

INDEPENDENT ASSURANCE REPORT

To the management of Agence Nationale de Certification Electronique ("ANCE" or "TunTrust"):

Scope

We have been engaged, in a reasonable assurance engagement, to report on TunTrust management's statement that in generating and protecting the asymmetric key pairs for its:

1. TnTrust Root CA – G1
2. TnTrust CA – QSign1

(Collectively, "TunTrust CAs") during the period of 20 September 2022 to 23 September 2022 at Ariana, Tunisia, with the following identifying information (full identifying information enumerated in [Attachment A](#)):

CA Name	Subject Key Identifier
1.TnTrust Root CA – G1	CB:A5:25:28:43:3E:52:E3:55:46:72:79:3D:6F:FC:A9:59:04:EB:56
2.TnTrust CA – QSign1	48:C0:C1:B5:B6:8B:12:36:14:36:66:09:A8:CB:25:5D:BA:21:69:78

TunTrust has:

- followed the CA key generation and protection requirements in its:
 - TnTrust Sign PKI Certificate Policy / Certification Practice Statement Version 01, 23 September 2022 (CP/CPS)
- Included appropriate, detailed procedures and controls in its Key Generation scripts:
 - PV GAC 04 Key Ceremony Preparation 21 September 2022
 - PV GAC 09 Key Ceremony 21 September 2022
 - PV GAC 20 OCSP Ceremony 22 September 2022
 - PV GAC 06 Key Ceremony Finalisation 23 September 2022
- maintained effective controls to provide reasonable assurance that TunTrust CAs were generated and protected in conformity with the procedures described in its CP/CPS and its Key Generation Scripts
- performed, during the key generation process, the procedures required by the Key Generation Scripts
- generated the CA keys in a physically secured environment as described in its CP and CPS
- generated the CA keys using personnel in trusted roles under multiple person control and split knowledge
- generated the CA keys within cryptographic modules meeting the applicable technical and business requirements as disclosed in its CP and CPS

in accordance with CA Key Generation Criterion 4.1 of the [WebTrust Principles and Criteria for Certification Authorities - Version 2.2.2.](#)

Certification authority's responsibilities

TunTrust 's management is responsible for its management statement, including the fairness of its presentation, and for generating and protecting its CA keys in accordance with CA Key Generation Criterion 4.1 of the WebTrust Principles and Criteria for Certification Authorities v2.2.2.

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 behavior.

The firm applies International Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Historical Financial Information, and Other Assurance and Related Services*, 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 responsibilities

Our responsibility is to express an opinion on management's statement based on our procedures. We conducted our procedures in accordance with International Standards on Assurance Engagements 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the international Auditing and Assurance Standards Board. This standard requires that we plan and perform our procedures to obtain reasonable assurance about whether, in all material respects, management's statement is fairly stated, and, accordingly, included:

- (1) obtaining an understanding of TunTrust's documented plan of procedures to be performed for the generation of the certification authority key pairs for the TunTrust CAs;
- (2) reviewing the detailed CA key generation scripts for conformance with industry standard practices;
- (3) testing and evaluating, during the CA key generation process, the effectiveness of controls over the integrity, confidentiality, and availability of all private keys, including back-up copies, and access keys (including physical keys, tokens and passwords), used in the establishment of the service;
- (4) physical observation of all procedures performed during the CA key generation process to ensure that the procedures actually performed from 20 September 2022 to 23 September 2022 were in accordance with the Key Generation Scripts for the TunTrust CAs; and
- (5) performing such other procedures as we considered necessary in the circumstances.

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

Opinion

In our opinion, in all material respects, based on TunTrust's management's statement, TunTrust has generated and protected the asymmetric key pairs for its:

1. TnTrust Root CA – G1
2. TnTrust CA – QSign1

in accordance with CA Key Generation Criterion 4.1 of the Principles and Criteria for Certification Authorities - Version 2.2.2.



This report does not include any representation as to the quality of TunTrust's services beyond those covered by CA Key Generation Criterion 4.1 of the Principles and Criteria for Certification Authorities - Version 2.2.2, nor the suitability of any of TunTrust's services for any customer's intended purpose.

Deloitte LLP.

Deloitte LLP
Chartered Professional Accountants
Toronto, Ontario, Canada

21 October 2022

Attachment A

TnTrust Root CA – G1

Certificate:

Data:

Version: 3 (0x2)

Serial Number:

3c:89:26:71:a7:5c:ec:cd:6a:9c:20:80:28:47:0a:2d:d3:9f:f6:76

Signature Algorithm: sha512WithRSAEncryption

Issuer: CN = TnTrust Root CA - G1, O = AGENCE NATIONALE DE CERTIFICATION ELECTRONIQUE, C = TN

Validity

Not Before: Sep 21 16:27:45 2022 GMT

Not After : Sep 21 16:27:45 2047 GMT

Subject: CN = TnTrust Root CA - G1, O = AGENCE NATIONALE DE CERTIFICATION ELECTRONIQUE, C = TN

Subject Public Key Info:

Public Key Algorithm: rsaEncryption

Public-Key: (8192 bit)

Modulus:

