



PAG
PRINCETON AUDIT GROUP



**AICPA Trust Service Principles and Criteria
TSP Sec. 100
Independent Auditors Report
December 1, 2017 to November 30, 2018**

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

SECTION 1
Audit Report

Independent Service Auditors' Report
Year 2018
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 1st, 2017 to November 30th, 2018 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 Systems S. de R.L. Certification Practice Statement v 1.4.2](#) ; and
 - [TrustCor Systems S. de R.L. Certificate Policy v 1.4.2](#)
- 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 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.

Our examination was conducted in accordance with Section 101, Attestation Engagements (AICPA, Professional Standard established by the American Institute of Certified Public Accountants. Those standards require that we plan and perform the examination to obtain reasonable assurance about whether, throughout the period December 1st, 2017 to November 30th, 2018, for CAs as enumerated in Attachment A, in all material respects, TrustCor-CA's management assertion has been fairly stated.

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

11/30/2018

Princeton Audit Group, Inc.
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ATTACHMENT “A”

Certification Practice Statement and Certificate Policy

VERSIONS USED DURING THE AUDIT PERIOD

- For the period: December 1st 2017 — February 16th 2018
 - Certification Practice Statement, version 1.3.3
 - Certificate Policy, version 1.3.3
- For the period: February 16th 2018 – August 16th 2018
 - Certification Practice Statement, version 1.4.0
 - Certificate Policy, version 1.4.0
- For the period: August 16th 2018 – October 23rd 2018
 - Certification Practice Statement, version 1.4.1
 - Certificate Policy, version 1.4.1
- For the period: October 23rd 2018 – November 30th 2018
 - Certification Practice Statement, version 1.4.2
 - Certificate Policy, version 1.4.2

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, 2017 through November 30th, 2018**

November 30, 2018

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, 2017 through November 30, 2018, TrustCor has:

- Disclosed its Business, Key Life Cycle Management, Certificate Life Cycle Management, and CA Environmental Control policies in its:
 - [Certificate Policy](#) (current version 1.4.2); and
 - [Certification Practices Statement](#) (current version 1.4.2)

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- 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
- 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

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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 Lifecycle Management

Certificate Life Cycle Management Controls

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

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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 30, 2018

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Appendix A – List of Root and Subordinate CAs in Scope

CA ID	Subject	Issuer	Serial	Key Type	Sig Alg	Not Before	Not After	SKI	SHA-256 Fingerprint
Root CA Certificates									
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	5a885db19c01d912c5759388938cafbd0f031ab2cd48e91ee15589b42971d039c
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	4efaaa1040ac2f44d3dee206d9522a288d84ec38dd159298c926e02f4c9d9aef

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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	SHA51 2/RSA	Feb 5 12:04:05 2016 GMT	Dec 30 16:20:10 2029 GMT	91:F7:F1:FC:8E: 0A: 76:BE:FA:E6:00:0 5:AF:D7:02:A2:24 :CD:5A:9E	3830db8ea1520b6 cdf57e1e00a5f129 7be11d9e6430c83 607176212ff85d2d b8
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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:a 3:fd:59	RSA/ 4096	SHA51 2/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:C0:7 6:CA:97:29:3A	02bef922b32d46d fe7520b0ee7e3eaf 588ee2b9cab81b8 4837e6b955e0759 a90
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:e6:1 2:40:47:1 7:52	RSA/ 4096	SHA51 2/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:A6:03:65:94:5 1:0A: 16:AC:C9:FE	a6d365161b58539 cb44b29d77c6481 26f33db3c493116 c3040e18de3e01a 4242

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	SHA25 6/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	7882d9faa49a8bb 351f0fc6ed685ef1f c51541d0ce0a422 2074d1d9e16fdc3 0b
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