 9b c1 4e 6a 92 f6 cf f6 34 69 87 82 37
	Sonera Class2 CA	9f f6 1d eb b4 ed 26 3b 4d be c7 79 87 ca 49 3c 6c c9 3a a4
CN = TeliaSonera Extended Validation SSL CA v1 O = TeliaSonera, C = FI	TeliaSonera Root CA v1	f1 f5 48 b0 1e b2 66 fa 95 c3 0f 79 c3 c9 1f 58 ea 3d f1 8c
CN = TeliaSonera Server CA v2 O = TeliaSonera, C = FI	TeliaSonera Root CA v1	0e c6 42 d0 0f 8d cf 7b 19 6a c0 a9 f2 c8 57 e3 42 68 79 a4
CN = TeliaSonera Server CA v1 O = TeliaSonera	TeliaSonera Root CA v1	41 c4 34 fa 80 ed b4 bf 58 a6 98 c2 b1 54 20 d6 f3 4a 33 d0
CN = TeliaSonera Gateway CA v2 O = TeliaSonera, C = FI	TeliaSonera Root CA v1	3f 1a 1c cb eb b8 c7 3b e9 94 46 91 8e 3f af f3 ae d2 47 a3
CN = TeliaSonera Gateway CA v1 O = TeliaSonera	TeliaSonera Root CA v1	0d e2 60 f7 96 5c c7 d1 cc be 92 21 26 68 52 9f e5 5f 7d cd
CN = TeliaSonera Class 1 CA v2 O = TeliaSonera, C = FI	TeliaSonera Root CA v1	89 e3 c8 68 96 af 10 e2 f4 ee cb c8 12 04 6e b9 a4 4c 8f d0
CN = TeliaSonera Class 1 CA v1 O = TeliaSonera	TeliaSonera Root CA v1	6c 0d 9c 40 94 9c 7e a5 72 a5 b9 48 01 98 8a 9f 19 b4 07 e9
CN = TeliaSonera Class 2 CA v2 O = TeliaSonera, C = SE	TeliaSonera Root CA v1	25 5a d6 e3 86 59 63 cf 5a d9 7b 31 2a 26 86 e2 4e db 92 24
CN = TeliaSonera Class 2 CA v1 O = TeliaSonera	TeliaSonera Root CA v1	51 e6 35 0e 44 5c 1f 7c ca a2 7d 5b 6b a2 1d 28 65 ae 04 a4
CN = TeliaSonera Email CA v4 O = TeliaSonera, C = SE	TeliaSonera Root CA v1	df fd 4e 47 cf f7 c0 17 0a 53 eb ea 18 20 fb 4f 95 04 60 f5
CN = TeliaSonera Email CA v3 O = TeliaSonera	TeliaSonera Root CA v1	11 ef 59 16 40 5e 41 0d 0e c7 45 36 f9 f1 90 f6 ed 62 96 29
CN = Ericsson NL Individual CA v3 O = Ericsson, C = SE	TeliaSonera Root CA v1	f5 d9 4b dd 46 fe 6f 7b 3b 29 d0 b0 a4 37 fd 47 96 65 4d e5
CN = Ericsson NL Individual CA v2 O = Ericsson	TeliaSonera Root CA v1	27 45 1f a5 c9 1d aa bf e4 2e b1 e5 49 07 df 32 a5 b1 58 b0

Telia CA makes use of external registration authorities for specific subscriber registration activities as disclosed in Telia CA's business practice disclosures. Our examination did not extend to the controls of external registration authorities.

Telia's responsibility

Telia's management is responsible for preparing the accompanying statement, including the completeness, accuracy and method of presentation of the statement and designing and implementing controls mentioned in the statement.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Ernst & Young Godkendt Revisionspartnerselskab applies International Standard on Quality Control 1¹ and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Auditor's responsibility

Our responsibility is to express an opinion on whether Telia's management statement, as referred to above, is fairly stated, in all material respects in accordance with the [Trust Services Principles and Criteria for Certification Authorities v.2.0](#).

