P802.1AExx

Type of Project: Amendment to IEEE Standard 802.1AE-2018
Project Request Type: Initiation / Amendment
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft
Root Project: 802.1AE-2018

1.1 Project Number: P802.1AExx
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: IEEE Standard for Local and metropolitan area networks-Media Access Control (MAC) Security
Amendment: Ascon Cipher Suite

3.1 Working Group: Higher Layer LAN Protocols Working Group(C/LAN/MAN/802.1 WG)
3.1.1 Contact Information for Working Group Chair:
Name: Glenn Parsons
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Name: Jessy Rouyer
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3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LAN/MAN)
3.2.1 Contact Information for Standards Committee Chair:
Name: James Gilb
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3.2.2 Contact Information for Standards Committee Vice Chair:
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: Apr 2027
4.3 Projected Completion Date for Submittal to RevCom: Apr 2028

5.1 Approximate number of people expected to be actively involved in the development of this project: 15
5.2.a Scope of the complete standard: The scope of this standard is to specify provision of connectionless user data confidentiality, frame data integrity, and data origin authenticity by media access independent protocols and entities that operate transparently to MAC Clients.
5.2.b Scope of the project: This amendment specifies optional use of the Ascon-AEAD128 authenticated encryption with associated data scheme, as specified in NIST SP 800-232, as a MACsec (Media Access Control security) Cipher Suite.

5.3 Is the completion of this standard contingent upon the completion of another standard? No
5.4 Purpose: This document will not include a purpose clause.
Change to Purpose: ~~This standard will facilitate secure communication over publicly accessible LAN/MAN media for which security has not already been defined, and allow the use of IEEE Std 802.1X, already widespread and supported by multiple vendors, in additional applications.~~
5.5 Need for the Project: To promote interoperability and ensure Cipher Suite quality, IEEE Standard 802.1AE requires that the Cipher Suites used while claiming conformance are limited to those specified in the standard. There is a growing awareness for the need for data integrity, confidentiality, and origin authenticity for all network communication. NIST has selected the Ascon family of symmetric-key cryptographic primitives as ideal for resource-constrained environments, such as Internet of Things (IoT) devices, embedded systems, and low-powered sensors. This project adds support for an optional Ascon-

AEAD128 based Cipher Suite for IEEE Std 802.1AE (MACsec), specifying the necessary mapping between protected frame fields and parameters and the Key, Nonce, Tag, Associated Data, Plaintext, Cipertext, and Tag parameters specified in NIST SP 800-232.
5.6 Stakeholders for the Standard: Developers and users of networking equipment.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project? No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project? Yes

Explanation: Registration Authority Committee (RAC) review of previously reviewed text that may be included in this amendment is appropriate to assure terminology and descriptions of usage are correct and up to date.

7.1 Are there other standards or projects with a similar scope? No
7.2 Is it the intent to develop this document jointly with another organization? No

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8.1 Additional Explanatory Notes: #2.1 "Ascon" is a name, not an acronym, in the NIST (National Institute of Standards and Technology) publication and is nowhere expanded in that publication.

#5.2b "Ascon" and "Ascon-AEAD128" are names, not an acronyms, in the NIST publication although Ascon-AEAD is described as nonce-based authenticated encryption with associated data providing 128-bit security strength in the single-key setting.

#5.2b NIST is the National Institute of Standards and Technology (U.S. Department of Commerce).

#5.2b The full title of NIST SP 800-232 is:
"NIST Special Publication 800
NIST SP 800-232
Ascon-Based Lightweight Cryptography Standards for Constrained Devices
Authenticated Encryption, Hash, and Extendable Output Functions"
the current specification is an Initial Public Draft (November 2024), the culmination of work by NIST since 2019, and the international cryptographic community since 2013. Final publication is anticipated well before the expiration of the PAR for this project, which will reflect that final specification.

#5.4 In the generated PDF, but not in the form shown when editing the PAR, 5.4 has been automatically populated by MyProject to show deleted text. No revision of the base standard for this project, since and including the first approved in 2006, has include a Purpose clause. The original PAR, as submitted to Nescom included a section 13 with the text shown in 5.3 with the following heading:
" 13. Purpose of Proposed Project:
[Intended users and user benefits. REVISION STANDARDS - Purpose of the original
standard and reason for the standard's revision. Please be brief (less than 5
lines).]"
It appears the Section addressed the issue later reflected in Section 5.5 Need for the Project. Note further that the PARs shown when accessing https://standards.ieee.org/ieee/<standard designation> are not an accurate record of PARs at the time of approval. Apart from reorganization and repurposing of included material, they show the current Standards and Working Group Vice Chairs, not those responsible for the original PAR and the corresponding standard development.

#7.3 Adoption as an International Standard under the existing PSDO agreement. Refer to Jodi Haasz of IEEE Staff.