### Mozilla - CA Program

| C | Case Information                |                                 |                  |                                 |
|---|---------------------------------|---------------------------------|------------------|---------------------------------|
|   | Case Number                     | 00000104                        | Case Record Type | CA Owner/Root Inclusion Request |
|   | CA<br>Owner/Certificate<br>Name | Google Trust Services LLC (GTS) | Request Status   | In Detailed CP/CPS Review       |

# Additional Case Information Subject Include Google Trust Services Root Case Reason Certificates

# Bugzilla Information Link to Bugzilla Bug https://bugzilla.mozilla.org

https://bugzilla.mozilla.org /show\_bug.cgi?id=1325532

| General information about CA's associated organization |   |           |                |
|--|---|-----------|----------------|
| CA Email Alias 1                                       | contact@pki.goog  |           |                |
| CA Email Alias 2                                       |   |           |                |
| Company Website  | https://pki.goog  | Verified? | Verified       |
| Organizational Type                                    | Commercial Organization   | Verified? | Verified       |
| Organizational Type (Others)                           | N/A   | Verified? | Not Applicable |
| Geographic Focus                                       | Global  | Verified? | Verified       |
| Primary Market /<br>Customer Base                      | GTS issues server authentication, client authentication, email (both signing and encrypting), and code signing certs to the general public. | Verified? | Verified       |
| Impact to Mozilla<br>Users                             | see above   | Verified? | Verified       |

| Required and Re          | commended Practices   |                                       |   |
|--------------------------|---|---------------------------------------|---|
| Recommended<br>Practices | https://wiki.mozilla.org<br>/CA/Required_or_Recommended_Practices | Recommended<br>Practices<br>Statement | I have reviewed Mozilla's list of<br>Recommended Practices, and<br>confirm that we follow those<br>practices, with exceptions and<br>clarifications noted in the text |

|  |  |           | box below. |
|--|--|-----------|------------|
| CA's Response to<br>Recommended<br>Practices | <ol> <li>Publicly Available CP and CPS: CP/CPS section 2</li> <li>Audit Criteria: CP/CPS section 8</li> <li>Revocation of Compromised Certificates: CP/CPS section 4.9.1</li> <li>Verifying Domain Name Ownership: CP/CPS section 3.2.2</li> <li>Verifying Email Address Control: N/A</li> <li>DNS names go in SAN: CPS Appendix C, CP section 7.1.4.2.1</li> <li>OCSP: CP section 7.1.2.3, CPS section 4.9.9</li> <li>Network Security Controls: CPS section 6.7</li> </ol> | Verified? | Verified   |

| Forbidden and P                              | otentially Problematic Practices   |                                       |  |
|--|--|---------------------------------------|--|
| Potentially<br>Problematic<br>Practices      | https://wiki.mozilla.org<br>/CA/Forbidden_or_Problematic_Practices   | Problematic<br>Practices<br>Statement | I have reviewed Mozilla's list of<br>Potentially Problematic Practices,<br>and confirm that we do not do<br>those practices, with exceptions<br>and clarifications noted in the text<br>box below. |
| CA's Response to<br>Problematic<br>Practices | 1. Long-lived Certificates: CP/CPS section 6.3.2 2. Non-Standard Email Address Prefixes for Domain Ownership Validation: CP section 3.2.2.4.4 3. Issuing End Entity Certificates Directly From Roots: No 4. Distributing Generated Private Keys in PKCS#12 Files: CPS sections 3.2.1, 6.1.3 5. Certificates Referencing Local Names or Private IP Addresses: CP section 3.2.2.4.8, CPS section 3.2.2.5 6. Issuing SSL Certificates for .int Domains: CP/CPS section 3.2.2 7. OCSP Responses Signed by a Certificate Under a Different Root: No 8. Issuance of SHA-1 Certificates: CP section 7.1.3, CPS Appendix C 9. Delegation of Domain / Email Validation to Third Parties: CP/CPS section 1.3.2 | Verified?                             | Verified   |

