



REPORT OF THE INDEPENDENT ACCOUNTANT

To the management of Amazon Trust Services, LLC (“ATS”):

Scope

For ATS’ Certification Authority (“CA”) operations in Washington and Virginia, in the United States of America, we have examined whether ATS:

- disclosed its code signing (“CS”) certificate lifecycle management business practices in the applicable versions of its ATS CPS and ATS CP as enumerated in [Attachment A](#).

including its commitment to provide CS certificates in conformity with the applicable Baseline Requirements for the Issuance and Management of Publicly-Trusted Code Signing Certificates, and provided such services in accordance with its disclosed practices

- maintained effective controls to provide reasonable assurance that the integrity of keys and CS certificates it manages is established and protected throughout their lifecycles

And, for CAs as enumerated in [Attachment C](#) are only in scope for Principle 3: Extended Validation Code Signing Service Requirements:

- maintained effective controls to provide reasonable assurance that the integrity of keys and EV CS certificates it manages is established and protected throughout their lifecycles

throughout the period January 16, 2021 to January 15, 2022, based on the [WebTrust Principles and Criteria for Certification Authorities - Code Signing Baseline Requirements v2.0](#).

Certification Authority’s Responsibilities

ATS’ management is responsible for these disclosures and for maintaining effective controls based on [WebTrust Principles and Criteria for Certification Authorities - Code Signing Baseline Requirements v2.0](#).

Independent Accountant’s Responsibilities

Our responsibility is to express an opinion, based on our examination, about whether, for its CAs as enumerated in [Attachment B](#), ATS has:

- disclosed its code signing (“CS”) certificate lifecycle management business practices in the applicable versions of its ATS CPS and ATS CP as enumerated in [Attachment A](#).

including its commitment to provide CS certificates in conformity with the applicable Baseline Requirements for the Issuance and Management of Publicly-Trusted Code Signing Certificates, and provided such services in accordance with its disclosed practices



- maintained effective controls to provide reasonable assurance that the integrity of keys and CS certificates it manages is established and protected throughout their lifecycles

And, for CAs as enumerated in [Attachment C](#) are only in scope for Principle 3: Extended Validation Code Signing Service Requirements:

- maintained effective controls to provide reasonable assurance that the integrity of keys and EV CS certificates it manages is established and protected throughout their lifecycles

throughout the period January 16, 2021 to January 15, 2022, based on the [WebTrust Principles and Criteria for Certification Authorities - Code Signing Baseline Requirements v2.0](#).

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 the disclosures and controls listed above. An examination involves performing procedures to obtain evidence about the disclosures and controls listed above. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risks of material misstatement of the disclosures and controls listed above, 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.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements relating to the engagement.

The relative effectiveness and significance of specific controls at ATS 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.

Inherent Limitations

There are inherent limitations in the effectiveness of any system of internal control, including the possibility of human error and the circumvention of controls. For example, because of their nature, controls may not prevent, or detect unauthorised access to systems and information, or failure to comply with internal and external policies or requirements. Also, the projection to the future of any conclusions based on our findings is subject to the risk that controls may become ineffective.

Basis for Qualified Opinion

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



Impacted WebTrust Trust Principles and Criteria for Certification Authorities - Code Signing Baseline Requirements	Control Deficiency Noted
2-9.1 The CA maintains controls to provide reasonable assurance that: <ul style="list-style-type: none">• It operates a RFC-3161-compliant Timestamp Authority that is available for use by customers of its Code Signing Certificates• It recommends to Subscribers that they use the CA’s Timestamping Authority to time-stamp signed code.	ATS did not operate a timestamp authority during the examination period.

Qualified Opinion

In our opinion, except for the matter described in the preceding table, ATS has, in all material respects:

- disclosed its code signing (“CS”) certificate lifecycle management business practices in the applicable versions of its ATS CPS and ATS CP as enumerated in [Attachment A](#).

including its commitment to provide CS certificates in conformity with the applicable Baseline Requirements for the Issuance and Management of Publicly-Trusted Code Signing Certificates, and provided such services in accordance with its disclosed practices

- maintained effective controls to provide reasonable assurance that the integrity of keys and CS certificates it manages is established and protected throughout their lifecycles

And, for CAs as enumerated in [Attachment C](#) are only in scope for Principle 3: Extended Validation Code Signing Service Requirements:

- maintained effective controls to provide reasonable assurance that the integrity of keys and EV CS certificates it manages is established and protected throughout their lifecycles

throughout the period January 16, 2021 to January 15, 2022, based on the [WebTrust Principles and Criteria for Certification Authorities - Code Signing Baseline Requirements v2.0](#).

