



**Cochise County Elections Department, AZ
Hash Verification Project Report
June 4, 2026**



U.S. Election Assistance Commission

Field Services Program

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Table of Contents

Purpose	3
Background	3
Definitions	4
References	6
Participants	7
U.S. Election Assistance Commission	7
Arizona Secretary of State Elections Services	7
Cochise County Elections Department	7
Election Systems & Software (ES&S)	7
Roles	7
U.S. Election Assistance Commission (EAC)	7
Arizona Secretary of State Elections Division	7
Cochise County Elections Department	7
Election Systems & Software (ES&S)	8
Scope of Review	8
Device Sample Size	8
Confirm Application of ES&S's EVS 6.3.0.0 Certified Procedures	8
Voting System Conformance Review	8
Hash Verification Review	8
Physical Voting System and Facility Security Observations	9
Pre-election Procedure Observations	9
Results and Observations	9
ES&S Certified Procedures	9
System Conformance	9
Hash Verification	10
Physical Voting System and Facility Security Observations	11
Pre-election Procedure Observations	12
Suggestions	13



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Hash Verification Program.....	13
Conclusions	13
Recognition	13
Cochise County Elections Department	13
Arizona Secretary of State.....	14
Election Systems & Software (ES&S)	14



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Purpose

The U.S. Election Assistance Commission (EAC), in partnership with the Arizona Secretary of State Elections Services and the Cochise County Elections Department, performed a review of Cochise County's voting system on September 29-30, 2025. The purpose of this review was to verify that the system is identical to the one certified by the EAC. With that goal in mind, the EAC set out to:

1. observe and verify that the certified Election Systems and Software (ES&S) verification procedures were followed during the review
2. perform a scope of certification review of Election Voting System (EVS) 6.3.0.0, as fielded at the Cochise County Elections Department
3. observe, assist, and document a hash verification of a sample of the EVS 6.3.0.0 voting equipment that is used, and
4. observe the physical voting system, facility security measures, logic and accuracy testing, as well as prescribed best practices used during the project

Background

The EAC's Testing and Certification Program assists 50 states, five U.S. territories, and the District of Columbia by providing voting machine testing and certification. This program is a requirement of the Help America Vote Act (HAVA) of 2002, legislation that created the EAC and mandated that the Commission provide certification, decertification, and recertification of voting systems, as well as the accreditation of voting system testing laboratories and quality monitoring of fielded voting systems. This legislation marked the first time the federal government provided oversight into these activities, allowing states to procure new certified voting systems without the added expense of independent testing and certification.

The EAC's Field Services Program (FSP) is tasked with implementing the Testing and Certification's Quality Monitoring Program (QMP). One element of QMP is fielded system conformance reviews, which the EAC may conduct upon invitation or with permission from the state or local election authority. The purpose of these reviews is to ensure voting systems used by jurisdictions are identical to those tested by an EAC-accredited Voting System Test Laboratory (VSTL) and certified by the EAC.

The EAC's Testing and Certification Program is the critical first step in establishing a chain of custody over the voting systems used in our nation's elections. A registered voting system manufacturer that wishes to have their system tested and certified by the EAC must provide their software code to an EAC-accredited VSTL for review



U.S. Election Assistance Commission

Field Services Program

633 3RD Street NW, Suite 200 | Washington, DC 20001

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and testing. The VSTL uses the manufacturer's code to build the system in a secure and safe environment and subsequently tests the system against the Voluntary Voting System Guidelines (VVSG). Once testing is completed and the VSTL determines the system conforms with all applicable requirements, the voting system may be certified by the EAC. At this point, the VSTL generates the trusted hash values for the system that will be used later to verify the voting system. This ensures that the system deployed in any jurisdiction is identical to the system reviewed and tested by the VSTL and certified by the EAC.

ES&S's EVS version 6.3.0.0 system was certified and issued a Scope of Certification by the EAC on November 17, 2022. The EVS 6.3.0.0 system used by the Cochise County Election Department includes specific hardware and software components which include a standalone Election Management System (EMS) workstation, central count scanners/tabulators, voting location scanners/tabulators, ballot marking devices (BMD), secure flash drives, and other components of the certified system.