# Root Case Record # 1 Root Case Information Root Certificate GTS Root R1 Root Case No R00000144 Request Status In Detailed CP/CPS Review Case Number 00000104

| Certificate                             | Data  |
|---|---|
| Certificate<br>Issuer<br>Common<br>Name | GTS Root R1   |
| O From<br>Issuer<br>Field               | Google Trust Services LLC   |
| OU From<br>Issuer<br>Field              |   |
| Valid From                              | 2016 Jun 22   |
| Valid To                                | 2036 Jun 22   |
| Certificate<br>Serial<br>Number         | 6e47a9c54b470c0dec33d089b91cf4e1  |
| Subject                                 | CN=GTS Root R1, OU=null, O=Google Trust Services LLC, C=US                                      |
| Signature<br>Hash<br>Algorithm          | sha384WithRSAEncryption   |
| Public Key<br>Algorithm                 | RSA 4096 bits   |
| SHA-1<br>Fingerprint                    | E1:C9:50:E6:EF:22:F8:4C:56:45:72:8B:92:20:60:D7:D5:A7:A3:E8                                     |
| SHA-256<br>Fingerprint                  | 2A:57:54:71:E3:13:40:BC:21:58:1C:BD:2C:F1:3E:15:84:63:20:3E:CE:94:BC:F9:D3:CC:19:6B:F0:9A:54:72 |
| Certificate<br>ID                       | 1A:B8:8F:E2:C4:8A:31:F5:43:5F:3E:E3:A2:2F:35:43:79:CC:1E:28:BD:EB:B3:D1:E7:02:ED:48:17:44:15:89 |
| Certificate<br>Version                  | 3   |

| Certificate<br>Summary           | This RSA 4096, SHA-384 root has one internally-operated subCA.  | Verified? | Verified |
|----------------------------------|---|-----------|----------|
| Root Certificate<br>Download URL | https://pki.goog/gtsr1.crt  | Verified? | Verified |
| CRL URL(s)                       | http://crl.pki.goog/gtsr1/gtsr1.crl<br>http://crl.pki.goog/GTSX1.crl<br>CPS section 2.3: at least every 7<br>days | Verified? | Verified |
| OCSP URL(s)                      | http://ocsp.pki.goog/gstr1<br>http://ocsp.pki.goog/GTSX   | Verified? | Verified |
| Mozilla Trust Bits               | Websites  | Verified? | Verified |
| SSL Validation<br>Type           | DV; OV  | Verified? | Verified |

| Mozilla EV Policy OID(s)       | Not EV    | Verified? | Not Applicable |
|--------------------------------|-----------|-----------|----------------|
| Root Stores<br>Included In     | Microsoft | Verified? | Verified       |
| Mozilla Applied<br>Constraints |           | Verified? | Not Applicable |

| Test Websites or          | Test Websites or Example Cert   |                    |  |  |  |
|---------------------------|---------------------------------|--------------------|--|--|--|
| Test Website -<br>Valid   | https://good.r1demo.pki.goog    | Verified? Verified |  |  |  |
| Test Website -<br>Expired | https://expired.r1demo.pki.goog |                    |  |  |  |
| Test Website -<br>Revoked | https://revoked.r1demo.pki.goog |                    |  |  |  |
| Example Cert              |                                 |                    |  |  |  |
| Test Notes                |                                 |                    |  |  |  |

| Test Results (When Requesting the SSL/TLS Trust Bit) |   |           |                |  |
|--|---|-----------|----------------|--|
| Revocation Tested                                    | https://certificate.revocationcheck.com<br>/good.r1demo.pki.goog<br>OK                      | Verified? | Verified       |  |
| CA/Browser<br>Forum Lint Test                        | https://crt.sh/?caid=48269&<br>opt=cablint,zlint,x509lint&<br>minNotBefore=2016-06-22<br>OK | Verified? | Verified       |  |
| Test Website Lint<br>Test                            | See above   | Verified? | Verified       |  |
| EV Tested  | Not EV  | Verified? | Not Applicable |  |

| Hierarchy Info               | ormation  |           |          |
|------------------------------|---|-----------|----------|
| CA Hierarchy                 | Subordinate CA certs are disclosed in the CCADB, section 1.3 of the CPS, and also listed here: https://pki.goog/  This root currently has one internally-operated subordinate CA. | Verified? | Verified |
| Externally<br>perated SubCAs | Currently none  | Verified? | Verified |
| Cross Signing                | Currently none<br>CP section 3.2.6<br>CPS sections 2.1, 3.2.6, 8.7  | Verified? | Verified |

#### Technical Constraint on 3rd party Issuer

External RAs and Enterprise RAs are allowed per section 1.3.2 of the CP.

CPS section 1.3.2 says: "All RA functions for the Google CAs listed in this CPS will be performed by Google."

CP section 8.7: The CA SHALL internally audit each Delegated Third Party's compliance with these Requirements on an annual basis.