This report does not include any representation as to the quality of ATS’ services other than its CA services in Washington and Virginia, in the United States of America, nor the suitability of any of ATS’ services for any customer’s intended purpose.



Other Matter

Without modifying our opinion, we noted the following other matters during our procedures:

Matter Topic		Matter Description
1	CA Certificate Content	Amazon Trust Services disclosed in Mozilla Bug #1743935 that it had misissued CA certificates per its CP and CPS policy.
		Amazon Trust Services disclosed in Mozilla Bug #1743943 that revocation of one of the misissued CA certificates was delayed beyond the required timeline.

BDO USA, LLP

April 8, 2022



ATTACHMENT A - CERTIFICATION PRACTICE STATEMENT AND CERTIFICATE POLICY VERSIONS IN-SCOPE

Policy Name	Version	Effective Date
Amazon Trust Services Certificate Policy	1.0.11	August 18, 2021
Amazon Trust Services Certificate Policy	1.0.10	July 23, 2021
Amazon Trust Services Certificate Policy	1.0.9	April 23, 2021
Amazon Trust Services Certificate Policy	1.0.8	March 30, 2020
Amazon Trust Services Certification Practice Statement	1.0.12	August 18, 2021
Amazon Trust Services Certification Practice Statement	1.0.11	July 23, 2021
Amazon Trust Services Certification Practice Statement	1.0.10	April 23, 2021
Amazon Trust Services Certification Practice Statement	1.0.9	March 30, 2020



ATTACHMENT B - LIST OF CAs IN SCOPE FOR CODE SIGNING

Root CAs				
Subject DN	SHA2 Thumbprint	SPKI SHA256	Valid From	Valid To
CN = Amazon Root CA 1 O = Amazon C = US	8ECDE6884F3D87B1125BA31AC3FCB13D7016DE7F57CC904FE1CB97C6AE98196E	FBE3018031F9586BCBF417 27E417B7D1C45C2F47F93B E372A17B96B50757D5A2	5/25/2015	1/16/2038
CN = Amazon Root CA 2 O = Amazon C = US	1BA5B2AA8C65401A82960118F80BEC4F62304D83CEC4713A19C39C011EA46DB4	7F4296FC5B6A4E3B35D3C3 69623E364AB1AF381D8FA7 121533C9D6C633EA2461	5/25/2015	5/25/2040
CN = Amazon Root CA 3 O = Amazon C = US	18CE6CFE7BF14E60B2E347B8DFE868CB31D02EBB3ADA271569F50343B46DB3A4	36ABC32656ACFC645C61B7 1613C4BF21C787F5CABBEE 48348D58597803D7ABC9	5/25/2015	5/25/2040
CN = Amazon Root CA 4 O = Amazon C = US	E35D28419ED02025CFA69038CD623962458DA5C695FBDEA3C22B0BFB25897092	F7ECDE5C66047D28ED64 66B543C40E0743ABE81D10 9254DC845D4C2C7853C5	5/25/2015	5/25/2040
CN = Starfield Services Root Certificate Authority - G2 ¹ O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

Cross-Signed Root CAs				
Subject DN	SHA2 Thumbprint	SPKI SHA256	Valid From	Valid To
CN = Amazon Root CA 1 O = Amazon C = US	87DCD4DC74640A322CD205552506D1BE64F12596258096544986B4850BC72706	FBE3018031F9586BCBF417 27E417B7D1C45C2F47F93B E372A17B96B50757D5A2	5/25/2015	12/31/2037
	391220705B75BCF3ED3CD4B3631213F569D2CF8226101E170799A5354AB12861		10/21/2015	12/31/2037
CN = Amazon Root CA 2 O = Amazon C = US	8B358466D66126312120645A5875A6A57E3C81D98476A967604244254EAC00F0	7F4296FC5B6A4E3B35D3C3 69623E364AB1AF381D8FA7 121533C9D6C633EA2461	5/25/2015	12/31/2037
CN = Amazon Root CA 3 O = Amazon C = US	40C826FDB22BA32A2F9DB4F94770F72B8B1DA9C8FFDA7B11E6F27AF245C89B5E	36ABC32656ACFC645C61B7 1613C4BF21C787F5CABBEE 48348D58597803D7ABC9	5/25/2015	12/31/2037

¹ ATS assumed operation of this Root CA on June 10, 2015. Starfield Technologies operated this CA prior to June 10, 2015 and was responsible for its key generation.



