National Institute of Standards and Technology
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Cryptographic Module Validation Program (CMVP) Status and Future Plans

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Outline

- FIPS 140 Conformance Validation – Background
- FIPS 140 Conformance Validation – Previous Approach
- Queue Issues Created
- Queue Reducing Projects & Results
- Future CMVP Challenges

Conformance Validation - Background

The FIPS 140 Standard is Large

- ISO 19790 is 85 pages
- ISO 24759 (associated test requirements) has ~650 test/evidence item pairs
- Over 30% is related to correctly describing cryptographic related functionality

The FIPS 140 Standard is Broad - Modules come in many shapes and sizes

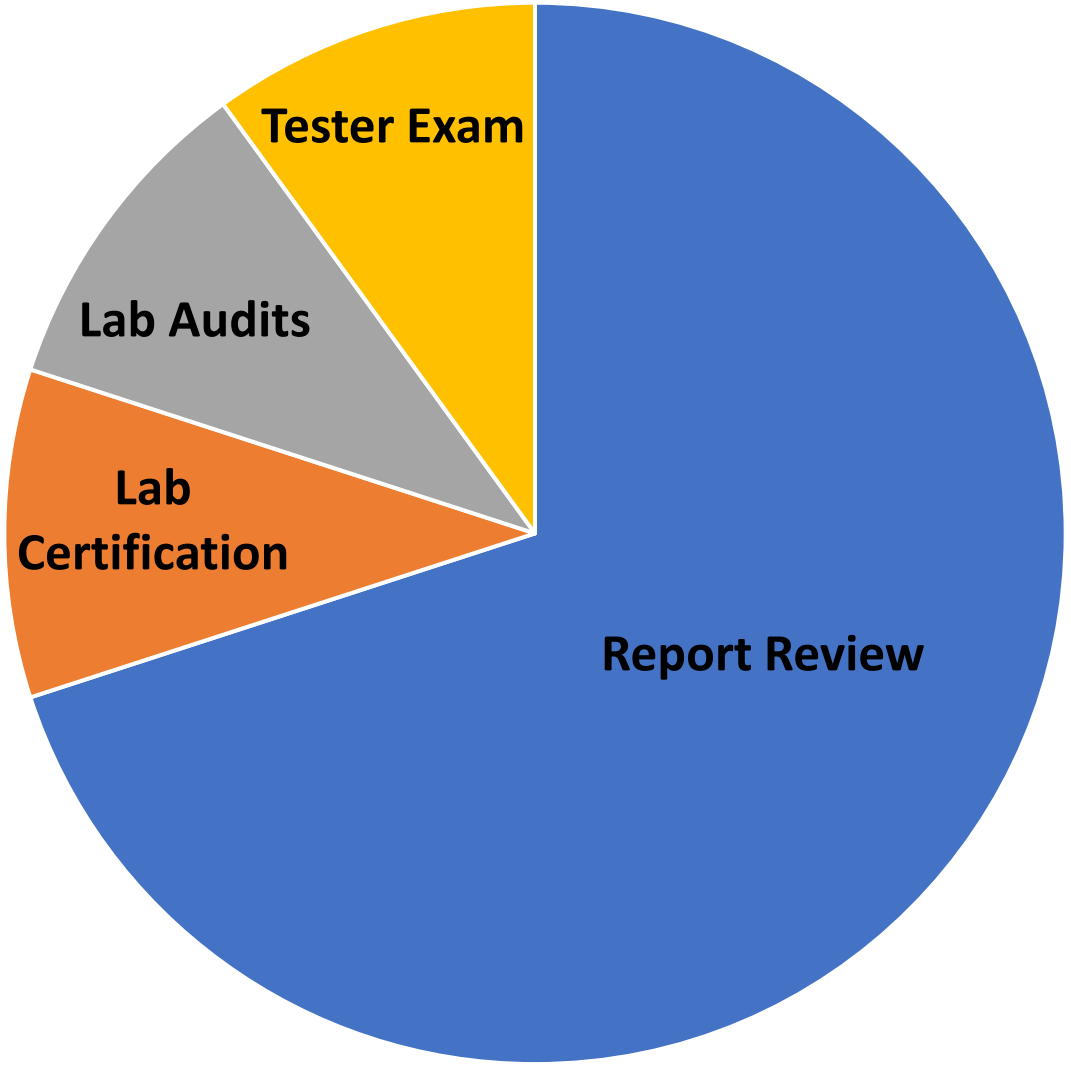
- Types: Hardware, Software, Firmware, Hybrid
- Boundary Definitions: Entire Devices, Cryptographic Components, Libraries, Specific Algorithm Implementations, etc.

- Conformance Testing by Certified Laboratories is Complex
  - CMVP Validation of Conformance Testing is Challenging

Conformance Validation – Previous Approach

How to provide trust that modules conform to the standard?

- Emphasis on Report Review
  - Two Reviews – NIST and CCCS
- Manhours Required to Scale
  - Unstructured information (PDF) led to manual processes
  - Multiple representations of information led to tedious and editorial work
- Report review was performed by junior personnel
  - Inconsistent results



Queue Issues Created

Total Submitted Modules Increased

Algorithm and Entropy Standards Changed – Hard End Dates

- SP800-90B – Entropy (Nov 2020)
- SP800-56Ar3 – Key Agreement (Dec 2020)

FIPS 140-3 (Sep 2021)

- Based on ISO Standards
- New module and report submission system

Queue Time -> Greater than 2 years, after lab testing

Queue Reducing Projects

Separate and Reusable Entropy Validation – 2021

Structured and Reusable Cryptographic Description – 2023/2024

- Reduce editorial errors
- Provide well-defined data descriptions
- Utilizing existing algorithm testing results
- Automate cryptographic configuration conformance
- Automate filtering of requirements to specific implementation

Queue Reducing Projects Continued

Standardize public Security Policy document

Structured and Shared Report Review Checklist

- Filtered related to module type

Report Review Process Changes

- All CMVP personnel involved
- Targeted review areas
  - Initial and POC
  - Security Priority Levels
  - Weekly Meetings

Queue Reducing Results & Future

Results

- As of January 1, 2026, queue backlog is 180 days
- Average of last 30 validations: 348 days
- Near-Zero Backlog Goal: July 1st, 2026

Future

- Expand structure and automated validation
- Create template structure sets for similar cryptographic functionality
- Move trust and assurance activities to certification, audits, etc.

Future CMVP Challenges

Need to move from reactive to proactive

- New version of ISO standards was published in 2025
- Increase participation in ISO standard updates
- Earlier guidance for algorithm transitions
- Greater outreach to customers and vendors to keep up with technology changes

Create personnel and funding stability

- We receive significant funding through validation cost recovery
- Significant decrease of federal employees over the past three years
- Three of those recently from VERA/VSIP actions

Questions and Comments