Definitions

Ballot Marking Device (BMD): A device that permits contest options to be reviewed on an electronic interface, produces a human-readable paper ballot, and does not make any other lasting record of the voter's selections. The BMD can be used as an accessibility device when paired with an audio voting and/or sip-and-puff component that can allow voters with disabilities to be able to vote independently.

Central Count Scanner: A high-speed, digital ballot scanner typically used at a central count facility or election office to process a high volume of paper ballots. A central scanner uses digital cameras and imaging systems to read the front and back of each ballot, analyze each ballot image, verify ballot validity, and identify marks on the ballot.

Chain of Custody: A process used to track the movement and control of an asset through its lifecycle by documenting each person and organization who handles an asset, the date/time it was collected or transferred, and the purpose of the transfer.

Conformance Review: A conformance review includes documenting all components of a voting system that are used and present to ensure that the items are listed on the Scope of Conformance in the EAC's Certification.

Election Management Guidelines (EMG): The guidelines were created to assist state and local election officials in effectively managing and administering elections.



U.S. Election Assistance Commission

Field Services Program

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These guidelines complement the technical standards for the VVSG for voting equipment. Each chapter of the EMG is vetted by recognized election experts and offers practical discussions of election issues, including examples and helpful tips like physical security and chain of custody. The guidelines' goal is to familiarize election officials with election processes and challenges they will likely encounter during their tenure and are designed to be accessible to election officials at all levels.

Election Management System (EMS): Set of processing functions and databases within a voting system that defines, develops and maintains election databases, performs election definitions and setup functions, formats ballots, counts votes, consolidates and reports results, and maintains audit trails.

Engineering Change Order (ECO): A change to a certified voting system's hardware, software, technical data package, or other data, the nature of which does not materially alter the system's reliability, functionality, capability, or operation. Such changes require VSTL review and endorsement, and EAC approval.

Help America Vote Act (HAVA): Act passed by Congress in 2002 to make sweeping reforms to the nation's voting process. HAVA addresses improvements to voting systems and voter access that were identified following the 2000 presidential election.

Hashing: Hashing is the process of computing a unique alphanumeric value on a data file or electronic message such as text, numbers, photos, programs, or files, creating a fixed-length string of letters and numbers through a mathematical algorithm.

Hash Value: A hash value is a signature that identifies some amount of data, usually a file or message. Cryptographic hashing algorithms are one-directional mathematical formulae designed to generate a unique value for every possible input — in this case, the data. Common algorithms include MD5, SHA-1, SHA-256, and SHA-512.

Hash Verification Review: A hash verification review involves generating the hashes from a voting system component's software and verifying those hashes against a trusted source. This review provides assurance that the system is the same as that which was certified by the EAC and that there has been no manipulation of the program files.

Logic and Accuracy (L&A) Testing: Ensures the election and voting equipment function performs as expected and accurately counts votes as marked.



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Scope of Certification: Documentation created by the EAC at the end of the testing and as part of certification. This document details the configuration of the system that underwent testing and can be used as a checklist in evaluating a fielded system.

Technical Data Package (TDP): Manufacturer documentation relating to the voting system, which can include manuals, description of components, and details of architectural and engineering design.

Voting System Testing and Certification Program Manual: The primary purpose of this manual is to provide clear procedures to manufacturers for the testing and certification of voting systems to the VVSG consistent with the requirements of HAVA Section 231(a)(1).

Voting System Test Lab (VSTL): Laboratories accredited by the EAC to test voting systems to EAC-approved voting system standards.

Voluntary Voting System Guidelines (VVSG): A set of specifications and requirements against which voting systems can be tested to determine if they meet the required standards. Developed, adopted, and published by the EAC, the guidelines are identified by version number and date. Some factors examined under these tests include functionality, accessibility, and security capabilities. While HAVA mandates the EAC to develop and maintain these requirements, adhering to the VVSG is voluntary except in select states where it is required by their own state law.