Cross-Signed Root CAs				
Subject DN	SHA2 Thumbprint	SPKI SHA256	Valid From	Valid To
CN = Amazon Root CA 4 O = Amazon C = US	543D9B7FC2A6471CD84FCA52C2CF6159DF83EBFCD88D8B08B5AF3F88737F52E6	F7ECDED5C66047D28ED64 66B543C40E0743ABE81D10 9254DCF845D4C2C7853C5	5/25/2015	12/31/2037



ATTACHMENT C - LIST OF CAs IN SCOPE FOR EXTENDED VALIDATION CODE SIGNING

Root CAs				
Subject DN	SHA2 Thumbprint	SPKI SHA256	Valid From	Valid To
CN = Amazon Root CA 1 O = Amazon C = US	8ECDE6884F3D87B1125BA31AC3FCB13D7016DE7F57CC904FE1CB97C6AE98196E	FBE3018031F9586BCBF417 27E417B7D1C45C2F47F93B E372A17B96B50757D5A2	5/25/2015	1/16/2038
CN = Amazon Root CA 2 O = Amazon C = US	1BA5B2AA8C65401A82960118F80BEC4F62304D83CEC4713A19C39C011EA46DB4	7F4296FC5B6A4E3B35D3C3 69623E364AB1AF381D8FA7 121533C9D6C633EA2461	5/25/2015	5/25/2040
CN = Amazon Root CA 3 O = Amazon C = US	18CE6CFE7BF14E60B2E347B8DFE868CB31D02EBB3ADA271569F50343B46DB3A4	36ABC32656ACFC645C61B7 1613C4BF21C787F5CABBEE 48348D58597803D7ABC9	5/25/2015	5/25/2040
CN = Amazon Root CA 4 O = Amazon C = US	E35D28419ED02025CFA69038CD623962458DA5C695FBDEA3C22B0BFB25897092	F7ECDE5C66047D28ED64 66B543C40E0743ABE81D10 9254DC845D4C2C7853C5	5/25/2015	5/25/2040
CN = Starfield Services Root Certificate Authority - G2 ² O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

Cross-Signed Root CAs				
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	391220705B75BCF3ED3CD4B3631213F569D2CF8226101E170799A5354AB12861		10/21/2015	12/31/2037
CN = Amazon Root CA 2 O = Amazon C = US	8B358466D66126312120645A5875A6A57E3C81D98476A967604244254EAC00F0	7F4296FC5B6A4E3B35D3C3 69623E364AB1AF381D8FA7 121533C9D6C633EA2461	5/25/2015	12/31/2037
CN = Amazon Root CA 3 O = Amazon C = US	40C826FDB22BA32A2F9DB4F94770F72B8B1DA9C8FFDA7B11E6F27AF245C89B5E	36ABC32656ACFC645C61B7 1613C4BF21C787F5CABBEE 48348D58597803D7ABC9	5/25/2015	12/31/2037

² ATS assumed operation of this Root CA on June 10, 2015. Starfield Technologies operated this CA prior to June 10, 2015 and was responsible for its key generation.



Cross-Signed Root CAs				
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CN = Amazon Root CA 4 O = Amazon C = US	543D9B7FC2A6471CD84FCA52C2CF6159DF83EBFCD88D8B08B5AF3F88737F52E6	F7ECDED5C66047D28ED64 66B543C40E0743ABE81D10 9254DCF845D4C2C7853C5	5/25/2015	12/31/2037



AMAZON TRUST SERVICES, LLC MANAGEMENT’S ASSERTION

Amazon Trust Services, LLC (“ATS”) operates the Certification Authority (“CA”) services for the CAs in scope enumerated in [Attachment B](#) and [Attachment C](#), and provides code signing (“CS”) CA services.

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

Impacted Certification Requirements	WebTrust Trust Authorities - Code Signing Baseline	Control Deficiency Noted
2-9.1	<p>The CA maintains controls to provide reasonable assurance that:</p> <ul style="list-style-type: none"> • It operates a RFC-3161-compliant Timestamp Authority that is available for use by customers of its Code Signing Certificates • It recommends to Subscribers that they use the CA’s Timestamping Authority to time-stamp signed code. 	ATS did not operate a timestamp authority during the examination period.