Our examination was conducted in accordance with International Standards on Assurance Engagements 3000 "Assurance Engagements Other Than Audits or Review of Historical Financial Information" in order to obtain reasonable assurance for our opinion, and accordingly included:

- (1) obtaining an understanding of Telia CA's key and certificate life cycle management business practices and its controls over key and certificate integrity, over the authenticity and privacy of subscriber and relying party information, over the continuity of key and certificate life cycle management operations, and over development, maintenance and operation of systems integrity;
- (2) selectively testing transactions executed in accordance with disclosed key and certificate life cycle management business practices;
- (3) testing and evaluating the operating effectiveness of the controls; and
- (4) performing such other procedures as we considered necessary in the circumstances.

The standard requires that we plan and perform our procedures to obtain reasonable assurance about whether, in all material respects, Telia's management statement, as referred to above, is fairly stated.

The relative effectiveness and significance of specific controls at Telia and their effect on assessments of control risk for subscribers and relying parties are dependent on their interaction with the controls, and other factors present at external registration authorities and individual subscriber and relying party locations. We have performed no procedures to evaluate the effectiveness of controls at external registration authorities and individual subscriber and relying party locations.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Inherent limitations

Because of the nature and inherent limitations of controls, Telia's ability to meet the aforementioned criteria may be affected. For example, controls may not prevent, or detect and correct, error, fraud, unauthorized access to systems and information, or failure to comply with internal and external policies or requirements. Also, the projection of any conclusions based on our findings to future periods is subject to the risk that changes may alter the validity of such conclusions.

Opinion

In our opinion, for the period April 1, 2016 through March 31, 2017, Telia's management statement, as referred to above, is fairly stated, in all material respects, in accordance with the [Trust Services Principles and Criteria for Certification Authorities v.2.0](#).

¹ ISQC 1, Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements

Intended users and purpose

Telia's use of the WebTrust seal of assurance for certification authorities constitutes a symbolic representation of the contents of this report and it is not intended, nor should it be construed, to update this report or provide any additional assurance.

This report does not include any representation as to the quality of Telia's certification services beyond those covered by the Trust Service Principles and Criteria for Certification Authorities, nor the suitability of any of these Telia's services for any customer's intended purpose.

Copenhagen June 30, 2017

Ernst & Young P/S
Godkendt Revisionspartnerselskab



Claus Thaudahl Hansen
Partner, State Authorised Public Accountant



Juha Sunila
Senior Manager, CISA, CISSP

Telia Company AB's Management Statement Regarding its Disclosure of its Business Practices and its Controls Over its Certification Authority Operations during the Period from April 1, 2016 through March 31, 2017

Telia Company AB (Telia) operates as a Certification Authority (CA) known as Telia CA. Telia CA provides the following CA services:

- Subscriber registration
- Certificate renewal
- Certificate rekey
- Certificate issuance
- Certificate distribution
- Certificate revocation
- Certificate validation
- Subscriber key generation and management
- Subordinate CA certification

Telia CA uses external registration authorities for specific subscriber registration activities as disclosed in Telia CA's business practices disclosure.

Management of Telia is responsible for establishing and maintaining effective controls over its CA operations, including its CA business practices disclosure on its website, CA business practices management, CA environmental controls, CA key lifecycle management controls, subscriber key lifecycle management controls, certificate lifecycle management controls, and subordinate CA certificate lifecycle management controls. These controls contain monitoring mechanisms, and actions to be taken to correct deficiencies identified.

There are inherent limitations in any controls, including the possibility of human error and the circumvention or overriding of controls. Accordingly, even effective controls can provide only reasonable assurance with respect to Telia's Certification Authority operations. Furthermore, because of changes in conditions, the effectiveness of controls may vary over time.

