



## 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, for its CAs as enumerated in [Attachment B](#), 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 its CAs as enumerated in [Attachment C](#) where only Principle 3: Extended Validation Code Signing Service Requirements is in scope, we have examined whether ATS:

- 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, 2022 to January 15, 2023, 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 its CAs as enumerated in [Attachment C](#) where only Principle 3: Extended Validation Code Signing Service Requirements is in scope, ATS has:

- 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, 2022 to January 15, 2023, 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"><li>• It operates a RFC-3161-compliant Timestamp Authority that is available for use by customers of its Code Signing Certificates</li><li>• It recommends to Subscribers that they use the CA's Timestamping Authority to time-stamp signed code.</li></ul>	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, for its CAs as enumerated in [Attachment B](#), 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 its CAs as enumerated in [Attachment C](#) where only Principle 3: Extended Validation Code Signing Service Requirements is in scope, ATS has, in all material respects:

- 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, 2022 to January 15, 2023, 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 <a href="#">#1743943</a> that revocation of one of the misissued CA certificates was delayed beyond the required timeline.

*BDS USA, LLP*

April 6, 2023



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

<b>Policy Name</b>	<b>Version</b>	<b>Effective Date</b>
<a href="#">Amazon Trust Services Certificate Policy</a>	1.0.12	August 29, 2022
Amazon Trust Services Certificate Policy	1.0.11	August 18, 2021
<a href="#">Amazon Trust Services Certification Practices Statement</a>	1.0.13	August 29, 2022
Amazon Trust Services Certification Practices Statement	1.0.12	August 18, 2021



## ATTACHMENT B - LIST OF CAs IN SCOPE FOR CODE SIGNING

Root CA Certificates				
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 <sup>1</sup> O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

Cross-Signed CA Certificates				
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

<sup>1</sup> 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 CA Certificates				
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 CA Certificates				
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 9254DC8F45D4C2C7853C5	5/25/2015	5/25/2040
CN = Starfield Services Root Certificate Authority - G2 <sup>2</sup> O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

Cross-Signed CA Certificates				
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

<sup>2</sup> 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 CA Certificates				
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



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.

The management of ATS is responsible for establishing and maintaining effective controls over its EV CS CA operations, including its EV CS CA business practices disclosure on the ATS [repository](#), EV CS key lifecycle management controls, and EV CS 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 ATS’ Certification Authority operations. Furthermore, because of changes in conditions, the effectiveness of controls may vary over time.

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 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"><li>• It operates a RFC-3161-compliant Timestamp Authority that is available for use by customers of its Code Signing Certificates</li><li>• It recommends to Subscribers that they use the CA’s Timestamping Authority to time-stamp signed code.</li></ul>	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, 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 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 its CAs as enumerated in [Attachment C](#) where only Principle 3: Extended Validation Code Signing Service Requirements is in scope, ATS has:

- 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, 2022 to January 15, 2023, based on the [WebTrust Principles and Criteria for Certification Authorities - Code Signing Baseline Requirements 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 6, 2023

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

<b>Policy Name</b>	<b>Version</b>	<b>Effective Date</b>
<a href="#">Amazon Trust Services Certificate Policy</a>	1.0.12	August 29, 2022
Amazon Trust Services Certificate Policy	1.0.11	August 18, 2021
<a href="#">Amazon Trust Services Certification Practices Statement</a>	1.0.13	August 29, 2022
Amazon Trust Services Certification Practices Statement	1.0.12	August 18, 2021

## ATTACHMENT B - LIST OF CAs IN SCOPE FOR CODE SIGNING

Root CA Certificates				
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 9254DCF845D4C2C7853C5	5/25/2015	5/25/2040
CN = Starfield Services Root Certificate Authority - G2 <sup>1</sup> O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

Cross-Signed CA Certificates				
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

<sup>1</sup> 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 CA Certificates				
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 CA Certificates				
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 9254DCF845D4C2C7853C5	5/25/2015	5/25/2040
CN = Starfield Services Root Certificate Authority - G <sup>2</sup> O = Starfield Technologies, Inc. L = Scottsdale S = Arizona C = US	568D6905A2C88708A4B3025190EDCFEDB1974A606A13C6E5290FCB2AE63EDAB5	2B071C59A0A0AE76B0EAD B2BAD23BAD4580B69C360 1B630C2EAF0613AFA83F92	8/31/2009	12/31/2037

Cross-Signed CA Certificates				
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

<sup>2</sup> 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 CA Certificates				
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