#### Verified? Verified

| Policy                           | Documents are in English                                   | Verified?  | Verified       |
|----------------------------------|--|------------|----------------|
| Documentation                    | Documents are in English                                   | verilleu : | verilled       |
| CA Document<br>Repository        | https://pki.goog/  | Verified?  | Verified       |
| P Doc Language                   | English  |            |                |
| СР                               | https://pki.goog/GTS-CP-1.4.pdf                            | Verified?  | Verified       |
| P Doc Language                   | English  |            |                |
| CPS                              | https://pki.goog/GTS-CPS-2.2.pdf                           | Verified?  | Verified       |
| Other Relevant<br>Documents      | https://pki.goog/GTS-SA.pdf<br>https://pki.goog/GTS-RP.pdf | Verified?  | Verified       |
| Auditor (New)                    | Ernst & Young, LLP   | Verified?  | Verified       |
| Auditor Location<br>(New)        | <u>United States</u>                                       | Verified?  | Verified       |
| Standard Audit                   | https://cert.webtrust.org<br>/SealFile?seal=2346&file=pdf  | Verified?  | Verified       |
| Standard Audit<br>Type           | WebTrust   | Verified?  | Verified       |
| Standard Audit<br>Statement Date | 10/31/2017   | Verified?  | Verified       |
| BR Audit                         | https://cert.webtrust.org<br>/SealFile?seal=2347&file=pdf  | Verified?  | Verified       |
| BR Audit Type                    | WebTrust   | Verified?  | Verified       |
| BR Audit<br>Statement Date       | 11/1/2017  | Verified?  | Verified       |
| EV SSL Audit                     | Not EV   | Verified?  | Not Applicable |
| V SSL Audit Type                 |  | Verified?  | Not Applicable |
| EV SSL Audit<br>Statement Date   |  | Verified?  | Not Applicable |
| BR Commitment                    | CP section 1.1. CPS section 2.2                            | Verified?  | Verified       |

| BR Self<br>Assessment                          | https://bug1325532.bmoattachments.org/attachment.cgi?id=8943360               | Verified? | Verified       |
|--|---|-----------|----------------|
| SSL Verification<br>Procedures                 | CP/CPS section 3.2.2<br>CPS section 3.2.5.1                                   | Verified? | Verified       |
| EV SSL<br>Verification<br>Procedures           | Not EV  | Verified? | Not Applicable |
| Organization<br>Verification<br>Procedures     | CP sections 3.2.2, 3.2.3, 3.2.5   | Verified? | Verified       |
| Email Address<br>Verification<br>Procedures    | Not requesting email trust bit at this time.                                  | Verified? | Not Applicable |
| Code Signing<br>Subscriber<br>Verification Pro | Mozilla is no longer accepting requests to enable the Code Signing trust bit. | Verified? | Not Applicable |
| Multi-Factor<br>Authentication                 | CP/CPS section 5  | Verified? | Verified       |
| Network Security                               | CP/CPS section 6.7  | Verified? | Verified       |

## **Root Case Record #2**

| Root Case Inform         | Root Case Information     |              |           |
|--------------------------|---------------------------|--------------|-----------|
| Root Certificate<br>Name | GTS Root R2               | Root Case No | R00000145 |
| Request Status           | In Detailed CP/CPS Review | Case Number  | 00000104  |

| Certificate Data                        |  |  |
|---|--|--|
| Certificate<br>Issuer<br>Common<br>Name | GTS Root R2  |  |
| O From<br>Issuer<br>Field               | Google Trust Services LLC                                  |  |
| OU From<br>Issuer<br>Field              |  |  |
| Valid From                              | 2016 Jun 22  |  |
| Valid To                                | 2036 Jun 22  |  |
| Certificate<br>Serial<br>Number         | 6e47a9c65ab3e720c5309a3f6852f26f                           |  |
| Subject                                 | CN=GTS Root R2, OU=null, O=Google Trust Services LLC, C=US |  |

| Signature<br>Hash<br>Algorithm | sha384WithRSAEncryption   |
|--------------------------------|---|
| Public Key<br>Algorithm        | RSA 4096 bits   |
| SHA-1<br>Fingerprint           | D2:73:96:2A:2A:5E:39:9F:73:3F:E1:C7:1E:64:3F:03:38:34:FC:4D                                     |
| SHA-256<br>Fingerprint         | C4:5D:7B:B0:8E:6D:67:E6:2E:42:35:11:0B:56:4E:5F:78:FD:92:EF:05:8C:84:0A:EA:4E:64:55:D7:58:5C:60 |
| Certificate<br>ID              | 0E:5C:2C:B5:0C:8C:C2:7F:F4:E1:C7:28:05:07:3A:67:1B:BC:51:76:3B:83:10:73:5C:6F:EC:3B:DE:93:F9:EB |
| Certificate<br>Version         | 3   |

