



REPORT OF THE INDEPENDENT ACCOUNTANT

To the Management of Visa U.S.A. Inc. ("Visa"):

We have examined for Visa's Certification Authority ("CA") operations at Highlands Ranch, Colorado and Ashburn, Virginia:

- Visa's disclosure of its business, key lifecycle management, certificate lifecycle management, and CA environmental control practices, the consistency of applicable versions of its Visa Public Key Infrastructure Certification Practice Statement ("CPS") with its Visa Public Key Infrastructure Certificate Policy ("CP") enumerated in [Attachment B](#), the provision of services in accordance with its CP and CPS, and
- the effectiveness of Visa's controls over key and certificate integrity, the authenticity and confidentiality of subscriber and relying party information, the continuity of key and certificate lifecycle management operations, and development, maintenance, and operation of CA systems integrity throughout the period April 1, 2017 to March 31, 2018 for its root and subordinate CAs, collectively referred to as Visa Information Delivery CAs, listed in [Attachment A](#).

Visa's management is responsible for these disclosures and for maintaining effective controls, based on WebTrust [Principles and Criteria for Certification Authorities v2.0](#). Our responsibility is to express an opinion based on our examination.

The relative effectiveness and significance of specific controls at Visa 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.

Visa did not escrow CA keys, nor did Visa provide Certificate Rekey Services. Visa only provided Subscriber Key Generation and Subscriber Key Storage and Recovery services when the subscriber was Visa or an affiliate of Visa. Visa did not provide any subordinate CA certificate life cycle management services to third party organizations. Accordingly, our examination did not extend to the controls that would address those criteria.

Our examination was conducted in accordance with attestation standards 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 April 1, 2017 to March 31, 2018, for its root and subordinate CAs listed in [Attachment A](#), in all material respects, Visa:

- disclosed its business, key life cycle management, certificate life cycle management, and CA environment control practices in applicable versions of the CPS and CP enumerated in [Attachment B](#); and



- maintained effective controls to provide reasonable assurance that:
 - Visa's CPS is consistent with its CP;
 - Visa provides its services in accordance with its CP and CPS;
 - 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;
 - subordinate CA certificate requests are accurate, authenticated, and approved;
 - 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

based on WebTrust [Principles and Criteria for Certification Authorities v2.0](#).

Because of the nature and inherent limitations of controls, Visa'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.

During our examination, we noted the following which caused a qualification of our opinion:

Impacted WebTrust Trust Principles and Criteria for Certification Authorities		Control Deficiency Noted
6.1	Subscriber Registration The CA maintains controls to provide reasonable assurance that For authenticated certificates <ul style="list-style-type: none">• Subscribers are accurately identified in accordance with the CA's disclosed business practices; and• Subscriber's certificate requests are accurate, authorized and complete.• For domain validated certificates• Subscribers' domain names are accurately validated in accordance with the CA's disclosed business practices; and• Subscriber's certificate requests are accurate and complete.	For 22 of the 45 certificate issuances selected, we were unable to obtain evidence of the subscriber agreement being acknowledged prior to issuance of the certificate.
6.4	Certificate Issuance The CA maintains controls to provide reasonable assurance that certificates are generated and issued in accordance with the CA's disclosed business practices.	For 28 out of 45 certificate issuances selected, we noted extension requirements from section 7.1.2.3 of the Visa CPS were omitted from the certificates.

6.6	<p>Certificate Revocation</p> <p>The CA maintains controls to provide reasonable assurance that certificates are revoked, based on authorized and validated certificate revocation requests within the time frame in accordance with the CA's disclosed business practices.</p>	<p>For 11 of the 21 certificate revocations selected, we were unable to obtain evidence of a revocation request in writing or authentication of the revocation request in compliance with the CP and CPS.</p>
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In our opinion, except for the effect of the matters described in the preceding table, throughout the period April 1, 2017 to March 31, 2018, Visa has, in all material respects:

- disclosed its business, key life cycle management, certificate life cycle management, and CA environment control practices in applicable versions of the CPS and CP enumerated in [Attachment B](#); and
- maintained effective controls to provide reasonable assurance that:
 - Visa's CPS is consistent with its CP; and
 - Visa provides its services in accordance with its CP and CPS
- 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; 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

based on WebTrust [Principles and Criteria for Certification Authorities v2.0](#).



