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## PRINCETON AUDIT GROUP



**AICPA Trust Service Principles and Criteria  
Independent Auditors Report  
December 1, 2018 to November 15, 2019**

**TrustCor Systems S. de R.L.  
Toronto, Canada.**

**SECTION 1**  
**AUDIT REPORT**

**Independent Service Auditor's Report**  
**Year 2019**  
**Princeton Audit Group (PAG)**

The Board of Directors  
TrustCor Systems S. de R.L.  
371 Front Street West, #227  
Toronto, ON. M5V 3S8  
CANADA

We have examined the [assertion](#) by the management of TrustCor Systems S. de R.L. (TrustCor-CA) for its Certification Authority (CA) operations at Toronto, Ontario, Canada, throughout the period December 1<sup>st</sup>, 2018 to November 15<sup>th</sup>, 2019 for its CA's as enumerated in Attachment A, TrustCor-CA has:

- Disclosed its business, key lifecycle management, certificate lifecycle management and CA environmental control practices in its:
  - [TrustCor CA Certification Practice Statement v 1.5.1](#) ; and
  - [TrustCor CA Certificate Policy v 1.5.1](#)
- Maintained effective controls to provide reasonable assurance that:
  - TrustCor-CA Certification Practice Statement is consistent with its Certificate Policy
  - TrustCor-CA provides its services in accordance with its Certificate Policy and Certification Practice Statement
- Maintained effective controls to provide reasonable assurance that:
  - The integrity of keys and certificates it manages is established and protected throughout their lifecycles;
  - The integrity of subscriber keys and certificates it manages is established and protected throughout their lifecycles;
  - Subscriber information is properly authenticated (for registration activities performed by TrustCor-CA); and
  - Subordinate CA certificate requests are accurate, authenticated and approved.
- Maintained effective controls to provide reasonable assurance that:
  - Logical and physical access to CA systems and data is restricted to authorized individuals;

- The continuity of key and certificate management operations is maintained; and
- CA systems development, maintenance, and operations are properly authorized and performed to maintain CA systems integrity.

TrustCor-CA's management is responsible for these disclosures and for maintaining effective controls based on the [WebTrust Principles and Criteria for Certification Authorities v2.1](#). Our responsibility is to express an opinion on management's assertion based on our examination.

The relative effectiveness and significance of specific controls at TrustCor-CA 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 individual subscriber and relying party locations. Our examination did not extend to controls at individual subscriber and relying party locations and we have not evaluated the effectiveness of such controls.

TrustCor-CA does not escrow its CA keys, does not provide subscriber key generation services, and does not provide certificate suspension services. Accordingly, our examination did not extend to controls that would address those criteria.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA). Those standards require that we plan and perform the examination to obtain reasonable assurance about whether management's assertion is fairly stated, in all material respects. An examination involves performing procedures to obtain evidence about management's assertion. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risks of material misstatement of management's assertion, whether due to fraud or error. We believe that the evidence we obtained is sufficient and appropriate to provide a reasonable basis for our opinion.

Because of the nature and inherent limitations of controls, TrustCor-CA'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.

In our opinion management's assertion, as referred to above, is fairly stated, in all material respects, in accordance with the WebTrust Principles and Criteria for Certification Authorities v2.1.

This report does not include any representation as to the quality of TrustCor-CA's services beyond those covered by the WebTrust Principles and Criteria for Certification Authorities v2.1, nor the suitability of any TrustCor-CA's services for any customer's intended purposes.

TrustCor-CA's use of the WebTrust for Certification Authorities Seal constitutes a symbolic representation of the contents of this report and it is not intended, nor should it be construed, to update the report or provide any additional assurance.

*Vijay Khosla, CPA, CITP, CISA, CISM.*

A handwritten signature in blue ink that reads "V Khosla". The signature is written in a cursive style and is underlined.

*Managing Partner*

*11/15/2019*

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**SECTION 2**  
**CA ASSERTION**



**Assertion of Management as to its Disclosure of its Business Practices and its Controls  
Over its Certification Authority Operations during the period from  
December 1st, 2018 through November 15th, 2019**

November 15, 2019

TrustCor Systems S. de R.L. ("TrustCor") operates the Certification Authority (CA) services known as the Root and Subordinate CAs in scope, which are listed in Appendix A of this assertion letter. TrustCor provides the following CA services:

- Subscriber registration
- Certificate renewal
- Certificate issuance
- Certificate distribution
- Certificate revocation
- Certificate validation
- Certificate status information processing

The management of TrustCor is responsible for establishing and maintaining effective controls over its CA operations, including CA business practices disclosure in its Certification Practice Statement, service integrity (including key and certificate life cycle management controls), and CA environmental controls. These controls contain monitoring mechanisms, and actions are 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 TrustCor's CA operations. Furthermore because of changes in conditions, the effectiveness of controls may vary over time.