| nis RSA 4096, SHA-384 root has ne internally-operated subCA.    | Verified?  | Verified  |
|---|--|---|
| tps://pki.goog/gtsr2.crt  |  |   |
|   | Verified?  | Verified  |
| tp://crl.pki.goog/GTSX2.crl<br>PS section 2.3: at least every 7 | Verified?  | Verified  |
|   | Verified?  | Verified  |
| /ebsites  | Verified?  | Verified  |
| V; OV   | Verified?  | Verified  |
| ot EV   | Verified?  | Verified  |
| icrosoft  | Verified?  | Verified  |
|   | Verified?  | Not Applicable  |
|   | tp://crl.pki.goog/gtsr2/gtsr2.crl tp://crl.pki.goog/GTSX2.crl PS section 2.3: at least every 7 ays  tp://ocsp.pki.goog/gtsr2 tp://ocsp.pki.goog/GTSX /ebsites V; OV  ot EV | tp://crl.pki.goog/GTSX2.crl PS section 2.3: at least every 7 ays  tp://ocsp.pki.goog/gtsr2 tp://ocsp.pki.goog/GTSX  /ebsites  Verified?  Verified?  Verified?  verified?  verified? |

| Test Websites or          | Example Cert                    |                    |  |
|---------------------------|---------------------------------|--------------------|--|
| Test Website -<br>Valid   | https://good.r2demo.pki.goog    | Verified? Verified |  |
| Test Website -<br>Expired | https://expired.r2demo.pki.goog |                    |  |
| Test Website -<br>Revoked | https://revoked.r2demo.pki.goog |                    |  |
| Example Cert              |                                 |                    |  |
| Test Notes                |                                 |                    |  |

| Test Results (Wh              | Test Results (When Requesting the SSL/TLS Trust Bit)  |           |                |
|-------------------------------|---|-----------|----------------|
| Revocation Tested             | https://certificate.revocationcheck.com/good.r2demo.pki.goog OK                             | Verified? | Verified       |
| CA/Browser<br>Forum Lint Test | https://crt.sh/?caid=48271&<br>opt=cablint,zlint,x509lint&<br>minNotBefore=2016-06-22<br>OK | Verified? | Verified       |
| Test Website Lint<br>Test     | See above   | Verified? | Verified       |
| EV Tested                     | Not EV  | Verified? | Not Applicable |

| CA Hierarchy Inf                               | CA Hierarchy Information  |           |          |
|--|---|-----------|----------|
| CA Hierarchy                                   | Subordinate CA certs are disclosed in the CCADB, section 1.3 of the CPS, and also listed here: https://pki.goog/  This root currently has one internally-operated subordinate CA.   | Verified? | Verified |
| Externally<br>Operated SubCAs                  | Currently none  | Verified? | Verified |
| Cross Signing                                  | Currently none<br>CP section 3.2.6<br>CPS sections 2.1, 3.2.6, 8.7  | Verified? | Verified |
| Technical<br>Constraint on 3rd<br>party Issuer | External RAs and Enterprise RAs are allowed per section 1.3.2 of the CP. CPS section 1.3.2 says: "All RA functions for the Google CAs listed in this CPS will be performed by Google."  CP section 8.7: The CA SHALL internally audit each Delegated Third Party's compliance with these Requirements on an annual basis. | Verified? | Verified |

| Verification Policies and Practices |                                 |           |          |
|-------------------------------------|---------------------------------|-----------|----------|
| Policy<br>Documentation             | Documents are in English        | Verified? | Verified |
| CA Document<br>Repository           | https://pki.goog/               | Verified? | Verified |
| CP Doc Language                     | English                         |           |          |
| СР                                  | https://pki.goog/GTS-CP-1.4.pdf | Verified? | Verified |
| CP Doc Language                     | English                         |           |          |

