Mozilla Root Program Update for the CA/Browser Forum Ottawa - February 2023

Link to Previous Mozilla Face-to-Face Briefing (October 2022) - https://cabforum.org/wp-content/uploads/1-3-2022-October-Mozilla-Update-for-CABF-Berlin-F2F.pdf

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Outline

- Recap of Changes in Mozilla Root Store Policy (version 2.8.1)
- Upcoming Changes and Discussion Items for MRSP version 2.9
- Root Inclusion Considerations
- CA Inclusion Requests
- New Whiteboard Labels for Compliance Incidents
- Currently-Open CA Compliance Incidents
- Analysis of Past CA Incident Types
- Mozilla’s Top Priorities and Goals

Recap: MRSP v2.8.1

Certification Authorities must follow and be aware of discussions in both

- the Mozilla dev-security-policy forum, and
- the CCADB Public List

Certificate Policies (CPs), Certification Practice Statements (CPSes), and combined CP/CPSes MUST:

- clearly explain Domain Validation procedures and indicate applicable BR § 3.2.2.4 subsections
- be updated at least every 365 days
- be maintained from creation of CA until CA hierarchies are no longer trusted by the Mozilla root store
  - if CA certificates were included by Mozilla before December 31, 2022, then the CA must still maintain links for “reasonably available historic versions”

JSON Arrays of Partitioned CRLs must

- contain a critical Issuing Distribution Point extension
- have the URI derived from either: the URI as encoded in the distributionPoint field of an issued certificate's CDP (RFC 5280, § 5.2.5), or the URL in the "JSON Array of Partitioned CRLs" field in the CCADB

Upcoming changes: MRSP v. 2.9

https://github.com/mozilla/pkipolicy/labels/2.9

Require CA operators to submit Compliance Self-Assessments annually

Mozilla GitHub Issue # 240
https://wiki.mozilla.org/CA/Compliance_Self-Assessment

Clarify requirements for reporting security incidents affecting CA systems

Mozilla GitHub Issue # 252

Adopt S/MIME Baseline Requirements

Mozilla GitHub Issue # 258

Establish limits on the useful life of Root CA Certificates

Mozilla GitHub Issue # 232;
https://wiki.mozilla.org/CA/Root_CA_Lifecycles

Transition to 15-year Root CAs

Key Material Created	Removal of Websites Trust Bit	Distrust for S/MIME After Date
Before 2006	April 15, 2025	April 15, 2028
2006-2007	April 15, 2026	April 15, 2029
2008-2009	April 15, 2027	April 15, 2030
2010-2011	April 15, 2028	April 15, 2031
2012- April 14, 2014	April 15, 2029	April 15, 2032
April 15, 2014 - present	15 years from creation	18 years from creation

Distrust Date

For TLS: Websites trust bit will be removed 15 years after CA key creation.
For Email: Mozilla will set “Distrust for S/MIME After Date” to 18 years from CA key creation.

CA Key Creation

Will be determined by date in auditor-witnessed key generation report.

To be Discussed for MRSP v.2.9

- **#250** Clarify MRSP § 5.3.2 to expressly require CCADB reporting of revoked CA certificates
- **#241** Revisit and improve MRSP § 8.4 Technically-Constrained Sub-CAs
- **#237** Require more detail in CPSes about CA ownership and control (operations, security, sources of funding, liability, etc.)
- **#214** Clarify OCSP/CRL Availability Requirements

Root Inclusion Considerations

Goal: Help us make earlier, more objective decisions.

Unacceptable Behavior

Mozilla should deny root inclusion request.

Concerning Behavior

In aggregate may lead to denying the root inclusion request.

Warning Signs

CA operators must improve their operations and demonstrate their ability to maintain the higher level of operations, or their root inclusion request will be denied.

Please review **https://wiki.mozilla.org/CA/Root_Inclusion_Considerations**, and provide feedback on the Mozilla dev-security-policy list.

CA Inclusion Requests

https://wiki.mozilla.org/CA/Dashboard

Status	Count
Received - Initial Status CA hasn't provided enough information to begin review process	12
Information Verification CA is providing additional information, which is being reviewed	19
Ready for CP/CPS Review and Public Discussion CA's CP and CPS are being reviewed and updated	2
In Public Discussion CA is in period of public review and comment	2
TOTAL	**35**