00:e8:b3:ea:8f:c7:ba:e6:f3:e4:49:e3:64:46:7a:
b3:5a:b3:96:2b:cf:ce:ae:14:fc:e8:16:11:f1:3c:
06:a7:4e:6a:a6:20:bf:8b:54:0e:d2:a0:21:26:45:
7c:da:57:08:b0:f7:2c:05:37:ff:4f:d6:4c:9c:67:
39:b5:8d:39:16:9b:e2:c9:17:08:fc:b1:3c:0f:dd:
98:1c:41:ea:bd:1a:24:0a:04:93:9b:b6:91:f5:b8:
ae:5f:54:9d:d9:85:5d:7f:43:83:b8:2a:6a:7a:14:
16:49:59:8f:aa:31:47:06:78:c2:62:d9:9f:90:dc:
f1:5e:61:47:c1:cb:fd:c8:88:12:e7:80:6b:ed:b8:
21:b4:60:34:12:b4:60:d0:40:47:9e:86:a2:8a:b9:
8c:7e:05:5d:71:e9:d6:ab:be:47:1e:b0:61:b3:f4:
f4:5e:b0:de:3a:95:0d:54:a6:e0:67:85:db:37:f3:
ea:8f:64:c8:d3:5b:a0:f5:ca:eb:2c:12:7d:9a:db:
95:b3:ca:ea:06:d9:3f:46:64:a6:ff:04:d9:e6:05:
aa:22:2c:2c:e0:7c:94:fd:2c:2c:8a:9e:b1:c4:28:
76:fb:f1:e5:2f:f5:92:e8:f8:4f:62:7d:e0:11:61:
6b:3c:4b:df:63:f3:da:03:92:98:09:db:4a:7a:fe:
07:63:d0:f8:7c:67:07:80:ce:d2:f2:b5:9d:62:24:
42:47:9c:b4:d6:47:2b:84:7f:c4:4f:ea:97:6c:03:
2e:d5:8f:5f:2b:72:d7:f4:a1:11:40:20:d1:c8:1d:
d4:eb:7f:0f:67:53:92:12:36:f3:92:11:37:8d:42:
65:6e:da:1e:f8:cd:02:5a:a6:95:57:a5:64:34:a6:
b8:8a:a3:89:45:ab:98:1c:ca:31:be:24:f6:1e:e9:
38:20:f8:17:1a:1b:56:88:f5:93:05:01:5c:5a:6c:
e6:20:39:d2:4e:a4:87:1a:ac:6c:77:2e:ee:a4:57:
10:ff:4d:89:9b:94:2e:48:79:08:44:2c:48:e9:13:
94:28:eb:a4:9f:c1:ac:1a:e5:da:55:a2:13:34:4a:
ff:43:1d:79:01:90:96:7d:07:ae:e7:40:55:67:0e:
f6:19:a1:20:ef:a0:47:cd:ca:b8:34:00:6c:34:91:
04:79:59:6d:39:74:06:53:c6:b5:c5:ca:3d:96:5b:
29:70:47:f9:ab:06:79:37:5e:10:c9:5c:1b:f1:d2:



2d:68:fa:17:b0:81:31:dc:51:35:44:53:7c:4e:f1:
ed:0f:12:43:e8:10:9d:33:c6:98:1c:97:91:c4:19:
ba:c9:40:2d:75:6f:91:a1:b6:a3:00:9c:c5:89:94:
3e:e0:6b:35:23:9f:62:85:74:96:14:a3:c9:18:68:
73:32:77:25:22:cc:e7:c5:9a:6c:90:51:7a:f8:8e:
69:01:ae:58:8c:91:b3:98:ab:ea:74:53:85:96:3d:
d3:ad:32:aa:de:86:c6:33:ba:97:55:a8:a2:27:a9:
b8:8d:83:8c:13:94:f7:13:f0:dd:d9:c3:de:19:5a:
ff:ba:5a:f7:56:2c:e7:be:ab:93:65:be:c6:80:a7:
77:05:d2:fa:90:0b:84:1e:47:92:3b:f2:35:51:a2:
52:14:ea:68:3d:b6:29:99:93:00:4d:be:c2:c6:d9:
15:70:6f:e3:c6:8f:36:6c:b6:96:59:6d:39:30:f6:
07:51:66:17:1f:b6:8a:28:5c:08:d4:25:be:d4:94:
be:55:7a:de:76:77:00:cd:4f:6f:b9:d3:f7:b7:39:
5c:b7:12:c9:e5:2f:d2:e8:5f:40:91:7e:18:7c:fd:
e4:45:fb:88:a3:0b:24:1b:5c:cc:bd:c5:38:e2:1a:
c6:ca:99:51:11:78:3c:b3:f8:58:19:5c:ad:fa:81:
56:27:90:a0:e1:c4:0f:f4:b5:c6:94:06:8b:d0:f4:
f9:81:a9:63:73:e8:d4:a7:93:de:c7:a2:dc:7a:39:
97:c6:2e:0e:3c:1e:4a:a7:42:8b:19:08:26:5a:e1:
a7:e3:ab:5b:7a:0e:db:eb:e2:05:98:24:f7:00:76:
9a:b1:62:8c:f2:c2:64:66:ba:40:9d:d9:0a:aa:49:
48:c7:83:c7:5f:46:ff:5f:fd:a9:12:b2:6b:0a:c9:
c0:97:58:c9:3d:80:7c:aa:1d:66:31:a5:3b:5f:f6:
ed:21:0a:2f:68:bc:0f:d0:75:a3:b3:2b:1e:dc:79:
c8:60:fd:67:d0:95:80:be:a2:5a:7b:89:94:cd:d4:
68:57:e5:17:a3:d8:30:ed:c7:15:54:6a:96:13:11:
e0:67:4a:db:88:7e:81:44:7a:32:e3:82:80:8b:22:
51:b6:84:8e:db:98:87:ad:90:64:ef:0b:1f:83:b8:
b3:98:f3:2a:4f:fd:d8:98:7c:90:8d:c4:90:1e:d5:
14:5c:23:72:1c:51:a0:51:db:cc:c2:e5:ab:71:7d:
a4:98:3b:64:51:29:53:b9:c8:37:ba:cb:fb:d2:1b:
74:a2:cf:b3:78:53:6b:70:de:71:f4:49:28:7c:29:
7e:ca:4f:5b:69:f5:a5:92:44:b0:a8:52:e4:f9:72:
83:ab:75:55:43:ef:1a:64:ad:2e:bd:84:b2:e3:12:
c3:7c:db:ba:03:4f:19:30:de:80:fb:94:74:90:24:
bc:50:3c:97:4f:e0:76:7b:2e:91:87:32:50:eb:08:
42:e6:6a:1d:c1

Exponent: 65537 (0x10001)

X509v3 extensions:

X509v3 Subject Key Identifier:

CB:A5:25:28:43:3E:52:E3:55:46:72:79:3D:6F:FC:A9:59:04:EB:56

X509v3 Basic Constraints: critical

CA:TRUE

X509v3 Authority Key Identifier:

CB:A5:25:28:43:3E:52:E3:55:46:72:79:3D:6F:FC:A9:59:04:EB:56

X509v3 Key Usage: critical

Certificate Sign, CRL Sign

Signature Algorithm: sha512WithRSAEncryption

Signature Value:

ac:60:20:2a:58:9a:08:64:cc:53:0e:db:d3:9c:5c:ce:23:66:
8f:64:de:ab:9c:57:96:b0:e9:f2:32:44:04:ee:15:0b:87:d0:



11:4e:a5:d4:17:b7:40:86:0d:19:fb:83:4e:88:a8:c9:79:e1:
bf:e7:e4:5d:01:41:47:aa:be:8e:7f:1d:3a:85:1a:98:30:ef:
6d:7e:27:b8:29:36:d2:68:a5:17:9e:82:2c:09:18:22:36:4d:
70:97:0f:7a:31:9b:fe:cd:ec:c1:49:27:12:64:80:7b:b3:74:
1b:a2:22:b8:fe:06:26:03:9d:f1:2c:0d:74:67:43:a6:52:83:
06:cb:81:5b:25:34:f2:ac:60:13:8c:60:87:ef:86:05:04:1e:
10:a8:92:4f:18:ee:a8:62:1c:29:71:2c:0b:c1:99:de:86:55:
8d:bb:7c:45:f9:0e:36:56:76:bd:64:6b:bc:33:a1:a8:9e:8a:
ea:1d:11:9f:f6:1a:89:0a:bf:13:41:b6:e0:72:88:ca:1b:d1:
02:9a:fa:91:cf:bb:fc:3a:cf:9a:b4:96:20:90:1c:8b:f8:7b:
a5:05:42:8d:37:6a:95:45:04:22:d7:f6:16:c1:34:c8:62:f6:
fa:d8:1d:90:38:34:99:17:a7:f3:d4:7e:ee:b4:b2:48:04:09:
dd:bb:24:0e:e7:fc:c3:49:46:27:7b:ad:c8:65:8b:00:09:d2:
54:e4:57:98:b7:11:2e:8e:06:b3:01:ea:57:4c:b0:09:22:ce:
f0:2a:65:4f:9f:60:90:84:13:b8:f9:78:9d:f0:f2:46:58:26:
4b:85:b5:c9:e0:00:b7:91:54:0c:9b:64:8a:5f:05:03:b0:8a:
58:98:ab:5c:45:4b:ff:e0:07:5e:2c:37:97:7d:1a:4d:02:70:
4e:4c:ea:b3:7a:b6:7e:8c:46:84:80:f0:be:81:d5:dc:73:b8:
2b:49:1b:f5:6c:1a:95:88:ec:4b:cb:da:fa:23:c5:a8:0c:72:
47:6e:2b:29:ee:70:ed:4b:97:5f:13:2d:88:1f:5d:37:b7:9b:
af:b8:00:6a:44:2b:91:b7:4a:04:ae:c9:74:72:ec:d3:59:d1:
0d:fe:d8:9e:30:26:9c:f0:86:25:53:71:e5:66:63:38:50:fc:
0a:c7:4d:e4:a6:a1:a3:83:ff:e3:b2:93:32:f5:31:81:e9:98:
4b:9f:a7:8e:03:47:f6:63:40:aa:d9:81:13:c4:f9:71:b0:f5:
3b:88:74:b0:5d:73:0f:d0:0d:6c:f2:59:16:7f:d7:69:6a:5e:
a9:05:58:1d:7b:81:42:0d:6e:64:df:73:b6:cf:14:b3:a2:40:
42:68:52:91:9c:68:8e:6a:d2:cb:e2:fd:9f:5e:a4:db:62:ad:
7e:25:62:84:6c:ad:7d:49:c1:c8:f1:55:83:eb:18:bf:80:7b:
59:6b:81:bb:f4:12:36:77:35:35:95:75:2a:4a:be:56:08:36:
8d:7e:46:50:86:3c:b5:58:e9:97:3a:09:82:bb:db:68:30:07:
04:cc:47:ec:9b:b1:e8:82:2b:61:64:eb:5d:5b:f5:17:18:59:
a7:c2:6e:08:64:04:2c:b4:83:7a:f8:24:dc:2c:3a:cc:7e:ce:
6c:d2:71:e7:c2:70:da:15:7d:06:1e:72:8f:bb:49:ab:af:a2:
5d:bc:49:a8:51:cb:03:a6:4c:5c:c7:bb:85:f4:cc:22:ad:f2:
d2:ed:bc:89:49:2d:c1:0a:47:2b:bc:03:8f:cb:cb:f1:72:8c:
99:e4:8c:89:0a:d3:c6:e7:36:6b:3d:f8:c6:ce:e4:20:e1:d5:
5c:0d:7a:8f:19:70:49:fc:c7:69:52:34:1d:8e:a7:41:34:4a:
ab:6e:44:20:04:97:a7:98:ab:21:65:79:f5:c1:21:5e:d5:74:
5c:8e:a1:af:2a:a7:6f:42:d6:ed:62:25:7b:0c:e4:ae:43:2f:
55:9c:3c:eb:36:fb:d2:95:a4:8a:7e:14:ab:2a:ec:c8:c7:91:
c0:ab:bb:30:c3:ce:61:b9:f8:62:6f:8e:50:97:d9:6e:f9:cc:
02:69:84:3a:dd:48:9e:03:c2:83:c2:f8:1e:95:e9:13:53:75:
5b:fe:08:e9:2b:c2:3d:57:67:58:a2:05:12:21:87:ef:62:b2:
28:c2:ec:29:fa:aa:d6:b0:bd:d5:32:72:fd:7a:6f:4f:f6:18:
d1:bb:87:a2:d4:01:ce:1b:e7:0d:cf:e7:e9:9b:b2:59:c4:aa:
9e:f0:ac:d8:73:14:27:a8:f6:5c:1b:de:46:00:55:04:8c:f6:
a1:39:92:12:07:36:72:f5:7f:da:ad:c7:8a:1f:8d:4c:43:4b:
97:ca:98:8d:eb:0b:1c:77:55:d5:35:07:e2:fd:af:e5:5a:40:
0c:ab:1d:58:7a:b2:37:8d:e7:bb:6b:a7:d5:a6:6a:ec:51:29:
d9:4c:b7:e6:8c:1e:43:24:6a:97:18:da:73:3d:0d:82:35:db:
68:bb:7e:6b:4f:60:fe:14:60:18:a2:1b:0e:21:26:8a:38:d6:
be:c9:b1:80:3a:4b:7a:e9:87:a1:1c:02:9c:88:f5:71:17:d2:



49:01:79:ea:df:69:10:1d:f5:f7:27:67:c5:fb:35:e4:71:29:
63:f4:4f:8b:6d:a4:77:3f:2b:20:7b:75:71:6d:a4:e8:1e:9a:
c9:f8:33:48:9d:b1:ca:97:20:c0:9a:46:a6:27:82:0b

-----BEGIN CERTIFICATE-----

MIIJuzCCBaOgAwIBAgIUPlkmcadc7M1qnCCAKEcKLdOf9nYwDQYJKoZIhvcNAQEN
BQAwZTEdMBsGA1UEAwwUVG5UcnVzdCBSb290IENBIC0gRzExNzA1BgNVBAoMLkFH
RU5DRSBOQVRJT05BTEUgREUgQ0VSVEIGSUNBVEIPTiBFTEVDVFJPTkIRVUUXCzAJ
BgNVBAYTAIROMB4XDTlyMDkyMTE2Mjc0NVVoXDTQ3MDkyMTE2Mjc0NVowZTEdMBsG
A1UEAwwUVG5UcnVzdCBSb290IENBIC0gRzExNzA1BgNVBAoMLkFHRU5DRSBOQVRJ
T05BTEUgREUgQ0VSVEIGSUNBVEIPTiBFTEVDVFJPTkIRVUUXCzAJBgNVBAYTAIRO
MIIEljANBgkqhkiG9w0BAQEFAAOCA8AMIIECgKCBAEA6LPqj8e65vPkSeNkRnqz
WrOWK8/OrhT86BYR8TwGp05qpiC/i1QO0qAhJkV82lclsPcsBTf/T9ZMnGc5tY05
FpviyRcl/LE8D92YHEHqvRokCgSTm7aR9biuX1Sd2YVdfOODuCPqehQWSVmPqjFH
BnjCYtmfknzXmFHwcv9ylgS54Br7bghtGA0ErRg0EBHnoaiirmMfgVdcenWq75H
HrBhs/T0XrDeOpUNVKbgZ4XbN/Pqj2TI01ug9crrLBJ9mtuVs8rqBtk/RmSm/wTZ
5gWqliws4HyU/Swsip6xxCh2+/HIL/WS6PhPYn3gEWFrPEvfY/PaA5KYCdtKev4H
Y9D4fGcHgM7S8rWdYiRCR5y01kcrhH/ET+qXbAMu1Y9fK3LX9KERQCDRyB3U638P
Z1OSEjzbkhE3jUJlbtoc+M0CWqaVV6VknKa4iqOJRauYHMoxviT2Huk4IPgXGhtW
iPWTBQFcWmzmIDnStqSHGqxsdy7upFcQ/02Jm5QuSHkIRCxI6ROUKOUkn8GsGuXa
ValTNER/Qx15AZCWfQeu50BVZw72GaEg76BHzcq4NABsNJEEeVltOXQGU8a1xco9
llspcEf5qwZ5N14QyVwb8dltPoXslEx3FE1RFN8TvHtDxD6BCdM8aYHJeRxBm6
yUAtDW+RobajAjzFiZQ+4Gs1I59ihXSWFKPJGGhzMnclIsznxZpskFF6+I5pAa5Y
jJGzmKvqdFOFlj3TrTKq3obGM7qXVaij6m4jYOME5T3E/Dd2cPeGVr/ulr3Vizn
vquTZb7GgKd3BdL6kAuEHkeSO/I1UaJSFOPoPbYpzmZMATb7CxtkVcG/jxo82bLaW
WW05MPYHUWYXH7aKKFWl1CW+1JS+VXredncAzU9vudP3tzlctxLJ5S/S6F9AkX4Y
fP3kRfulowskG1zMvcU44hrGypIREXg8s/hYGVyt+oFWJ5Cg4cQP9LXGIAaLOPT5
galjc+jUp5Pex6LcejmXxi4OPB5Kp0KLGQgmWuGn46tbeg7b6+IFmCT3AHaasWKM
8sjkZrpAndkKqklx4PHX0b/X/2pErJrCsnAl1jJPYB8qh1mMaU7X/btlQovaLwP
0HWjsyse3HnIYP1n0JWAvqJae4mUzdRoV+UXo9gw7ccVVGqWExHgZ0rbiH6BRHoy
44KAiyJRtoSO25iHrZBk7wsfg7izmpMqT/3YmHyQjcSQHtUUXCNyHFGgUdvMwuWr
cX2kmDtkUSITucg3usv70ht0os+zeFNrcN5x9EkofCl+yk9bafWlkkSwqFLk+XKD
q3VVQ+8aZK0uvYSy4xLDFnu6A08ZMN6A+5R0kCS8UDyXT+B2ey6RhZJQ6whC5mod
wQIDAQABo2MwYTAdbGNVHQ4EFgQUy6UIKEM+UuNVRnJ5PW/8qVKE61YwDwYDVR0T
AQH/BAUwAwEB/zAfBgNVHSMEGDAWgBTLpSUoQz5S41VGcnk9b/ypWQTrVjAOBgNV
HQ8BAF8EBAMCAQYwDQYJKoZIhvcNAQENBQADggQBAKxgICpYmgkhzFMO29OcXM4j
Zo9k3qucv5aw6flyRATuFQuH0BFOPdQXt0CGDRn7g06lqMI54b/n5F0BQUeqvo5/
HTqFGpgw721+J7gpNtJopReegiJGCI2TXCXD3oxm/7N7MFJJxJkgHuzdBuilrj+
BiYDnfEsDXRnQ6ZSgwbLgVslNPKsYBOMYIfvhgUEHhCokk8Y7qhiHClxLavBmd6G
VY27fEX5DjZWdr1ka7wzoaieiuodEZ/2GokKvxNBtuByiMob0QKa+pHPu/w6z5q0
liCQHlv4e6UFQo03apVFBClX9hbBNMhi9vrYHZA4NjKXp/PUfu60skgECd27JA7n
/MNJRid7rchliwAJ0ITkv5i3ES6OBrMB6ldMsAkizvAqZU+fYJCEE7j5eJ3w8kZY
JkuFtcngALeRVAYbZlPbBQOwiliYq1xFS//gB14sN5d9Gk0CcE5M6rN6tn6MRoSA
8L6B1dxzuCtJG/VsGpWI7EvL2voixagMckduKynucO1L18TLYgfXTe3m6+4AGpE
K5G3SgSuyXRy7NNZ0Q3+2J4wJpzwhiVTceVmYzhQ/ArHTEsmoaOD/+OykzL1MYHp
mEufp44DR/ZjQKrZgRPE+XGw9TuldLBdcw/QDWzyWRZ/12lqXqkFWB17gUINbmTf
c7bPFLOiQEJoUpGcal5q0svi/Z9epNtirX4lYoRsrX1JwcjvYPrGL+AE1lrgbv0
EjZ3NTWVdSpKvIYINo1+RICGPLVY6Zc6CYK722gwBwTMR+ybseiCK2Fk611b9RCy
WafCbghkBCy0g3r4JNwsOss+zmsScefCcNoVfQYeco+7Sauvol28SahRywOmTFzH
u4X0zCKt8tLtlvllLcEKRYu8A4/Ly/FyjJnkjkk08bnNms9+MbO5CDh1VwNeo8Z
cEn8x2ISNB2Op0E0SqtuRCAEl6eYqyFlefXBIV7VdFyOoa8qp29C1u1iJXsM5K5D
L1WcPOs2+9KVplp+FKsq7MjHkcCruzDDzmG5+GjvjCX2W75zAJphDrdSJ4DwoPC
+B6V6RNTdVv+COkrwj1XZ1iBRlhh+9isijC7Cn6qtawvdUycv16b0/2GNG7h6LU