References

- A. [EAC Scope of Certification for ES&S EVS 6.3.0.0](#)
- B. [EAC Testing and Certification Program Manual](#)
- C. ES&S's EVS 6.3.0.0 Technical Data Package (Commercial/Proprietary Information)
- D. [Help America Vote Act \(HAVA\)](#)
- E. [EAC's Election Management Guidelines](#)
- F. [EAC Chain of Custody Best Practices](#)
- G. [EAC Logic and Accuracy Quick Start Guide](#)
- H. [Voluntary Voting System Guidelines Version 1.0 \(2005\), Volume 1](#)



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Participants

U.S. Election Assistance Commission

- Thomas Freitag, Field Services Specialist
- Frank Galizia, Field Services Specialist

Arizona Secretary of State Elections Services

- State Elections Director
- Elections Technology, Data and Security Specialist Lead

Cochise County Elections Department

- Deputy County Administrator
- Elections Director

Election Systems & Software (ES&S)

- Senior Account Manager

Roles

U.S. Election Assistance Commission (EAC)

The EAC provided project scope, guidance, and coordination for the fielded system review to the Cochise County Elections Department. The EAC staff conducted a conformance review on a sample of voting system devices at the County Elections Office to ensure conformance with the EAC Scope of Certification. Secondly, the EAC observed and documented the results and processes used during voting system hash verification. Lastly, the EAC observed and noted best practices such as voting system and facility security measures, and L&A testing.

Arizona Secretary of State Elections Division

The Arizona Secretary of State Elections Division supported the effort by granting Field Services permission to engage directly with local jurisdictions. The state provided oversight and remained available to offer guidance and support, as necessary, throughout the planning and execution of the review.

Cochise County Elections Department

The Cochise County Elections Department provided technical staffing needed to conduct the hash verification review and provided access to voting equipment and facilities. During the review, they provided constant oversight of their election equipment to maintain their system's chain of custody. In addition, Cochise County



U.S. Election Assistance Commission

Field Services Program

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also provided the EAC with detailed specifics on how they conduct their elections and use their voting system.

Election Systems & Software (ES&S)

ES&S partnered with the EAC and the Cochise County Elections Department during the review process. They provided training prior to the review on how to perform hash verifications in accordance with their EAC-approved procedures to the Cochise County Elections Department. In addition, they provided additional onsite technical expertise and customer support during the entire process. ES&S did not have any direct interaction with the County Election Office's voting equipment.

Scope of Review

The scope of review covers what the EAC examined, how it was examined, and the objectives achieved during the review process of this project. The scope of review provides the foundation on which results were obtained, and observations or suggestions were provided.

Device Sample Size

A sample of equipment to be inspected was agreed upon by the EAC in partnership with the Cochise County Elections Department. This included the county's EVS 6.3.0.0 standalone workstation with the EMS, all of the county's central count scanners/tabulators including one DS450, one DS850, and two DS950s (EVS 6.5.0.0 recently purchased for a system upgrade) all 23 of the county's DS200 voting location scanners/tabulators and a random sample size of seven ExpressVote BMDs utilized in the county.

Confirm Application of ES&S's EVS 6.3.0.0 Certified Procedures

EAC staff observed and documented that the verification procedures applied during the review by the Cochise County Elections Department are identical to the certified ES&S verification procedures as published in the Technical Data Package (TDP).

Voting System Conformance Review

During the conformance review process in Cochise County, the EAC reviewed and verified the ES&S voting system devices used at the County Elections Department to ensure they fall within the EAC's Scope of Certification as certified on November 17, 2022, and any other changes to the system configuration made through an EAC approved engineering change order (ECO), if applicable.

Hash Verification Review

The EAC observed the setup of the EVS 6.3.0.0 verification laptops with Ubuntu and the creation of the Election Qualification Code (EQC), Scripting, and Firmware



U.S. Election Assistance Commission

Field Services Program

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Export USB flash drives for the verification process. The EAC observed and documented the results of the hash verification performed by the county on the EMS, ExpressVote devices, DS200s, DS450, DS850, and DS950s including serial numbers of the equipment and noting the roles, protocols, and procedures used throughout the process. The hash verification procedure used during the review followed the system verification instructions created by ES&S under the VVSG 1.0 as certified by the EAC and outlined in the EVS 6.3.0.0 TDP.