This report does not include any representation as to the quality of Visa's services other than its CA operations at Highlands Ranch, Colorado and Ashburn, Virginia, nor the suitability of any of Visa's services for any customer's intended purpose.

BDO USA, LLP

Certified Public Accountants
St. Louis, Missouri
August 20, 2018



ATTACHMENT A - IN-SCOPE CAs

Root CAs

CA Name	Serial Number	SHA1 Thumbprint	SHA2 Thumbprint
CN = Visa Information Delivery Root CA OU = Visa International Service Association O = VISA C = US	5b 57 d7 a8 4c b0 af d9 d3 6f 4b a0 31 b4 d6 e2	5a 4d 0e 8b 5f dc fd f6 4e 72 99 a3 6c 06 0d b2 22 ca 78 e4	c5 7a 3a cb e8 c0 6b a1 98 8a 83 48 5b f3 26 f2 44 87 75 37 98 49 de 01 ca 43 57 1a f3 57 e7 4b
CN = Visa Information Delivery Root CA - G2 OU = Visa International Services Association O = VISA L = Ashburn S = Virginia C = US	51 3e 96 00 00 00 67 2a a4 73 c8 f7 e7 6e 93	61 f5 1e 6a 12 89 39 6a 82 d9 34 7d c9 73 05 57 a4 91 15 5f	0b f5 b2 a9 70 4a ab 1a 44 76 28 3f 61 0e a3 7a c7 f1 04 75 45 ba 0c 46 f7 27 07 82 8b 05 78 ee

Issuing CAs

CA Name	Serial Number	SHA1 Thumbprint	SHA2 Thumbprint
CN = Visa Information Delivery Internal CA OU = Visa International Service Association O = VISA C = US	22 b0 8f eb ca 60 17 41 68 5f 05 f4 88 e0 f2 c2	b8 e5 c9 b4 42 b7 3f fe bd 21 8f 9a 18 94 8a 70 bd 3b a7 1f	e7 37 3a 39 c2 35 47 27 0e 3d 20 b2 47 87 5f a4 43 f4 f2 b6 65 d5 16 26 01 91 39 90 38 37 66 d3
CN = Visa Information Delivery External CA OU = Visa International Service Association O = VISA C = US	17 b4 6e 88 61 1d b7 9c f6 28 47 8e 22 89 85 ed	6f c9 20 c3 f4 3b 4d ba c7 15 7e d7 33 2b 7c 46 da a3 54 ce	b8 63 a8 f0 f8 de bc 79 b8 9d 87 de 94 1f 6f 15 ec 35 77 15 fa 0c f8 0e 84 b7 a6 cd bd 8d 34 43
CN = Visa Corporate Email Sub CA OU = Visa International Service Association O = VISA C = US	00 a5 a7 43 b7 c3 ed bc 9e 14 b5 d4 02 2c ae 08 53	99 80 e0 2c 81 3b 37 75 d5 48 37 17 59 e9 7d a7 ff 9c 56 9c	ed f1 32 5a a7 1a bf 82 1d 4b 58 13 e1 19 47 3e 91 5b cc 64 fc b8 2b 8b b6 7d 2f 6c e2 01 08 37
CN = VCEICA DC = visa DC = com	00 e9 6f 17 c3 10 29 c7 74 02 b1 63 28 11 06 fc 7f	f2 30 5f 74 27 32 28 97 d5 3f 13 c2 1b 27 82 c2 b5 a4 e2 3e	2d 14 a6 71 11 c7 b5 f6 63 41 01 ef 26 59 2c fd 5f 1d 6c 0b 59 f6 cd cf 44 2c 26 09 01 60 3f a3