| CPS  | https://pki.goog/GTS-CPS-2.2.pdf  | Verified? | Verified       |
|--|---|-----------|----------------|
| Other Relevant<br>Documents                    | https://pki.goog/GTS-SA.pdf<br>https://pki.goog/GTS-RP.pdf                    | Verified? | Verified       |
| Auditor (New)                                  | Ernst & Young, LLP  | Verified? | Verified       |
| Auditor Location<br>(New)                      | <u>United States</u>  | Verified? | Verified       |
| Standard Audit                                 | https://cert.webtrust.org<br>/SealFile?seal=2346&file=pdf                     | Verified? | Verified       |
| Standard Audit<br>Type                         | WebTrust  | Verified? | Verified       |
| Standard Audit<br>Statement Date               | 10/31/2017  | Verified? | Verified       |
| BR Audit                                       | https://cert.webtrust.org<br>/SealFile?seal=2347&file=pdf                     | Verified? | Verified       |
| BR Audit Type                                  | WebTrust  | Verified? | Verified       |
| BR Audit<br>Statement Date                     | 11/1/2017   | Verified? | Verified       |
| EV SSL Audit                                   |   | Verified? | Not Applicable |
| EV SSL Audit Type                              |   | Verified? | Not Applicable |
| EV SSL Audit<br>Statement Date                 |   | Verified? | Not Applicable |
| BR Commitment to Comply                        | CP section 1.1. CPS section 2.2   | Verified? | Verified       |
| BR Self<br>Assessment                          | https://bug1325532.bmoattachments.org/attachment.cgi?id=8943360               | Verified? | Verified       |
| SSL Verification<br>Procedures                 | CP/CPS section 3.2.2<br>CPS section 3.2.5.1                                   | Verified? | Verified       |
| EV SSL<br>Verification<br>Procedures           | Not EV  | Verified? | Not Applicable |
| Organization<br>Verification<br>Procedures     | CP sections 3.2.2, 3.2.3, 3.2.5   | Verified? | Verified       |
| Email Address<br>Verification<br>Procedures    | Not requesting email trust bit at this time.                                  | Verified? | Not Applicable |
| Code Signing<br>Subscriber<br>Verification Pro | Mozilla is no longer accepting requests to enable the Code Signing trust bit. | Verified? | Not Applicable |
| Multi-Factor<br>Authentication                 | CP/CPS section 5  | Verified? | Verified       |
| Network Security                               | CP/CPS section 6.7  | Verified? | Verified       |

# **Root Case Record #3**

| Root Case Inform         | Root Case Information     |              |           |
|--------------------------|---------------------------|--------------|-----------|
| Root Certificate<br>Name | GTS Root R3               | Root Case No | R00000146 |
| Request Status           | In Detailed CP/CPS Review | Case Number  | 00000104  |

| Certificate                             | Data  |
|---|---|
| Certificate<br>Issuer<br>Common<br>Name | GTS Root R3   |
| O From<br>Issuer<br>Field               | Google Trust Services LLC   |
| OU From<br>Issuer<br>Field              |   |
| Valid From                              | 2016 Jun 22   |
| Valid To                                | 2036 Jun 22   |
| Certificate<br>Serial<br>Number         | 6e47a9c76ca9732440890f0355dd8d1d  |
| Subject                                 | CN=GTS Root R3, OU=null, O=Google Trust Services LLC, C=US                                      |
| Signature<br>Hash<br>Algorithm          | ecdsaWithSHA384   |
| Public Key<br>Algorithm                 | EC secp384r1  |
| SHA-1<br>Fingerprint                    | 30:D4:24:6F:07:FF:DB:91:89:8A:0B:E9:49:66:11:EB:8C:5E:46:E5                                     |
| SHA-256<br>Fingerprint                  | 15:D5:B8:77:46:19:EA:7D:54:CE:1C:A6:D0:B0:C4:03:E0:37:A9:17:F1:31:E8:A0:4E:1E:6B:7A:71:BA:BC:E5 |
| Certificate<br>ID                       | 57:D8:8B:41:7F:B7:8B:E3:05:55:8C:96:4B:36:63:66:1E:FF:AF:2E:B6:82:9D:1D:31:7D:92:00:1B:F6:6C:79 |
| Certificate<br>Version                  | 3   |

| Technical Information about Root Certificate |   |           |          |
|--|---|-----------|----------|
| Certificate<br>Summary                       | This ECC 384, SHA-384 root has one internally-operated subCA.   | Verified? | Verified |
| Root Certificate<br>Download URL             | https://pki.goog/gtsr3.crt  | Verified? | Verified |
| CRL URL(s)                                   | http://crl.pki.goog/gtsr3/gtsr3.crl<br>http://crl.pki.goog/GTSX3.crl<br>CPS section 2.3: at least every 7 | Verified? | Verified |

