Document Identifier:

DSP0276 Date: 2020-11-16

Version: 1.0.0

Secured Messages using SPDM over MCTP Binding Specification

Supersedes: None

Document Class: Normative

Document Status: Published

Document Language: en-US

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20 CONTENTS

1 Foreword

The Platform Management Components Intercommunications (PMCI) Working Group prepared the *Secured Messages using SPDM over MCTP Binding Specification* (DSP0276).

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2 Acknowledgments

The DMTF acknowledges the following individuals for their contributions to this document:

- Patrick Caporale — Lenovo
- Nigel Edwards — Hewlett Packard Enterprise
- Daniil Egranov — Arm Limited
- Philip Hawkes — Qualcomm Inc.
- Brett Henning — Broadcom Inc.
- Jeff Hilland — Hewlett Packard Enterprise
- Theo Koulouris — Hewlett Packard Enterprise
- Eliel Louzoun — Intel Corporation
- Donald Matthews — Advanced Micro Devices, Inc.
- Edward Newman — Hewlett Packard Enterprise
- Jim Panian — Qualcomm Inc.
- Scott Phuong — Cisco Systems, Inc.
- Viswanath Ponnuru — Dell Technologies
- Xiaoyu Ruan — Intel Corporation
- Nitin Sarangdhar — DMTF
- Bob Stevens — Dell Technologies

3 Introduction

This specification binds Secured Messages using SPDM specification DSP0277 to MCTP transport.

3.1 Document conventions

- Document titles appear in *italics*.
- The first occurrence of each important term appears in *italics* with a link to its definition.
- ABNF rules appear in a monospaced font.

29 # 4 Scope

30 This document binds Secured Messages using SPDM to MCTP transport and further defines the transport specific details as outlined in *Secured Messages using SPDM*.

31 ## 4.1 Normative references

32 The following referenced documents are indispensable for the application of this specification. For dated or versioned references, only the edition cited (including any corrigenda or DMTF update versions) applies. For references without a date or version, the latest published edition of the referenced document (including any corrigenda or DMTF update versions) applies.

- DMTF DSP0236, *MCTP Base Specification 1.3.0*, https://dmtf.org/sites/default/files/standards/documents/DSP0236_1.3.0.pdf
- DMTF DSP0239, *MCTP IDs and Codes 1.7.0*, https://www.dmtf.org/sites/default/files/standards/documents/DSP0239_1.7.0.pdf
- DMTF DSP0274, *Security Protocol and Data Model (SPDM) Base Specification 1.1.0*, https://www.dmtf.org/sites/default/files/standards/documents/DSP0274_1.1.0.pdf
- DMTF DSP0277, *Secured Messages using SPDM Specification 1.0.0*, https://www.dmtf.org/sites/default/files/standards/documents/DSP0277_1.0.0.pdf
- *ISO/IEC Directives, Part 2, Principles and rules for the structure and drafting of ISO and IEC documents*, https://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype
- IETF RFC5234, *Augmented BNF for Syntax Specifications: ABNF*, January 2008, https://tools.ietf.org/html/rfc5234
- *The Datagram Transport Layer Security (DTLS) Protocol Version 1.3, 2020-06-03 Draft*, https://datatracker.ietf.org/doc/draft-ietf-tls-dtls13/

33 ## 4.2 Terms and definitions

34 In this document, some terms have a specific meaning beyond the normal English meaning. This clause defines those terms.

35 The terms "shall" ("required"), "shall not," "should"("recommended"), "should not" ("not recommended"), "may," "need not" ("not required"), "can" and "cannot" in this document are to be interpreted as described in ISO/IEC Directives, Part 2, Clause 7. The terms in parentheses are alternatives for the preceding term, for use in exceptional cases when the preceding term cannot be used for linguistic reasons. Note that ISO/IEC Directives, Part 2, Clause 7 specifies additional alternatives. Occurrences of such additional alternatives shall be interpreted in their normal English meaning.

36 The terms "clause," "subclause," "paragraph," and "annex" in this document are to be interpreted as described in ISO/IEC Directives, Part 2, Clause 6.

37 The terms "normative" and "informative" in this document are to be interpreted as described in ISO/IEC Directives, Part 2, Clause 3. In this document, clauses, subclauses, or annexes labeled "(informative)" do not contain normative content. Notes and examples are always informative elements.

38 The terms that DSP0236, DSP0239, and DSP0274 define also apply to this document.

39 ## 4.3 Symbols and abbreviated terms

40 The abbreviations or notations defined in DSP0236, DSP0239, DSP0274, and DSP0277 apply to this document.

41 # 5 Secured messages over MCTP binding

42 To transport Secured Messages over MCTP, this specification utilizes the *Secured Messages using SPDM* specification DSP0277, version 1.0. The secured message format, as defined by DSP0277, becomes the message payload in MCTP message type 6, as illustrated, at a high level, in the Secured Message over MCTP figure.