Whiteboard Labels

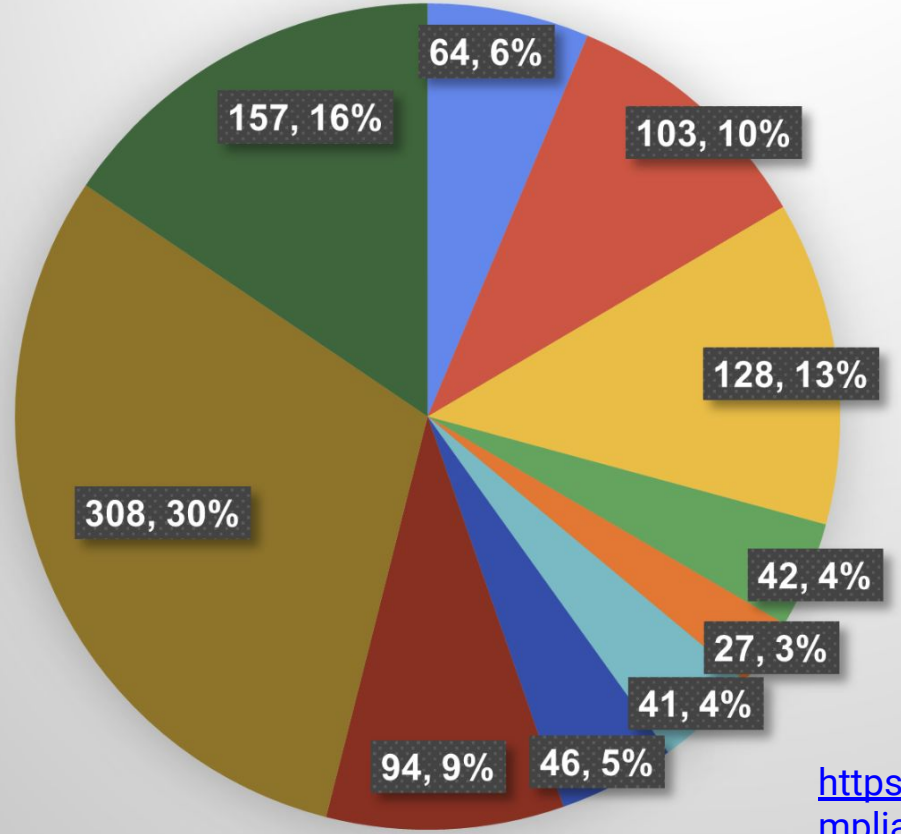
- **[ca-misissuance], [dv-misissuance], [ov-misissuance], [ev-misissuance]** mis-issuance of a certificate (CA, DV, OV or EV respectively)
- **[crl-failure]** / **[ocsp-failure]** failure to provide certificate status; malformed or expired CRL or OCSP, respectively
- **[policy-failure]** failure to update CP/CPS annually, failure to comply with practice in CP/CPS, misunderstanding requirements, failed implementation
- **[disclosure-failure]** failure to disclose an ICA, failure to report revocation of an ICA, non-disclosure of EV sources, miscommunication, poor communication, etc.
- **[audit-failure]** failure to: perform an audit, include ICA in audit, upload audits to CCADB
- **[audit-finding]** a non-conformity or qualified opinion from an audit report
- **[ca-revocation-delay]** / **[leaf-revocation-delay]** delayed revocation of a CA / leaf certificate
- **[uncategorized]** or just [ca-compliance] for anything not listed above

Currently Open Compliance Incidents

https://wiki.mozilla.org/CA/Incident_Dashboard

Types of Incident	Count
OV Misissuance	7
EV Misissuance	7
CRL Failure / OCSP Failure	5
CA Misissuance	4
Disclosure Failure	3
CA Revocation Delay	3
Leaf Revocation Delay	3
DV Misissuance	2
Uncategorized	1

~ 1,000 Incidents, 2015-2023, by Type



- Disclosure Failures - 64 | 7%
- Revocation Delays - 103 | 11%
- CRL/OCSP Failure - 128 | 14%
- Policy Failure - 42 | 4%
- Audit Finding - 27 | 3%
- Uncategorized - 41 | 4%
- CA Misissuance - 46 | 5%
- DV Misissuance - 94 | 10%
- OV Misissuance - 308 | 33%
- EV Misissuance - 157 | 17%

https://wiki.mozilla.org/CA/Bug_Triage#Compliance_Problems_and_Incidents

Mozilla's Top Priorities and Goals

#1 - Keep the web safe for our end users

A fast and secure TLS handshake with a browser URL bar that is easy for end users to understand.

Public-facing and transparent processes

Use knowledge from the community in policy adoption, root inclusion, and problem resolution.
Continue to update the BRs, policies, and practices as web attack scenarios continue to advance.

Consistent requirements and enforcement for CAs across the globe

Vet CAs and monitor them to ensure they do not expose users to risk.
Share knowledge to prevent repeating mistakes.

Continue to improve automated monitoring and reporting abilities

Faster identification and resolution of problems.
More timely inclusion of root CA certificates based on program priorities.

Hard-fail for revoked TLS certificates without leaking browsing information

CRLite, Requiring full CRL information, Revocation Reason Codes – policy/consistency.

Contacting Us:

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