TrustCor management has assessed its disclosure of its controls over its CA operations. Based on that assessment, in TrustCor management's opinion, in providing its Certification Authority (CA) services from its CA headquarters in Toronto [Ontario, Canada], with its data centers in Phoenix [Arizona, USA], during the period from December 1, 2018 through November 15, 2019, TrustCor has:

- Disclosed its Business, Key Life Cycle Management, Certificate Life Cycle Management, and CA Environmental Control policies in its:
  - [Certificate Policy](#) (current version 1.5.1); and
  - [Certification Practices Statement](#) (current version 1.5.1)
- Maintained effective controls to provide reasonable assurance that:
  - TrustCor's Certification Practices Statement is consistent with its Certificate Policy
  - TrustCor provides its services in accordance with its Certificate Policy and Certification Practices Statement

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Canada





- Maintained effective controls to provide reasonable assurance that:
  - the integrity of keys and certificates it manages is established and protected throughout their lifecycles;
  - subscriber information is properly authenticated (for the registration activities performed by TrustCor); and
  - subscriber and relying party information was restricted to authorized individuals and protected from uses not specified in the CA's business practices disclosure;
- Maintained effective controls to provide reasonable assurance that:
  - logical and physical access to CA systems and data is restricted to authorised individuals;
  - the continuity of key and certificate management operations is maintained; and
  - CA systems development, maintenance and operations are properly authorized and performed to maintain CA systems integrity

based on the [WebTrust® Principles and Criteria for Certification Authorities - Version 2.1](#), including the following:

#### **CA Business Practices Disclosure**

- Certificate Practice Statement (CPS)
- Certificate Policy (CP)

#### **CA Business Practices Management**

- Certificate Policy Management
- Certificate 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

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### **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 Lifecycle Management

### **Certificate Life Cycle Management Controls**

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

TrustCor does not escrow its CA keys, does not provide subscriber key generation services, and does not provide certificate suspension services. Accordingly, our assertion does not extend to controls that would address those criteria.

A handwritten signature in black ink that reads "Rachel McPherson".

Rachel McPherson  
Vice President, Operations  
November 15, 2019

## ATTACHMENT "A"

### Certification Practice Statement and Certificate Policy

#### VERSIONS USED DURING THE AUDIT PERIOD

- For the period: December 1st 2018 — April 19th 2019
  - Certification Practice Statement, version 1.4.2
  - Certificate Policy, version 1.4.2
- For the period: April 19th 2019 – October 21st 2019
  - Certification Practice Statement, version 1.5.0
  - Certificate Policy, version 1.5.0
- For the period: October 21st 2019 – November 15th 2019
  - Certification Practice Statement, version 1.5.1
  - Certificate Policy, version 1.5.1

Which describe the following in-scope Root and Subordinate CAs:

CA ID	Subject	Issuer	Serial	Key Type	Sig Alg	Not Before	Not After	SKI	SHA-256 Fingerprint
<b>Root CA Certificates</b>									
CA-1	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-1	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-1	da:9b:ec:71:f3:03:b0:19	RSA/4096	SHA256/RSA	Feb 4 12:32:16 2016 GMT	Dec 31 17:23:16 2029 GMT	EE:6B:49:3C:7A:3F:0D:E3:B1:09:B7:8A:C8:AB:19:9F:73:33:50:E7	d40e9c86cd8fe468c1776959f49ea774fa548684b6c406f3909261f4dce2575c
CA-2	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-2	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-2	25:a1:df:ca:33:cb:59:02	RSA/4096	SHA256/RSA	Feb 4 12:32:23 2016 GMT	Dec 31 17:26:39 2034 GMT	D9:FE:21:40:6E:94:9E:BC:9B:3D:9C:7D:98:20:19:E5:8C:30:62:B2	0753e940378c1bd5e3836e395daea5cb839e5046f1bd0eae1951cf10fec7c965
ECA-1	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor ECA-1	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor ECA-1	84:82:2c:5f:1c:62:d0:40	RSA/2048	SHA256/RSA	Feb 4 12:32:33 2016 GMT	Dec 31 17:28:07 2029 GMT	44:9E:48:F5:CC:6D:48:D4:A0:4B:7F:FE:59:24:2F:83:97:99:9A:86	5a885db19c01d912c5759388938cafbdf031ab2d48e91ee15589b42971d039c