Physical Voting System and Facility Security Observations

The EAC observed the physical voting system and facility security processes and procedures implemented by the Cochise County Elections Department to ensure that they met industry's best practices, as outlined in the EAC Election Management Guidelines, and are adequate to ensure robust security of the voting system and facility. Specific measures observed included the use of tamper-evident seals, restricted badge access to sensitive areas, video surveillance, live streamed office areas, and strict adherence to two person teams when accessing or operating critical components of the voting system. The county also maintained protocols requiring multi-party representation in designated secure areas to ensure transparency, accountability, and continuous oversight.

Pre-election Procedure Observations

The EAC observed pre-election public L&A Testing. These procedures were reviewed to ensure they met industry best practices, as outlined in the EAC Election Management Guidelines and the EAC Logic & Accuracy Quick Start Guide. The processes observed were found to be adequate for maintaining robust accuracy of the voting system. Specific measures observed included multi-party observers, transparency in procedures, and thorough validation of equipment functionality.

Results and Observations

ES&S Certified Procedures

All system verification procedures followed by the Cochise County Elections Department were observed by EAC personnel to ensure compliance with ES&S's EVS 6.3.0.0 TDP.

System Conformance

Standalone Workstation EMS

The Dell OptiPlex standalone workstation was reviewed for conformance, along with all proprietary and Commercial off-the-Shelf (COTS) software and hardware, including proprietary USB devices, were reviewed and found to be compliance with the EVS 6.3.0.0 Scope of Certification.



U.S. Election Assistance Commission

Field Services Program

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DS200 Voting Location Scanners/Tabulators

The 23 DS200 models in the county's inventory reviewed and matched the Scope of Certification. All had an EAC mark of certification present which was clear and visible.

DS450 Central Count Scanners/Tabulators

The county's DS450 was reviewed, and the model number matched the Scope of Conformance. All proprietary and COTS components including cart, USBs, printer, and battery backup were reviewed and found to be functional and within the Scope of Certification. An EAC mark of certification was present, clear and visible.

DS850 Central Count Scanners/Tabulators

The county's DS850 was reviewed and the model number matched the Scope of Certification. All proprietary and COTS components including cart, USBs, printer, and battery backup were reviewed and found to be functional and within the Scope of Certification. An EAC mark of certification was present, clear and visible.

DS950 Central Count Scanners/Tabulators

Both of the county's DS950s were reviewed and the model numbers matched the Scope of Certification. All proprietary and COTS components including carts, USBs, printers, and battery backups were reviewed and found to be functional and within the Scope of Certification. Both had EAC marks of certification present which were clear and visible.

ExpressVote Ballot Marking Devices

The seven ExpressVote models in the county's inventory that are BMDs were reviewed and matched the Scope of Certification. The components, including the Universal Voting Consoles (UVC) 98-00077 v. 2.0 for each device were also confirmed and all fell within Scope of Certification. The seven ExpressVote devices reviewed had EAC marks of certification present which were clear and visible.

Hash Verification

Standalone Workstation EMS

The Dell OptiPlex standalone workstation was reviewed, and the hashes were generated and verified against the trusted hashes. Hashes for the workstation were confirmed using ES&S' EVS 6.3.0.0's certified method of verifying. No discrepancies were identified.

DS200 Voting Location Scanners/Tabulators

The DS200 software was extracted from the voting location scanners/tabulators using approved USB drives and pursuant to ES&S system verification procedures.



U.S. Election Assistance Commission

Field Services Program

633 3RD Street NW, Suite 200 | Washington, DC 20001

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The hashes were calculated and verified using the verification laptop. The hashes generated for the DS200s matched the trusted hashes. No discrepancies were identified.