Ac4b5w3P5+mbslnEqp7wrNhZFCeo9lwb3kYAVQSM9qE5khIHnL1f9qtx4ofjUxD
S5fKml3rCxx3VdU1B+L9r+VaQAyrHVh6sjeN57trp9WmauxRKdIMt+aMHkMkpcY
2nM9DYI122i7fmtPYP4UYBiiGw4hJoo41r7JsYA6S3rph6EcApyI9XEX0kkBeerf
aRAd9fcnZ8X7NeRxKWP0T4ttpHc/KyB7dXFtpOgemsn4M0idsqXIMCaRqYnggs=
-----END CERTIFICATE-----

TnTrustCAQSign1

Certificate:

Data:

Version: 3 (0x2)

Serial Number:

63:ad:02:6b:2f:40:b5:26:90:6c:38:d0:e6:d2:ad:8b:3d:f2:9e:30

Signature Algorithm: sha256WithRSAEncryption

Issuer: CN = TnTrust Root CA - G1, O = AGENCE NATIONALE DE CERTIFICATION ELECTRONIQUE, C = TN

Validity

Not Before: Sep 21 17:57:31 2022 GMT

Not After : Sep 21 17:57:31 2042 GMT

Subject: CN = TnTrust CA - QSign1, O = AGENCE NATIONALE DE CERTIFICATION ELECTRONIQUE, C = TN

Subject Public Key Info:

Public Key Algorithm: rsaEncryption

Public-Key: (4096 bit)

Modulus:

00:ae:da:cd:30:7e:39:04:2e:59:3c:35:b8:b9:d1:
e2:95:9f:c7:cc:f9:18:65:48:79:90:b0:ba:33:d2:
38:08:b1:7a:b2:cf:9e:b3:eb:25:17:a9:72:0b:3b:
34:4e:1b:7f:60:36:51:b1:2d:d7:bd:69:db:55:de:
6e:e9:be:b0:ff:1d:04:af:11:4f:69:08:f4:3e:63:
82:59:32:af:da:99:30:8d:89:ed:c6:76:95:5b:f7:
21:19:45:7c:50:18:65:09:57:be:34:42:4d:ed:21:
b0:5b:f9:bb:0f:08:7a:d7:19:e3:5e:b3:d9:0f:15:
12:38:39:f9:38:4d:41:40:8f:9b:5c:db:4d:81:ab:
8f:79:89:fb:a6:67:68:92:81:8d:af:ae:09:06:6f:
d0:c6:32:3f:e7:b8:45:40:9a:5c:16:a2:75:1b:95:
4e:ec:20:f9:06:65:35:25:d4:ff:c7:fc:b1:74:f4:
1f:91:c8:f4:4f:38:4b:b5:33:3b:a5:de:64:23:8e:
30:b8:e9:8c:34:3c:cc:76:9f:ef:a8:36:b4:0e:12:
d3:cc:be:f1:4a:fd:4f:9d:1e:97:81:70:a6:d4:d6:
e2:ef:f7:74:c1:82:a7:4e:52:49:53:ab:68:5b:2e:
81:2d:7b:c7:d9:c8:bc:90:8a:ba:11:85:35:ee:5d:
64:6b:d0:a9:26:c2:f9:4a:92:ab:80:8c:35:77:01:
a5:2a:f5:41:7f:17:a6:a8:b4:b5:50:43:42:65:50:
64:c5:b2:4e:62:f6:b3:02:65:fe:b6:f1:f0:8d:6d:
ac:1b:9b:ab:d1:ae:6c:c5:09:9f:3a:b0:14:1f:85:
ee:c3:f6:1e:f4:c0:e2:50:87:19:19:cb:7f:a1:ac:
e2:79:3c:f3:d3:8f:f2:6b:10:eb:cf:19:66:ae:ae:
e1:8a:2a:2a:05:5c:5d:a3:50:79:04:2f:2e:eb:1f:
44:1b:49:06:80:e2:1c:68:7c:87:b9:34:39:6d:3b:
ba:cd:b7:81:6f:c6:1a:e7:19:7d:72:d1:a4:f6:4b:
3e:2f:db:86:51:77:3b:cb:cd:b3:a3:8c:66:4e:2a:
6c:a9:09:ef:56:1f:d5:a3:11:f2:98:4f:4d:70:5f:
e3:3a:90:d0:5b:65:9f:23:42:b3:a8:83:83:db:29:
f7:1f:9d:f4:93:68:89:4f:dc:26:f6:ca:bb:ed:c2:
c9:cc:f3:93:0a:c5:6c:7f:b2:46:98:31:ca:9a:ec:
e4:82:3b:01:4c:42:ac:28:43:55:75:d0:32:84:5f:
0a:d4:c8:8a:34:87:9a:4d:e8:2d:9f:dc:9f:8f:d7:



66:29:9e:ab:a3:00:b5:b7:6b:25:61:b7:ad:3d:c8:
d4:d8:23

Exponent: 65537 (0x10001)

X509v3 extensions:

Authority Information Access:

CA Issuers - URI:<http://www.tuntrust.tn/pub/tntrustrootcag1.crt>

OCSP - URI:<http://va.tuntrust.tn>

X509v3 Subject Key Identifier:

48:C0:C1:B5:B6:8B:12:36:14:36:66:09:A8:CB:25:5D:BA:21:69:78

X509v3 Basic Constraints: critical

CA:TRUE, pathlen:0

X509v3 Authority Key Identifier:

CB:A5:25:28:43:3E:52:E3:55:46:72:79:3D:6F:FC:A9:59:04:EB:56

X509v3 Certificate Policies:

Policy: 2.16.788.1.2.7.1.2.1

X509v3 CRL Distribution Points:

Full Name:

URI:<http://crl.tuntrust.tn/tntrustrootcag1.crl>

X509v3 Key Usage: critical

Certificate Sign, CRL Sign

Signature Algorithm: sha256WithRSAEncryption

Signature Value:

0c:14:f2:a0:fd:a0:29:37:fb:64:38:1a:99:99:9d:47:f7:d3:
51:32:4f:ad:62:56:30:57:f2:14:ef:15:a2:52:23:9e:4c:8e:
d0:15:55:d5:63:3e:ec:fa:68:67:c3:5d:18:e3:c6:47:5d:7d:
c6:be:18:65:60:dc:18:d0:01:bc:a1:29:ee:bf:71:f6:85:c7:
4f:17:e4:1a:59:0f:c9:df:24:2c:b3:01:39:16:f7:e5:05:af:
32:26:51:f6:a0:dc:c7:e5:d0:95:24:45:0c:ba:3e:a8:c7:80:
87:13:97:8e:87:37:94:db:b7:86:6f:14:9e:d7:b0:6a:07:a1:
78:61:a6:a1:84:97:79:e9:dc:4a:f2:5e:eb:bc:8d:05:c6:51:
cd:3d:14:bd:64:7e:a6:b4:36:79:1e:b3:a5:4e:79:5c:6e:d2:
b3:75:bc:32:fb:73:b2:c9:a5:ef:5d:db:ea:06:dd:d8:e1:7d:
a5:45:f2:62:00:17:10:87:1f:d1:62:e1:44:3a:de:37:94:2c:
6b:47:71:29:75:1d:80:89:3e:c7:b5:a7:6b:dc:2c:e5:4d:de:
a1:75:b0:df:bf:7b:41:0a:4e:b4:12:bf:28:72:1d:6e:98:ca:
60:f2:5a:99:04:6d:e7:4e:69:8f:92:8e:3f:aa:7d:d3:5d:7f:
b2:30:dd:16:17:33:ca:13:30:c8:6a:60:35:0b:c7:9d:7d:24:
87:89:4e:79:1a:44:15:7c:81:38:08:8f:40:00:13:39:8b:0f:
15:6b:43:c4:28:6e:ee:1b:0f:1b:ee:47:1b:42:a1:3e:70:c7:
7b:29:5b:d5:42:76:38:4e:a1:dc:6f:c5:a8:da:1a:34:4f:c8:
10:ce:c8:fc:7b:dd:be:82:26:0b:8f:5d:5d:4e:b8:2c:67:89:
88:41:f0:47:78:53:09:69:8a:2d:a3:91:93:7e:b3:8a:cf:ea:
b4:d1:15:57:78:2c:e9:eb:66:0f:62:dd:d0:6e:50:5c:f8:36:
1e:08:11:d5:c2:13:ed:81:0e:8c:f3:28:b6:8c:a5:76:21:92:
95:e6:84:ad:55:ee:b2:e2:68:00:0a:5a:db:36:f9:17:f5:cd:
fa:33:1c:2d:31:b7:d7:8e:a5:28:fe:2a:c3:e1:62:6d:e1:c5:
b1:5f:82:10:e9:9d:ad:71:d7:f4:19:57:67:e3:b7:f5:08:5c:
71:d0:f8:37:e4:ad:33:1d:27:2b:bc:2b:58:b2:dd:0a:6a:47:
d7:88:dc:e1:55:da:26:b4:23:4a:c6:60:7a:de:b7:53:77:df:
aa:94:11:8e:00:c7:59:1c:73:5e:b9:6c:9f:f0:66:84:b5:dd:
8a:d4:3f:61:40:4e:73:39:fb:4b:f8:d1:8e:2b:3b:95:b8:72:
f8:ac:ab:64:0b:ff:5b:6b:0a:3b:f5:27:92:d0:b2:83:0b:78:



f7:e7:08:33:40:c4:39:69:ba:cb:3b:6b:31:b4:5b:96:28:38:
 54:ca:af:74:03:ce:af:fc:77:04:dc:e3:00:f6:16:d4:d5:bc:
 c6:d9:95:77:de:d5:b7:9e:0e:89:8a:52:d1:1b:5f:62:27:e6:
 00:a0:cd:86:2f:f9:76:f3:32:f8:81:68:f4:e2:b6:98:1a:08:
 b4:2c:df:d0:b8:b7:ef:2a:bc:a2:a4:a2:8c:85:df:1a:da:4d:
 1f:d4:7e:90:4a:f7:14:55:95:de:c2:57:2f:ab:ad:e9:77:39:
 8c:92:a3:af:96:45:96:06:40:8a:47:c5:05:49:3b:52:41:fd:
 89:dc:07:a3:b6:b5:bf:c4:ed:c3:bd:e4:39:3f:1c:92:27:86:
 a5:10:5e:63:fc:5c:ab:4e:d3:6a:57:38:a9:e3:81:b4:0c:d4:
 f6:21:64:7c:aa:84:3f:65:b3:10:16:d9:06:26:84:fe:fb:19:
 6c:6c:82:31:cf:0d:90:d6:96:de:a8:f9:ea:bc:32:ea:1b:e6:
 a4:30:b4:94:71:5a:61:06:9a:bb:aa:25:93:5e:bc:71:cc:7c:
 5e:15:d1:4d:cf:2d:b4:a5:26:a9:39:67:ef:dc:15:04:52:7f:
 40:d8:cb:3c:6d:d8:a9:d2:38:43:65:8d:27:4c:c5:e9:df:7e:
 f5:18:18:ba:4b:0c:16:d3:40:a4:c7:66:20:2a:f4:5e:6c:ac:
 59:b7:15:81:22:6f:b2:0d:f7:a3:e8:5f:11:31:53:48:72:85:
 0b:98:47:4a:da:7b:a5:af:aa:c9:6f:7a:0c:3e:3c:58:92:65:
 ae:b7:f5:c2:0b:38:64:94:34:d1:74:9b:6c:74:33:83:9d:0a:
 6c:61:41:66:a3:38:1e:1e:a7:fc:a1:54:ac:91:32:95:3c:db:
 9b:6b:8c:00:c0:f0:4a:89:62:c0:50:8a:be:92:1a:09:d9:1f:
 76:ce:5d:ef:b9:58:2e:9e:f7:8d:3b:2c:98:ed:5a:5d:0a:b3:
 1b:4b:1f:e6:78:d7:01:7b:e0:10:72:6b:36:e3:dd:42:ba:f3:
 37:c0:43:5d:ce:60:8e:8d:4b:2c:89:17:27:3f:c1:76:e6:75:
 64:3a:c5:eb:bc:9e:77:ae:71:63:04:d9:4e:06:bc:08:35:f9:
 41:30:04:87:ef:27:7a:83:9e:39:4d:6f:50:e6:34:1f:cf:fc:
 d7:90:5b:1d:ac:9f:3b:96:b3:c2:8c:29:4b:49:e3:88:33:e8:
 ae:7a:5e:2d:ba:d2:ff:e3:19:df:7e:48:6a:6a:c7:d8

-----BEGIN CERTIFICATE-----

MIIHtCCBG2gAwIBAgIUy60Cay9AtSaQbDjQ5tKtiz3ynjAwDQYJKoZIhvcNAQEL
 BQAwZTEdMBsGA1UEAwwUVVG5UcnVzdCBSb290IENBIC0gRzExNzA1BgNVBAAwMLkFH
 RU5DRSBOQVRJT05BTEUgREUgQ0VSVEIGSUNBVEIPTiBFTEVDVFJPTkIRVUUXCzAJ
 BgNVBAYTAiROMB4XDTIyMDkyMTE3NTczMVVoXDTQyMDkyMTE3NTczMVVowZDEcMBoG
 A1UEAwwTVG5UcnVzdCBDQSAiIFFTaWduMTE3MDUGA1UECgwuQUdFTkNFIE5BVEIP
 TkFMRSBERSBDRVJUSUZJQ0FUSU90IEVMRUNUUK9OSVFRTELMakGA1UEBhMCVE4w
 ggIIIA0GCSqGSIb3DQEBAQUAA4ICDwAwggIKAoICAQCUCu2s0wfwjkELIk8Nbi50eKV
 n8fM+RhiSHmQsLoz0jglsXqyz56z6yUXqXlOzROG39gNIGxLde9adtV3m7pvrD/
 HQSvEU9pCPQ+Y4JZMq/amTCNie3GdpVb9yEZRxxQGGUJV740Qk3tlbBb+bsPChRX
 GeNes9kPFRI4Ofk4TUFAj5tc202Bq495ifumZ2iSgY2vrgkGb9DGMj/nuEVAmlwW
 onUblU7sIPkGZTU1P/H/LF09B+RyPRPOEu1Mzul3mQjjjC46YwOPMx2n++oNrQO
 EtPMvVFK/U+dHpeBcKbU1uLv93TBgqdOUkITq2hbLoEte8fZyLyQiroRhTXuXWRr
 OKkmwvIkquAjdV3AaUq9UF/F6aotLVQQQJlUGTFsk5i9rMCZf628fCNbawbm6vR
 rmzFCZ86sBQfhe7D9h70wOJQhXkZy3+hrOJ5PPPTj/JrEOvPGWauruGKKioFXF2j
 UHkELy7rH0Qb5QaA4hxofle5NDItO7rNt4FvxhrnGX1y0aT2Sz4v24ZRdzvLzbOj
 jGZOKmYpCe9WH9WjEfKYT01wX+M6kNBbZZ8jQrOog4PbKfcfnfStallP3Cb2yrvt
 wsnM85MKxWx/skaYMcqa7OSCOwFMQqwoQ1V10DKEXwrUylo0h5pN6C2f3J+P12Yp
 nqujALW3ayVht609yNTYlwIDAQABo4IBLDCCASgwbQYIKwYBBQUHAQEETBfMDoG
 CCsGAQUFBzAChi5odHRwOi8vd3d3LnR1bnRydXN0LnRuL3B1Yi90bnRydXN0cm9v
 dGNhZzEuY3J0MCEGCCsGAQUFBzABhhVodHRwOi8vdmEudHVudHJ1c3QudG4wHQYD
 VR0OBBYEFjAwBw2ixl2FDZmCajLJV26lWl4MBIGA1UdEwEB/wQIMAYBAf8CAQAw
 HwYDVR0jBBgwFoAUy6UikEM+UuNVRnJ5PW/8qVKE61YwFgYDVR0gBA8wDTALBglg
 hhQBAgcBAgEwOwYDVR0fBDQwMjAwoC6gLIYqaHR0cDovL2Nybc50dW50cnVzdC50
 bi90bnRydXN0cm9vdGNhZzEuY3J0MCEGCCsGAQUFBzABhQAwIBBjANBgkqhkiG9w0B