|                                | days  |           |                |
|--------------------------------|---|-----------|----------------|
| OCSP URL(s)                    | http://ocsp.pki.goog/gtsr3<br>http://ocsp.pki.goog/GTSX | Verified? | Verified       |
| Mozilla Trust Bits             | Websites  | Verified? | Verified       |
| SSL Validation<br>Type         | DV; OV  | Verified? | Verified       |
| Mozilla EV Policy OID(s)       | Not EV  | Verified? | Not Applicable |
| Root Stores<br>Included In     | Microsoft   | Verified? | Verified       |
| Mozilla Applied<br>Constraints |   | Verified? | Not Applicable |

| Test Websites or Example Cert |                                 |                    |  |
|-------------------------------|---------------------------------|--------------------|--|
| Test Website -<br>Valid       | https://good.r3demo.pki.goog    | Verified? Verified |  |
| Test Website -<br>Expired     | https://expired.r3demo.pki.goog |                    |  |
| Test Website -<br>Revoked     | https://revoked.r3demo.pki.goog |                    |  |
| Example Cert                  |                                 |                    |  |
| Test Notes                    |                                 |                    |  |

| Test Results (When Requesting the SSL/TLS Trust Bit) |   |           |                |
|--|---|-----------|----------------|
| Revocation Tested                                    | https://certificate.revocationcheck.com/good.r3demo.pki.goog OK                             | Verified? | Verified       |
| CA/Browser<br>Forum Lint Test                        | https://crt.sh/?caid=48268&<br>opt=cablint,zlint,x509lint&<br>minNotBefore=2016-06-22<br>OK | Verified? | Verified       |
| Test Website Lint<br>Test                            | See above   | Verified? | Verified       |
| EV Tested  | Not EV  | Verified? | Not Applicable |

| A Hierarchy Information |  |           |          |
|-------------------------|--|-----------|----------|
| CA Hierarchy            | Subordinate CA certs are disclosed in the CCADB, section 1.3 of the CPS, and also listed here: https://pki.goog/ | Verified? | Verified |
|                         | This root currently has one internally-operated subordinate CA.  |           |          |

| Externally Operated SubCAs                     | Currently none  | Verified? | Verified |
|--|---|-----------|----------|
| Cross Signing                                  | Currently none<br>CP section 3.2.6<br>CPS sections 2.1, 3.2.6, 8.7  | Verified? | Verified |
| Technical<br>Constraint on 3rd<br>party Issuer | External RAs and Enterprise RAs are allowed per section 1.3.2 of the CP. CPS section 1.3.2 says: "All RA functions for the Google CAs listed in this CPS will be performed by Google."  CP section 8.7: The CA SHALL internally audit each Delegated Third Party's compliance with these Requirements on an annual basis. | Verified? | Verified |

| Policy<br>Documentation          | Documents are in English                                   | Verified? | Verified       |
|----------------------------------|--|-----------|----------------|
| CA Document<br>Repository        | https://pki.goog/  | Verified? | Verified       |
| P Doc Language                   | English  |           |                |
| СР                               | https://pki.goog/GTS-CP-1.4.pdf                            | Verified? | Verified       |
| P Doc Language                   | English  |           |                |
| CPS                              | https://pki.goog/GTS-CPS-2.2.pdf                           | Verified? | Verified       |
| Other Relevant<br>Documents      | https://pki.goog/GTS-SA.pdf<br>https://pki.goog/GTS-RP.pdf | Verified? | Verified       |
| Auditor (New)                    | Ernst & Young, LLP   | Verified? | Verified       |
| Auditor Location<br>(New)        | <u>United States</u>                                       | Verified? | Verified       |
| Standard Audit                   | https://cert.webtrust.org<br>/SealFile?seal=2346&file=pdf  | Verified? | Verified       |
| Standard Audit<br>Type           | WebTrust   | Verified? | Verified       |
| Standard Audit<br>Statement Date | 10/31/2017   | Verified? | Verified       |
| BR Audit                         | https://cert.webtrust.org<br>/SealFile?seal=2347&file=pdf  | Verified? | Verified       |
| BR Audit Type                    | WebTrust   | Verified? | Verified       |
| BR Audit<br>Statement Date       | 11/1/2017  | Verified? | Verified       |
| EV SSL Audit                     | Not EV   | Verified? | Not Applicable |
| V SSL Audit Type                 |  | Verified? | Not Applicable |