Based on that assessment, in ATS management’s opinion, except for the matter described in the preceding table in providing its CS CA services in Washington and Virginia, in the United States of America, ATS has:

- disclosed its code signing (“CS”) certificate lifecycle management business practices in the applicable versions of its ATS Certification Practice Statement (“CPS”) and ATS Certificate Policy (“CP”) as enumerated in [Attachment A](#).

including its commitment to provide CS certificates in conformity with the applicable Baseline Requirements for the Issuance and Management of Publicly-Trusted Code Signing Certificates, and provided such services in accordance with its disclosed practices

- maintained effective controls to provide reasonable assurance that the integrity of keys and CS certificates it manages is established and protected throughout their lifecycles

And, for CAs as enumerated in [Attachment C](#) are only in scope for Principle 3: Extended Validation Code Signing Service Requirements:

- maintained effective controls to provide reasonable assurance that the integrity of keys and EV CS certificates it manages is established and protected throughout their lifecycles

throughout the period January 16, 2021 to January 15, 2022, based on the [WebTrust Principles and Criteria for Certification Authorities - Code Signing Certificates v2.0](#).

During the examination period, ATS did not issue any CS subscriber certificates.

Jonathan Kozolchyk

Jonathan Kozolchyk
Vice President
Amazon Trust Services, LLC

April 8, 2022

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CN = Amazon Root CA 2 O = Amazon C = US	1BA5B2AA8C65401A82960118F80BEC4F62304D83CEC4713A19C39C011EA46DB4	7F4296FC5B6A4E3B35D3C3 69623E364AB1AF381D8FA7 121533C9D6C633EA2461	5/25/2015	5/25/2040
CN = Amazon Root CA 3 O = Amazon C = US	18CE6CFE7BF14E60B2E347B8DFE868CB31D02EBB3ADA271569F50343B46DB3A4	36ABC32656ACFC645C61B7 1613C4BF21C787F5CABBEE 48348D58597803D7ABC9	5/25/2015	5/25/2040
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CN = Starfield Services Root Certificate Authority - G2 ¹ O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

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	391220705B75BCF3ED3CD4B3631213F569D2CF8226101E170799A5354AB12861		10/21/2015	12/31/2037
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¹ ATS assumed operation of this Root CA on June 10, 2015. Starfield Technologies operated this CA prior to June 10, 2015 and was responsible for its key generation.

Cross-Signed Root CAs				
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ATTACHMENT C - LIST OF CAs IN SCOPE FOR EXTENDED VALIDATION CODE SIGNING

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CN = Amazon Root CA 2 O = Amazon C = US	1BA5B2AA8C65401A82960118F80BEC4F62304D83CEC4713A19C39C011EA46DB4	7F4296FC5B6A4E3B35D3C3 69623E364AB1AF381D8FA7 121533C9D6C633EA2461	5/25/2015	5/25/2040
CN = Amazon Root CA 3 O = Amazon C = US	18CE6CFE7BF14E60B2E347B8DFE868CB31D02EBB3ADA271569F50343B46DB3A4	36ABC32656ACFC645C61B7 1613C4BF21C787F5CABBEE 48348D58597803D7ABC9	5/25/2015	5/25/2040
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CN = Starfield Services Root Certificate Authority - G2 ² O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

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	391220705B75BCF3ED3CD4B3631213F569D2CF8226101E170799A5354AB12861		10/21/2015	12/31/2037
CN = Amazon Root CA 2 O = Amazon C = US	8B358466D66126312120645A5875A6A57E3C81D98476A967604244254EAC00F0	7F4296FC5B6A4E3B35D3C3 69623E364AB1AF381D8FA7 121533C9D6C633EA2461	5/25/2015	12/31/2037
CN = Amazon Root CA 3 O = Amazon C = US	40C826FDB22BA32A2F9DB4F94770F72B8B1DA9C8FFDA7B11E6F27AF245C89B5E	36ABC32656ACFC645C61B7 1613C4BF21C787F5CABBEE 48348D58597803D7ABC9	5/25/2015	12/31/2037

² ATS assumed operation of this Root CA on June 10, 2015. Starfield Technologies operated this CA prior to June 10, 2015 and was responsible for its key generation.

Cross-Signed Root CAs				
Subject DN	SHA2 Thumbprint	SPKI SHA256	Valid From	Valid To
CN = Amazon Root CA 4 O = Amazon C = US	543D9B7FC2A6471CD84FCA52C2CF6159DF83EBFCD88D8B08B5AF3F88737F52E6	F7ECDED5C66047D28ED64 66B543C40E0743ABE81D10 9254DCF845D4C2C7853C5	5/25/2015	12/31/2037