DV SSL Subordinate CA Certificates									
CA1-Site	C=PA, ST=Panama, O=TrustCor Systems S. de R.L., OU=TrustCor Network, CN=TrustCor Basic Secure Site (CA1)	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-1  [CA-1]	ff:04:3b:9f:67:7c:dc:49	RSA/4096	SHA512/RSA	Feb 4 13:05:21 2016 GMT	Dec 30 16:20:10 2029 GMT	B7:38:A7:99:92:D7:C6:AA:4E:FB:3E:D3:1C:4E:BD:19:C8:E9:92:4D	fe1ecadbdee0e558068ddbc7b33ab78dd57d0dc22fcc1c360119010375b0a61b
CA1-Site 2048	C=PA, ST=Panama, O=TrustCor Systems S. de R.L., OU=TrustCor Network, CN=TrustCor Basic Secure Site 2048 (CA1)	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-1  [CA-1]	60:b9:a6:16:70:dd:48:f9	RSA/2048	SHA256/RSA	Feb 5 11:47:59 2016 GMT	Dec 30 16:20:10 2029 GMT	70:89:27:66:D4:13:BB:EE:03:57:1D:89:52:94:89:09:19:7B:6D:17	4efaaa1040ac2f44d3dee206d9522a288d84ec38ddf59298c926e02f4c9d9aef
OV SSL Subordinate CA Certificates									
CA2-Site	C=PA, ST=Panama, O=TrustCor Systems S. de R.L., OU=TrustCor Network, CN=TrustCor Enhanced Secure Site (CA2)	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-2  [CA-2]	96:6b:e5:90:bb:23:ef:2a	RSA/4096	SHA512/RSA	Feb 5 12:04:05 2016 GMT	Dec 30 16:20:10 2029 GMT	91:F7:F1:FC:8E:0A:76:BE:FA:E6:00:05:AF:D7:02:A2:24:CD:5A:9E	3830db8ea1520b6cdf57e1e00a5f1297be11d9e6430c83607176212ff85d2db8
Email S/MIME Subordinate CA Certificates									
CA1-Email	C=PA, ST=Panama, O=TrustCor Systems S. de R.L., OU=TrustCor Network, CN=TrustCor Basic Secure Email (CA1)	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-1  [CA-1]	a6:0d:88:32:19:a3:fd:59	RSA/4096	SHA512/RSA	Feb 5 11:36:50 2016 GMT	Dec 30 16:20:10 2029 GMT	E4:0B:1D:5B:9A:AA:7E:C9:C6:6B:64:38:76:71:C0:76:CA:97:29:3A	02bef922b32d46dfe7520b0ee7e3eaf588ee2b9cab81b84837e6b955e0759a90
CA2-Email	C=PA, ST=Panama, O=TrustCor Systems S. de R.L., OU=TrustCor Network, CN=TrustCor Enhanced Secure Email (CA2)	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor RootCert CA-2  [CA-2]	0a:f3:e6:12:40:47:17:52	RSA/4096	SHA512/RSA	Feb 5 11:50:28 2016 GMT	Dec 30 16:20:10 2029 GMT	A8:25:C6:DE:84:F4:28:7A:6C:7A:A6:03:65:94:51:0A:16:AC:C9:FE	a6d365161b58539cb44b29d77c648126f33db3c493116c3040e18de3e01a4242

Externally Operated CA Subordinate CA Certificates									
ECA-1 External	C=PA, ST=Panama, O=TrustCor Systems S. de R.L., OU=TrustCor Network, CN=TrustCor External PKI (ECA1)	C=PA, ST=Panama, L=Panama City, O=TrustCor Systems S. de R.L., OU=TrustCor Certificate Authority, CN=TrustCor ECA-1  [ECA-1]	82:25:5d:04:bf: 64:fe:9d	RSA/ 2048	SHA256 /RSA	Feb 5 12:10:46 2016 GMT	Dec 30 16:20:10 2029 GMT	66:C9:D2:44:CC:AD: A5:D6:96:D3:04:12: DF:1D:C5:88:0F:5C: 8D:BA	7882d9faa49a8bb351f0fc6e d685ef1fc51541d0ce0a4222 074d1d9e16fdc30b