| EV SSL Audit<br>Statement Date                 |   | Verified? | Not Applicable |
|--|---|-----------|----------------|
| BR Commitment to Comply                        | CP section 1.1. CPS section 2.2   | Verified? | Verified       |
| BR Self<br>Assessment                          | https://bug1325532.bmoattachments.org<br>/attachment.cgi?id=8943360           | Verified? | Verified       |
| SSL Verification<br>Procedures                 | CP/CPS section 3.2.2<br>CPS section 3.2.5.1                                   | Verified? | Verified       |
| EV SSL<br>Verification<br>Procedures           | Not EV  | Verified? | Not Applicable |
| Organization<br>Verification<br>Procedures     | CP sections 3.2.2, 3.2.3, 3.2.5   | Verified? | Verified       |
| Email Address<br>Verification<br>Procedures    | Not requesting email trust bit at this time.                                  | Verified? | Not Applicable |
| Code Signing<br>Subscriber<br>Verification Pro | Mozilla is no longer accepting requests to enable the Code Signing trust bit. | Verified? | Not Applicable |
| Multi-Factor<br>Authentication                 | CP/CPS section 5  | Verified? | Verified       |
| Network Security                               | CP/CPS section 6.7  | Verified? | Verified       |

## **Root Case Record #4**

| Root Case Inforn         | Root Case Information     |              |           |  |
|--------------------------|---------------------------|--------------|-----------|--|
| Root Certificate<br>Name | GTS Root R4               | Root Case No | R00000147 |  |
| Request Status           | In Detailed CP/CPS Review | Case Number  | 00000104  |  |

| Certificate Data                        |                           |  |
|---|---------------------------|--|
| Certificate<br>Issuer<br>Common<br>Name | GTS Root R4               |  |
| O From<br>Issuer<br>Field               | Google Trust Services LLC |  |
| OU From<br>Issuer<br>Field              |                           |  |
| Valid From                              | 2016 Jun 22               |  |
| Valid To                                | 2036 Jun 22               |  |

| Certificate<br>Serial<br>Number | 6e47a9c88b94b6e8bb3b2ad8a2b2c199  |
|---------------------------------|---|
| Subject                         | CN=GTS Root R4, OU=null, O=Google Trust Services LLC, C=US                                      |
| Signature<br>Hash<br>Algorithm  | ecdsaWithSHA384   |
| Public Key<br>Algorithm         | EC secp384r1  |
| SHA-1<br>Fingerprint            | 2A:1D:60:27:D9:4A:B1:0A:1C:4D:91:5C:CD:33:A0:CB:3E:2D:54:CB                                     |
| SHA-256<br>Fingerprint          | 71:CC:A5:39:1F:9E:79:4B:04:80:25:30:B3:63:E1:21:DA:8A:30:43:BB:26:66:2F:EA:4D:CA:7F:C9:51:A4:BD |
| Certificate<br>ID               | 20:57:9A:7F:A6:01:79:75:8D:7F:59:14:C1:ED:CD:A9:77:B8:FD:70:D1:CA:28:A1:61:3F:D5:FD:37:EA:45:91 |
| Certificate<br>Version          | 3   |

| Technical Information about Root Certificate |   |           |                |  |
|--|---|-----------|----------------|--|
| Certificate<br>Summary                       | This ECC 384, SHA-384 root has one internally-operated subCA.   | Verified? | Verified       |  |
| Root Certificate<br>Download URL             | https://pki.goog/gtsr4.crt  | Verified? | Verified       |  |
| CRL URL(s)                                   | http://crl.pki.goog/gtsr4/gtsr4.crl<br>http://crl.pki.goog/GTSX4.crl<br>CPS section 2.3: at least every 7<br>days | Verified? | Verified       |  |
| OCSP URL(s)                                  | http://ocsp.pki.goog/gtsr4<br>http://ocsp.pki.goog/GTSX   | Verified? | Verified       |  |
| Mozilla Trust Bits                           | Websites  | Verified? | Verified       |  |
| SSL Validation<br>Type                       | DV; OV  | Verified? | Verified       |  |
| Mozilla EV Policy<br>OID(s)                  | Not EV  | Verified? | Verified       |  |
| Root Stores<br>Included In                   | Microsoft   | Verified? | Verified       |  |
| Mozilla Applied<br>Constraints               |   | Verified? | Not Applicable |  |

| Т | Test Websites or Example Cert |                                 |           |          |
|---|-------------------------------|---------------------------------|-----------|----------|
|   | Test Website -<br>Valid       | https://good.r4demo.pki.goog    | Verified? | Verified |
|   | Test Website -<br>Expired     | https://expired.r4demo.pki.goog |           |          |

| Test Website -<br>Revoked | https://revoked.r4demo.pki.goog |
|---------------------------|---------------------------------|
| Example Cert              |                                 |
| Test Notes                |                                 |