ATTACHMENT B - POLICY VERSIONS IN-SCOPE

Certificate Policies

Policy Name	Version	Date
Visa Public Key Infrastructure Certificate Policy (CP)	3.3	March 29, 2018
Visa Public Key Infrastructure Certificate Policy (CP)	3.2	January 31, 2018
Visa Public Key Infrastructure Certificate Policy (CP)	3.1	March 31, 2017

Certification Practice Statements

Policy Name	Version	Date
Visa Public Key Infrastructure Certificate Practice Statement (CPS)	3.3	March 29, 2018
Visa Public Key Infrastructure Certificate Practice Statement (CPS)	3.2	January 31, 2018
Visa Public Key Infrastructure Certificate Practice Statement (CPS)	3.1	March 31, 2017



Page 1

Monday, August 20, 2018

Visa U.S.A. Inc. Management's Assertion

Visa U.S.A. Inc. ("Visa") operates the Certification Authority ("CA") known as the root and issuing CAs, collectively referred to as Visa Information Delivery CAs, in scope listed in [Attachment A](#), and provides the following CA services:

- Subscriber registration
- Certificate renewal
- Certificate issuance
- Certificate distribution
- Certificate revocation
- Certificate suspension
- Certificate validation
- Subscriber key generation and management

The management of Visa is responsible for establishing and maintaining effective controls over its CA operations, including its CA business practices disclosure on its [repository](#), CA business practice 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 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 only provide reasonable assurance with respect to Visa's CA operations. Furthermore, because of changes in conditions, the effectiveness of controls may vary over time.

Visa's management has assessed its disclosures of its certificate practices and controls over its CA services. During our assessment, we noted the following observations which caused the relevant criteria to not be met:

Impacted WebTrust Trust Principles and Criteria for Certification Authorities		Control Deficiency Noted	Management Response
6.1	Subscriber Registration The CA maintains controls to provide reasonable assurance that For authenticated certificates • Subscribers are accurately identified in accordance with the CA's disclosed business practices; and	For 22 of the 45 certificate issuances selected, we were unable to obtain evidence of the subscriber agreement being acknowledged prior to issuance of the certificate.	Visa notes that subscriber agreements accompany forms used for certificate requests. A plan to standardize and establish consistency across all Domain Validations &

	<ul style="list-style-type: none"> • Subscriber's certificate requests are accurate, authorized and complete. • For domain validated certificates • Subscribers' domain names are accurately validated in accordance with the CA's disclosed business practices; and • Subscriber's certificate requests are accurate and complete. 		<p>Revocations is in progress. Visa requested certificate issuances will be required to use a centralized system that will enforce specific requirements. This plan will be completed by Q4 fiscal year 2018 and includes training to relevant personnel about the new standardized process.</p>
6.4	<p>Certificate Issuance The CA maintains controls to provide reasonable assurance that certificates are generated and issued in accordance with the CA's disclosed business practices.</p>	<p>For 28 out of 45 certificate issuances selected, we noted extension requirements from section 7.1.2.3 of the Visa CPS were omitted from the certificates.</p>	<p>Visa notes legacy extensions remained present in the Visa CPS. This has been corrected by removing the legacy extension requirements from the Visa CPS. Management notes that the issue has been remediated.</p>
6.6	<p>Certificate Revocation The CA maintains controls to provide reasonable assurance that certificates are revoked, based on authorized and validated certificate revocation requests within the time frame in accordance with the CA's disclosed business practices.</p>	<p>For 11 of the 21 certificate revocations selected, we were unable to obtain evidence of a revocation request in writing or authentication of the revocation request in compliance with the Visa CP and CPS.</p>	<p>Visa notes a plan to standardize and establish consistency across all Domain Validations & Revocations. Visa requested certificate revocations will be required to use a centralized system that will enforce specific requirements. This plan will be completed by Q4 fiscal year 2018 and includes training to relevant personnel about the new standardized process.</p>



