                    Adding Acronyms to Simplify Conversations about
                 DNS-Based Authentication of Named Entities (DANE)

Abstract

   Experience has shown that people get confused when discussing the
   three numeric fields of the TLSA record. This document specifies
   descriptive acronyms for the three numeric fields in TLSA records.
   This document updates the format of the IANA registry created by RFC
   6698.

Status of This Memo

   This is an Internet Standards Track document.

   This document is a product of the Internet Engineering Task Force
   (IETF). It represents the consensus of the IETF community. It has
   received public review and has been approved for publication by the
   Internet Engineering Steering Group (IESG). Further information on
   Internet Standards is available in Section 2 of RFC 5741.

   Information about the current status of this document, any errata,
   and how to provide feedback on it may be obtained at
   http://www.rfc-editor.org/info/rfc7218.

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1. Introduction

   During discussions on how to add DNS-Based Authentication of Named
   Entities (DANE) [RFC6698] technology to new protocols and services,
   people were repeatedly confused as to what the numeric values stood
   for and even the order of the fields of a TLSA record (note that TLSA
   is not an acronym but a name). This document updates the IANA
   registry definition for the TLSA record to add a column containing an
   acronym for each specified field, in order to reduce confusion. This
   document does not change the DANE protocol in any way.

   It is expected that DANE parsers in applications and DNS software can
   adopt parsing the acronyms for each field.

2. IANA Considerations

   This document applies to the "DNS-Based Authentication of Named
   Entities (DANE) Parameters" registry located at <http://www.iana.org/
   assignments/dane-parameters>. IANA has added a column with an
   acronym to each of the sub-registries.

   [RFC6698] and this document are the referenced documents for the
   three sub-registries.

   As these acronyms are offered for human consumption, case does not
   matter; it is expected that software that parses TLSA records will
   handle upper-, mixed-, or lower-case characters as input.

2.1. TLSA Certificate Usages Registry

   The reference for this registry has been updated to include both
   [RFC6698] and this document.

```
   +-------+----------+-----------------------------+-------------+
   | Value | Acronym  | Short Description            | Reference   |
   +-------+----------+-----------------------------+-------------+
   |   0   | PKIX-TA  | CA constraint               | [RFC6698]   |
   |   1   | PKIX-EE  | Service certificate constraint | [RFC6698] |
   |   2   | DANE-TA  | Trust anchor assertion      | [RFC6698]   |
   |   3   | DANE-EE  | Domain-issued certificate   | [RFC6698]   |
   | 4-254 |          | Unassigned                  |             |
   |  255  | PrivCert | Reserved for Private Use    | [RFC6698]   |
   +-------+----------+-----------------------------+-------------+
```

                     Table 1: TLSA Certificate Usages

2.2. TLSA Selectors

   The reference for this registry has been updated to include both
   [RFC6698] and this document.

```
   +-------+---------+-------------------------+-------------+
   | Value | Acronym | Short Description        | Reference   |
   +-------+---------+-------------------------+-------------+
   |   0   | Cert    | Full certificate        | [RFC6698]   |
   |   1   | SPKI    | SubjectPublicKeyInfo     | [RFC6698]   |
   | 2-254 |         | Unassigned              |             |
   |  255  | PrivSel | Reserved for Private Use | [RFC6698]   |
   +-------+---------+-------------------------+-------------+
```

                          Table 2: TLSA Selectors

2.3. TLSA Matching Types

   The reference for this registry has been updated to include both
   [RFC6698] and this document.

```
   +-------+-----------+------------------------+-------------+
   | Value | Acronym   | Short Description       | Reference   |
   +-------+-----------+------------------------+-------------+
   |   0   | Full      | No hash used            | [RFC6698]   |
   |   1   | SHA2-256  | 256 bit hash by SHA2    | [RFC6234]   |
   |   2   | SHA2-512  | 512 bit hash by SHA2    | [RFC6234]   |
   | 3-254 |           | Unassigned              |             |
   |  255  | PrivMatch | Reserved for Private Use | [RFC6698]   |
   +-------+-----------+------------------------+-------------+
```

                     Table 3: TLSA Matching Types

3. Examples of Usage

   Two examples are described below.

3.1. TLSA Records Using/Displaying the Acronyms

   _666._tcp.first.example.   TLSA PKIX-TA CERT SHA2-512 {blob}
   _666._tcp.second.example.   TLSA DANE-TA SPKI SHA2-256 {blob}

3.2. Acronym Use in a Specification Example

   Protocol FOO only allows TLSA records using PKIX-EE and DANE-EE, with
   selector SPKI, and using SHA2-512.

4. Security Considerations

   This document only changes registry fields and does not change the
   behavior of any protocol. The hope is to reduce confusion, which
   would lead to better specification and operations.

5. Acknowledgements

   Scott Schmit offered really good suggestions to decrease the
   possibility of confusion. Viktor Dukhovni provided comments from the
   expert point of view. Jim Schaad, Wes Hardaker, and Paul Hoffman
   provided feedback during WGLC. Dan Romascanu and Tobias Gondrom
   pointed out a few defects during the IESG last call.

6. References

6.1. Normative References

   [RFC6698] Hoffman, P. and J. Schlyter, "The DNS-Based Authentication
              of Named Entities (DANE) Transport Layer Security (TLS)
              Protocol: TLSA", RFC 6698, August 2012.

6.2. Informative References

   [RFC6234] Eastlake, D. and T. Hansen, "US Secure Hash Algorithms
              (SHA and SHA-based HMAC and HKDF)", RFC 6234, May 2011.

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