| Test Results (When Requesting the SSL/TLS Trust Bit) |   |           |                |
|--|---|-----------|----------------|
| Revocation Tested                                    | https://certificate.revocationcheck.com/good.r4demo.pki.goog<br>OK                          | Verified? | Verified       |
| CA/Browser<br>Forum Lint Test                        | https://crt.sh/?caid=48274&<br>opt=cablint,zlint,x509lint&<br>minNotBefore=2016-06-22<br>OK | Verified? | Verified       |
| Test Website Lint<br>Test                            | See above   | Verified? | Verified       |
| EV Tested  | Not EV  | Verified? | Not Applicable |

| CA Hierarchy Inf                               | ormation  |           |          |  |
|--|---|-----------|----------|--|
| CA Hierarchy                                   | Subordinate CA certs are disclosed in the CCADB, section 1.3 of the CPS, and also listed here: https://pki.goog/  This root currently has one internally-operated subordinate CA.   | Verified? | Verified |  |
| Externally<br>Operated SubCAs                  | Currently none  | Verified? | Verified |  |
| Cross Signing                                  | Currently none<br>CP section 3.2.6<br>CPS sections 2.1, 3.2.6, 8.7  | Verified? | Verified |  |
| Technical<br>Constraint on 3rd<br>party Issuer | External RAs and Enterprise RAs are allowed per section 1.3.2 of the CP. CPS section 1.3.2 says: "All RA functions for the Google CAs listed in this CPS will be performed by Google."  CP section 8.7: The CA SHALL internally audit each Delegated Third Party's compliance with these Requirements on an annual basis. | Verified? | Verified |  |

|   | Verification Police | cies and Practices       |           |          |
|---|---------------------|--------------------------|-----------|----------|
| Policy Documents are in English Verified? Verified  Documentation | •                   | Documents are in English | Verified? | Verified |

| CA Document<br>Repository                      | https://pki.goog/   | Verified? | Verified       |
|--|---|-----------|----------------|
| CP Doc Language                                | English   |           |                |
| СР   | https://pki.goog/GTS-CP-1.4.pdf   | Verified? | Verified       |
| CP Doc Language                                | English   |           |                |
| CPS  | https://pki.goog/GTS-CPS-2.2.pdf  | Verified? | Verified       |
| Other Relevant<br>Documents                    | https://pki.goog/GTS-SA.pdf<br>https://pki.goog/GTS-RP.pdf                    | Verified? | Verified       |
| Auditor (New)                                  | Ernst & Young, LLP  | Verified? | Verified       |
| Auditor Location (New)                         | <u>United States</u>  | Verified? | Verified       |
| Standard Audit                                 | https://cert.webtrust.org<br>/SealFile?seal=2346&file=pdf                     | Verified? | Verified       |
| Standard Audit<br>Type                         | WebTrust  | Verified? | Verified       |
| Standard Audit<br>Statement Date               | 10/31/2017  | Verified? | Verified       |
| BR Audit                                       | https://cert.webtrust.org<br>/SealFile?seal=2347&file=pdf                     | Verified? | Verified       |
| BR Audit Type                                  | WebTrust  | Verified? | Verified       |
| BR Audit<br>Statement Date                     | 11/1/2017   | Verified? | Verified       |
| EV SSL Audit                                   |   | Verified? | Not Applicable |
| EV SSL Audit Type                              |   | Verified? | Not Applicable |
| EV SSL Audit<br>Statement Date                 |   | Verified? | Not Applicable |
| BR Commitment to Comply                        | CP section 1.1. CPS section 2.2   | Verified? | Verified       |
| BR Self<br>Assessment                          | https://bug1325532.bmoattachments.org<br>/attachment.cgi?id=8943360           | Verified? | Verified       |
| SSL Verification<br>Procedures                 | CP/CPS section 3.2.2<br>CPS section 3.2.5.1                                   | Verified? | Verified       |
| EV SSL<br>Verification<br>Procedures           | Not EV  | Verified? | Not Applicable |
| Organization<br>Verification<br>Procedures     | CP sections 3.2.2, 3.2.3, 3.2.5   | Verified? | Verified       |
| Email Address<br>Verification<br>Procedures    | Not requesting email trust bit at this time.                                  | Verified? | Not Applicable |
| Code Signing<br>Subscriber<br>Verification Pro | Mozilla is no longer accepting requests to enable the Code Signing trust bit. | Verified? | Not Applicable |
| Multi-Factor<br>Authentication                 | CP/CPS section 5  | Verified? | Verified       |

Network Security CP/CPS section 6.7 Verified? Verified