Based on that assessment, in Visa management's opinion, except for the matters described in the preceding table, in providing its CA services at Highlands Ranch, Colorado and Ashburn, Virginia, throughout the period April 1, 2017 to March 31, 2018, Visa has:

- disclosed its business, key lifecycle management, certificate lifecycle management, and CA environment control practices in applicable versions of the Visa Public Key Infrastructure Certification Practice Statement ("CPS") and Visa Public Key Infrastructure Certificate Policy ("Visa CP") enumerated in [Attachment B](#)
- maintained effective controls to provide reasonable assurance that:
 - Visa's CPS is consistent with its CP; and
 - Visa provides its services in accordance with its CP and CPS
- 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; 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

based on WebTrust [Principles and Criteria for Certification Authorities v2.0](#), including the following:

CA Business Practices Disclosure

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

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 & Environmental Security
- Operations Management
- System Access Management

Page 4

- System Development and Maintenance
- Business Continuity Management
- Monitoring and Compliance
- Audit Logging

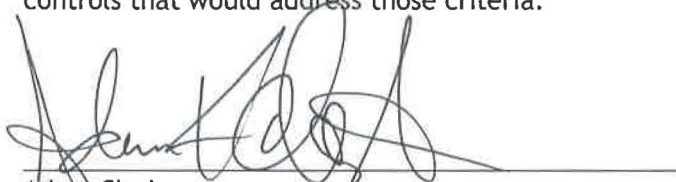
CA Key Lifecycle Management Controls

- 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 Lifecycle Management Controls

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

Visa did not escrow CA keys, nor did Visa provide Certificate Rekey Services. Visa only provided Subscriber Key Generation and Subscriber Key Storage and Recovery services when the subscriber was Visa or an affiliate of Visa. Visa did not provide any subordinate CA certificate life cycle management services to third party organizations. Accordingly, our assertion does not extend to controls that would address those criteria.



Adam Clark

Senior Director of Applied Cryptography

August 20, 2018

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CN = Visa Information Delivery Root CA - G2 OU = Visa International Services Association O = VISA L = Ashburn S = Virginia C = US	51 3e 96 00 00 00 67 2a a4 73 c8 f7 e7 6e 93	61 f5 1e 6a 12 89 39 6a 82 d9 34 7d c9 73 05 57 a4 91 15 5f	0b f5 b2 a9 70 4a ab 1a 44 76 28 3f 61 0e a3 7a c7 f1 04 75 45 ba 0c 46 f7 27 07 82 8b 05 78 ee

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CN = Visa Information Delivery External CA OU = Visa International Service Association O = VISA C = US	17 b4 6e 88 61 1d b7 9c f6 28 47 8e 22 89 85 ed	6f c9 20 c3 f4 3b 4d ba c7 15 7e d7 33 2b 7c 46 da a3 54 ce	b8 63 a8 f0 f8 de bc 79 b8 9d 87 de 94 1f 6f 15 ec 35 77 15 fa 0c f8 0e 84 b7 a6 cd bd 8d 34 43
CN = Visa Corporate Email Sub CA OU = Visa International Service Association O = VISA C = US	00 a5 a7 43 b7 c3 ed bc 9e 14 b5 d4 02 2c ae 08 53	99 80 e0 2c 81 3b 37 75 d5 48 37 17 59 e9 7d a7 ff 9c 56 9c	ed f1 32 5a a7 1a bf 82 1d 4b 58 13 e1 19 47 3e 91 5b cc 64 fc b8 2b 8b b6 7d 2f 6c e2 01 08 37
CN = VCEICA DC = visa DC = com	00 e9 6f 17 c3 10 29 c7 74 02 b1 63 28 11 06 fc 7f	f2 30 5f 74 27 32 28 97 d5 3f 13 c2 1b 27 82 c2 b5 a4 e2 3e	2d 14 a6 71 11 c7 b5 f6 63 41 01 ef 26 59 2c fd 5f 1d 6c 0b 59



Page 6

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