43 **Secured Message over MCTP**

44

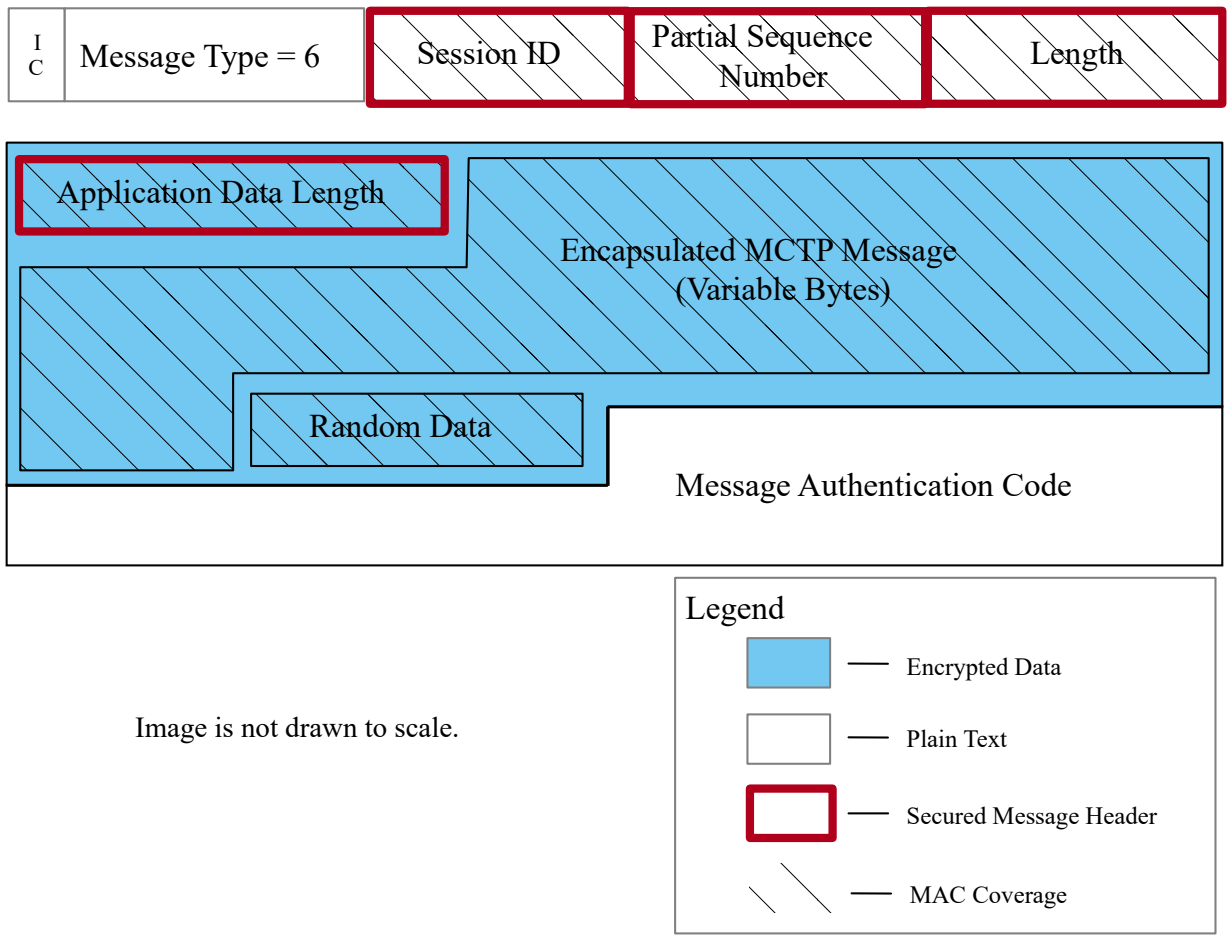

Image is not drawn to scale.

45 The Partial Sequence Number field is the Sequence Number field described in DSP0277. The Partial Sequence Number field shall be two bytes in length and shall contain the lower 16 bits of the Sequence Number. The field presence requirement for Partial Sequence Number shall always be present for Encryption and Message Authentication or Message Authentication Only sessions.

5.1 Sequence number

The sequence number shall be the full width as described in DSP0277. Because only the lower 16 bits of the sequence number is transmitted in the Partial Sequence Number field, the upper 48 bits of the sequence number shall be internally tracked.

Because part of the sequence number is transmitted, there may be additional actions that the receiver of the data needs to take. To avoid replay attacks, the receiver of a Secured Message should discard messages with sequence numbers that have already been successfully authenticated and decrypted. See DTLS 1.3 for further guidance.

5.2 MCTP encapsulated format

To allow any MCTP message to utilize Secured Messages, this specification encapsulates any MCTP message type other than type 6. This specification shall prohibit message type 6 to be encapsulated. This is analogous to self-encapsulation, which has no meaningful use case.

In the figure, the MCTP encapsulated data is the Secured Message's application data in MCTP context and it shall be concatenated in the following order: E-IC, Encapsulated Message Type, and Encapsulated Message Type Specific Data. The encapsulated MCTP message type shall not be message type 6.

The IC bit for message type 6 shall be zero.

53 # 6 Transport requirements or allowances

54 This clause and subclauses describe the various requirements or flexibility allowed at the MCTP transport layer.

55 ## 6.1 Transmission retries

56 The MCTP transport should retry the transmission of MCTP message to ensure reliable delivery or reception of an MCTP message.

57 ## 6.2 Certain SPDM message allowances

58 To take full advantage of asynchronous and bidirectional communication, as allowed by MCTP, both `KEY_UPDATE` and `HEARTBEAT` may be sent directly from an SPDM Responder without any other assistance such as a sideband alerting mechanism or SPDM's `GET_ENCAPSULATED_REQUEST` mechanism. This allowance shall only apply during the Application Phase of a secure session.

59 ## 6.3 ANNEX A (informative)

60 ### 6.3.1 Change log

Version	Date	Description
1.0.0	2020-09-18	

61 ## 6.4 Bibliography

62 DMTF DSP4014, *DMTF Process for Working Bodies 2.6*, https://www.dmtf.org/sites/default/files/standards/documents/DSP4014_2.6.pdf