CMVP Approved Sensitive Security Parameter Generation and Establishment Methods:

CMVP Validation Authority Updates to ISO/IEC 24759

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Abstract

The approved sensitive security parameter generation and establishment methods listed in this publication replace the ones listed in ISO/IEC 19790 Annex D and ISO/IEC 24759 paragraph 6.16, within the context of the Cryptographic Module Validation Program (CMVP). As a validation authority, the CMVP may supersede Annex D in its entirety.

Keywords

Cryptographic Module Validation Program; CMVP; FIPS 140 testing; FIPS 140-3; ISO/IEC 19790; ISO/IEC 24759; sensitive security parameter establishment methods; sensitive security parameter generation; testing requirement; vendor evidence; vendor documentation.

Audience

This document is intended for use by vendors, testing labs, and the CMVP to address issues in cryptographic module testing.

Supplemental Content

Special Publication 800-140D, available at https://csrc.nist.gov/publications/detail/sp/800-140d/final, is the governing document until this revision is published as final. The updated final may have minor changes, depending on comments received.

Note to Readers

Two changes were made to this document from the first draft of Revision 1 – both editorial. The first was to section 6.2 (Sensitive security parameter generation and establishment methods) where the security function subsections were renamed, modified, and recategorized. The second was to move the following two standards from this document into SP 800-140C: SP 800-90A, SP 800-90B.
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1 Scope

This document specifies the Cryptographic Module Validation Program (CMVP) approved sensitive security parameter generation and establishment methods and supersedes those specified in ISO/IEC 19790 Annex D and ISO/IEC 24759 paragraph 6.16.

2 Normative references

This section identifies the normative references cited as ISO/IEC 19790 and ISO/IEC 24759. The specific editions to be used are ISO/IEC 19790:2012 and ISO/IEC 24759:2017. Please note that the version 19790:2012 referenced here includes the corrections made in 2015.

https://doi.org/10.6028/NIST.FIPS.140-3

3 Terms and definitions

The following terms and definitions supersede or are in addition to ISO/IEC 19790 and ISO/IEC 24759.

None at this time

4 Symbols and abbreviated terms

The following symbols and abbreviated terms supersede or are in addition to ISO/IEC 19790 and ISO/IEC 24759 throughout this document:

CCCS Canadian Centre for Cyber Security
CMVP Cryptographic Module Validation Program
CSD Computer Security Division
CSTL Cryptographic and Security Testing Laboratory
FIPS Federal Information Processing Standard
FISMA Federal Information Security Management/Modernization Act
NIST National Institute of Standards and Technology
SP 800-XXX NIST Special Publication 800 series document
5 Document organization

5.1 General

Section 6 of this document replaces the approved sensitive security parameter generation and establishment methods of ISO/IEC 19790 Annex D and ISO/IEC 24759 paragraph 6.16.

5.2 Modifications

Modifications will follow a similar format to that used in ISO/IEC 24759. For additions to test requirements, new Test Evidence (TEs) or Vendor Evidence (VEs) will be listed by increasing the “sequence_number.” Modifications can include a combination of additions using underline and deletions using strikethrough. If no changes are required, the paragraph will indicate “No change.”

6 CMVP-approved sensitive security parameter generation and establishment requirements

6.1 Purpose

This document identifies CMVP-approved sensitive security parameter generation and establishment methods. It precludes the use of all other sensitive security parameter generation and establishment methods.

6.2 Sensitive security parameter generation and establishment methods

6.2.1 Transitions

Barker EB, Roginsky AL (2019) Transitioning the Use of Cryptographic Algorithms and Key Lengths. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Special Publication (SP) 800-131A, Rev. 2. https://doi.org/10.6028/NIST.SP.800-131Ar2

- Sections relevant to this Annex: 1, 5, 6, 7, and 8.

6.2.2 Symmetric Key Generation

Barker EB, Roginsky AL, Davis R (2020) Recommendation for Cryptographic Key Generation. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Special Publication (SP) 800-133, Rev. 2. https://doi.org/10.6028/NIST.SP.800-133r2

6.2.3 Key-Based Key Derivation

6.2.4 Password-Based Key Derivation


6.2.5 Asymmetric Key-Pair Generation


- DSA, RSA, and ECDSA.

Note. For the purposes of the key establishment techniques, the Digital Signature Standard is only used to define the domain parameters and the (private, public) key-pair generation.

6.2.6 Key Agreement


6.2.7 Key Agreement Key Derivation

Barker EB, Chen L, Davis R (2020) *Recommendation for Key-Derivation Methods in Key-Establishment Schemes*. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Special Publication (SP) 800-56C, Rev. 2. https://doi.org/10.6028/NIST.SP.800-56Cr2

6.2.8 Protocol-Suite Key Derivation

Dang QH (2011) *Recommendation for Existing Application-Specific Key Derivation Functions*. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Special Publication (SP) 800-135, Rev. 1. https://doi.org/10.6028/NIST.SP.800-135r1


6.2.9 Key Transport

6.2.9.1 Key Wrapping

Dworkin MJ (2012) *Recommendation for Block Cipher Modes of Operation: Methods for Key Wrapping*. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Special Publication (SP) 800-38F. https://doi.org/10.6028/NIST.SP.800-38F

6.2.9.2 Key Encapsulation


6.2.10 Other sensitive security parameter establishment methods

Sensitive security parameter establishment methods allowed in the approved mode with appropriate restrictions are listed in FIPS 140-3 *Implementation Guidance* Section D.A.
## Document Revisions

<table>
<thead>
<tr>
<th>Edition</th>
<th>Date</th>
<th>Change</th>
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| Revision 1 | [Date] | **6.2 Sensitive security parameter generation and establishment methods**  
Added/Modified: Security function subsection headers. |
|          |       | **6.2.2 Symmetric Key Generation**  
Added: SP 800-133 Revision 2, June 2020  
Removed: SP 800-133 Revision 1, July 2019 |
|          |       | **6.2.7 Key Agreement Key Derivation**  
Added: SP 800-56C Revision 2, August 2020 |
|          |       | **6.2.8 Protocol-Suite Key Derivation**  
Added: RFC 8446, Section 7.1, August 2018 |
|          |       | **6.2.10 Other sensitive security parameter establishment methods**  
Added: FIPS 140-3 Implementation Guidance Section D.A |