Management has assessed the disclosure of its certification practices and controls over its CA services. Based on that assessment, to best of our knowledge and belief, we confirm that in providing its Certification Authority (CA) services in Finland and Sweden, Telia, during the period from April 1, 2016 through March 31, 2017:

- disclosed its business, key life cycle management, certificate life cycle management, and CA environmental control practices in its Certification Practice Statements and policies in its Certificate Policies
 - Telia Root Certificate Policy and Certification Practice Statement v2.2;
 - Telia Server Certificate Policy and Certification Practice Statement v1.7;
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 - TeliaSonera Customer CA Certificate Policy and Certification Practice Statement v1.2; and

- Telia Production Certification Practice Statement v2.5
- maintained effective controls to provide reasonable assurance that
 - Telia CA's Certification Practice Statements were consistent with its Certificate Policies; and
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for the following CAs:



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CN = TeliaSonera Server CA v1 O = TeliaSonera	TeliaSonera Root CA v1	41 c4 34 fa 80 ed b4 bf 58 a6 98 c2 b1 54 20 d6 f3 4a 33 d0
CN = TeliaSonera Gateway CA v2 O = TeliaSonera, C = FI	TeliaSonera Root CA v1	3f 1a 1c cb eb b8 c7 3b e9 94 46 91 8e 3f af f3 ae d2 47 a3
CN = TeliaSonera Gateway CA v1 O = TeliaSonera	TeliaSonera Root CA v1	0d e2 60 f7 96 5c c7 d1 cc be 92 21 26 68 52 9f e5 5f 7d cd
CN = TeliaSonera Class 1 CA v2 O = TeliaSonera, C = FI	TeliaSonera Root CA v1	89 e3 c8 68 96 af 10 e2 f4 ee cb c8 12 04 6e b9 a4 4c 8f d0
CN = TeliaSonera Class 1 CA v1 O = TeliaSonera	TeliaSonera Root CA v1	6c 0d 9c 40 94 9c 7e a5 72 a5 b9 48 01 98 8a 9f 19 b4 07 e9
CN = TeliaSonera Class 2 CA v2 O = TeliaSonera, C = SE	TeliaSonera Root CA v1	25 5a d6 e3 86 59 63 cf 5a d9 7b 31 2a 26 86 e2 4e db 92 24
CN = TeliaSonera Class 2 CA v1 O = TeliaSonera	TeliaSonera Root CA v1	51 e6 35 0e 44 5c 1f 7c ca a2 7d 5b 6b a2 1d 28 65 ae 04 a4
CN = TeliaSonera Email CA v4 O = TeliaSonera, C = SE	TeliaSonera Root CA v1	df fd 4e 47 cf f7 c0 17 0a 53 eb ea 18 20 fb 4f 95 04 60 f5
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CN = Ericsson NL Individual CA v2 O = Ericsson	TeliaSonera Root CA v1	27 45 1f a5 c9 1d aa bf e4 2e b1 e5 49 07 df 32 a5 b1 58 b0

in accordance with the [Trust Services Principles and Criteria for Certification Authorities v.2.0](#) including the following:

CA Business Practices Disclosure

Certification Practice Statement (CPS)
Certificate Policy

CA Business Practices Management

Certificate Policy Management
Certification Practice Statement Management
CP and CPS Consistency

CA Environmental Controls



Security Management
Asset Classification and Management
Personnel Security
Physical and Environmental Security
Operations Management
System Access Management
Systems Development and Maintenance
Business Continuity Management
Monitoring and Compliance
Audit Logging

CA Key Life Cycle Management Controls

CA Key Generation
CA Key Storage, Backup and Recovery
CA Public Key Distribution
CA Key Usage
CA Key Archival and Destruction
CA Key Compromise
CA Cryptographic Hardware Life Cycle Management

Subscriber Key Life Cycle Management Controls

CA-Provided Subscriber Key Generation Services
CA-Provided Subscriber Key Storage and Recovery Services
Requirements for Subscriber Key Management

Certificate Life Cycle Management Controls

Subscriber Registration
Certificate Renewal
Certificate Rekey
Certificate Issuance
Certificate Distribution
Certificate Revocation
Certificate Validation

Subordinate CA Certificate Life Cycle Management Controls

Subordinate CA Certificate Life Cycle Management

Stockholm, June 30, 2017

Telia Company AB



Patrik Skoglund
Head of Automation & Systems