AQsFAAOCBAEADBTyoP2gKTF7ZDgamZmdR/ftUTJPrWJWMMFfyFO8VolljnkY00BVV
1WM+7PpoZ8NdGOPGR119xr4YZWDcGNABvKEp7r9x9oXHTxfkGlkPyd8kLLMBORb3
5QWvMiZR9qDcx+XQJSRFDLo+qMeAhxOXjoc3lNu3hm8UntewageheGGmoYSXeenc
SvJe67yNBcZRzT0UvWR+prQ2eR6zpU55XG7Ss3W8Mvtzssml713b6gbd2OF9pUXy
YgAXElcf0WLhRDreN5Qsa0dxKXUdglk+x7Wna9ws5U3eoXWw3797QQpOtBK/KHId
bpjKYPJamQRt505pj5KOP6p9011/sjDdFhczyhMwyGpgNQvHnX0kh4lOeRpEFXyB
OAiPQAATOYsPFWtDxChu7hsPG+5HG0KhPnDHeylb1UJ2OE6h3G/FqNoaNE/IEM7I
/HvdvolmC49dXU64LGeJiEHwR3hTCWmKLaORk36zis/qtNEVV3gs6etmD2Ld0G5Q
XPg2HggR1cIT7YEOjPMotoyldiGSleaErVXusuJoAApa2zb5F/XN+jMcLTG3146l
KP4qw+FibeHFsv+CEomdrXHX9BIXZ+O39Qhcccd4N+StMx0nK7wrWLLdCmpH14jc
4VXaJrQjSsZget63U3ffqpQRjgDHWRxzXrlsn/BmhLXditQ/YUBOczn7S/jRjis7
lbhy+KyrZAv/W2sKO/UnktCygwt49+cIMODEOWm6yztrMbRblig4VMqvdAPOr/x3
BNzjAPYW1NW8xtmVd97Vt54OiYpS0RtFYifmAKDNhi/5dvMy+IFo9OK2mBoltCzf
OLi37yq8oqSijXfGtpNH9R+kEr3FFWV3sJXL6ut6Xc5jJKjr5ZFlgZAikfFBuk7
UkH9idwHo7a1v8Ttw73kOT8ckieGpRBeY/xcq07Talc4qeOBtAzU9iFkfKqEP2Wz
EBbZBiaE/vsZbGyCMc8NkNaW3qj56rwy6hvmvDC0lHFayQaaugolk168ccx8XhXR
Tc8ttKUmqTln79wVBFJ/QNjLPG3Yqdl4Q2WNJ0zF6d9+9RgYuksMFtNApMdmICr0
XmysWbcVgSjvsg33o+hfETFTSHKFC5hHStp7pa+qyW96DD48WJlrrf1wgs4ZJQ0
0XSbbHQzg50KbGFBZqM4Hh6n/KFUrJEyITzbm2uMAMDwSoliwFCKvplaCdkfdfs5d
77lYlP73jTssmO1aXQqzG0sf5njXAXvgEHJrNuPdQrrzN8BDXc5gjo1LLlkXJz/B
duZ1ZDrF67yed65xYwTZTga8CDX5QTAEh+8neoOeOU1vUOY0H8/815BbHayfO5az
wowpS0njiDPornpeLbrS/+MZ335lamrH2A==
-----END CERTIFICATE-----

TUNTRUST MANAGEMENT'S STATEMENT

Agence Nationale de Certification Electronique (« ANCE » or « TunTrust ») has deployed a public key infrastructure. As part of this deployment, it was necessary to create certificate authorities known as:

1. TnTrust Root CA – G1
2. TnTrust CA – QSign1

(Collectively, “TunTrust CAs”). In order to allow the CAs to be installed in a final and useable configuration, a Key Generation Ceremony was conducted, the purpose of which was to formally witness and document the creation of each CA’s private signing key. This helps assure the non-refutability of the integrity of the TunTrust CA’s key pairs, and in particular, the private signing keys.

TunTrust management has securely generated a key pair, consisting of a public and private key, in support of its CA operations. The key pairs were generated in accordance with procedures described in TunTrust’s Certificate Policy (CP), Certification Practice Statement (CPS), and its Key Generation Scripts, which are in accordance with CA Key Generation Criterion 4.1 of the WebTrust Principles and Criteria for Certification Authorities v2.2.2

TunTrust management established and maintained effective controls over the generation of these keys. These controls were designed to provide reasonable assurance of adherence to the above-mentioned practices throughout the root key generation process.

TunTrust management is responsible for establishing and maintaining procedures over its CA root keys generations, and over the integrity and confidentiality of all private keys and access keys (including physical keys, tokens, and passwords) used in the establishment of the TunTrust CAs, and for the CA environmental controls relevant to the generation and protection of its CA keys.

TunTrust management has assessed the procedures and controls for the generation of the CA keys. Based on that assessment, in management’s opinion, in generation and protecting its CA keys for the TunTrust CAs during the period 20 September 2022 to 23 September 2022 at Ariana, Tunisia, with the following identifying information:

CA Name	Subject Key Identifier
1.TnTrust Root CA – G1	CB:A5:25:28:43:3E:52:E3:55:46:72:79:3D:6F:FC:A9:59:04:EB:56
2.TnTrust CA – QSign1	48:C0:C1:B5:B6:8B:12:36:14:36:66:09:A8:CB:25:5D:BA:21:69:78

TunTrust has:

- followed the CA key generation and protection requirements in its:
 - TnTrust Sign PKI Certificate Policy / Certification Practice Statement Version 01, 23 September 2022 (CP/CPS)
- Included appropriate, detailed procedures and controls in its Key Generation scripts:
 - PV GAC 04 Key Ceremony Preparation 21 September 2022
 - PV GAC 09 Key Ceremony 21 September 2022
 - PV GAC 20 OCSP Ceremony 22 September 2022
 - PV GAC 06 Key Ceremony Finalisation 23 September 2022
- maintained effective controls to provide reasonable assurance that TunTrust CAs were generated and protected in conformity with the procedures described in its CP and CPS and its Key Generation Scripts

- performed, during the key generation process, the procedures required by the Key Generation Scripts
- generated the CA keys in a physically secured environment as described in its CP/CPS
- generated the CA keys using personnel in trusted roles under multiple person control and split knowledge
- generated the CA keys within cryptographic modules meeting the applicable technical and business requirements as disclosed in its CP and CPS

in accordance with CA Key Generation Criterion 4.1 of the [WebTrust Principles and Criteria for Certification Authorities - Version 2.2.2.](#)

Ramzi Khlif

Agence Nationale de Certification Electronique

21 octobre 2022