DS450 Central Count Scanners/Tabulators

The DS450 software was extracted from the central count scanner/tabulator using approved USB drives and pursuant to ES&S system verification procedures. The hashes were calculated and verified using the verification laptop. The hashes generated for the DS450 matched the trusted hashes. No discrepancies were identified.

DS850 Central Count Scanners/Tabulators

The DS850 software was extracted from the central count scanner/tabulator using approved USB drives and pursuant to ES&S system verification procedures. The hashes were calculated and verified using the verification laptop. The hashes generated for the DS850 matched the trusted hashes. No discrepancies were identified.

DS950 Central Count Scanners/Tabulators

The DS950 software was extracted from the central count scanner/tabulator using approved USB drives and pursuant to ES&S system verification procedures. The hashes were calculated and verified using the verification laptop. The hashes generated for the DS950s matched the trusted hashes. No discrepancies were identified.

ExpressVote Ballot Marking Devices

The ExpressVote software was extracted from the seven randomly selected ballot marking devices using certified USB drives and pursuant to ES&S procedures. The hashes were calculated and verified using the verification laptop. The hashes generated for each ExpressVote matched the trusted hashes. No discrepancies were identified.

Physical Voting System and Facility Security Observations

Cochise County Facility and Voting System Security

The Cochise County Elections Department maintained restricted access to the building, sensitive voting system equipment, and designated work areas. Interior doors were secured with electronic badge access, and all election staff were easily identifiable by official name badges. Security cameras were installed throughout the facility, with additional cameras configured for livestreaming in designated areas. Members of the public were required to sign physical security logs when entering and exiting the facility.



U.S. Election Assistance Commission

Field Services Program

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Secure areas were accessible only to authorized personnel with tiered badge credentials. The EMS and central count scanners and tabulators were stored in a secure room with further entry and exit logs required. Port blockers and tamper evident seals were utilized throughout. Ballot storage and processing areas had further restrictions requiring multiple staff members or multi-party representatives.

Throughout the observation, staff demonstrated a strong commitment to established security protocols and exhibited a clear understanding of the importance of maintaining both facility and system integrity. Logic and accuracy procedures were open to public observation in an effort to ensure transparency.

Pre-election Procedure Observations

Logic and Accuracy (L&A) Testing

For the public L&A testing conducted for the November 4, 2025, Election, Cochise County prepared a test deck that included each ballot style. The election ballot consisted of questions only, no candidates. The county utilizes ExpressVote BMDs and DS200's as the primary voting method for in person voting. The vote pattern on each ballot was designed to ensure that each contest received a unique and predetermined vote total.

For the DS200s, the test deck consisted of preprinted, ExpressVote marked ballots and included overvoted, undervoted, and blank ballots. County staff activated the election on the DS200s and scanned the complete pre-marked test deck into multiple units. After scanning, each DS200 was properly closed, and a paper tape was printed. The results were reviewed against the expected values in the test matrix and matched exactly.

For the DS450 the ballots consisted of ExpressVote marked provisional ballots that included overvoted, undervoted, and blank ballots. The DS850 Central Count Scanners/Tabulators, the test deck consisted of a mix of preprinted and hand marked mail ballots including overvoted, undervoted, and blank ballots. County staff scanned the test deck into each central count scanner. Once scanning was completed, the election was closed, flash drives from the DS200's were imported, and the results were tabulated and printed, and the outputs were compared to the expected results outlined in the test matrix. All results matched exactly, confirming the system's accuracy.

Chain of Custody

Stringent chain of custody procedures were observed at the Cochise County Elections Department, in alignment with best practices outlined in the EAC Chain of Custody Best Practices guide. During all interactions with voting equipment a minimum of two staff were present. Sign-in sheets were kept for visitors to the office, observers of the public L&A testing, and access to ballot scanning/storage areas. At the conclusion of the L&A testing verified results were signed by multi-



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Field Services Program

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party representatives in addition to election staff as witnesses. The results were then sealed and secured for retention and auditability. Multi-team procedures were in place for secure areas of the office under livestream, reinforcing Cochise County's commitment to secure and accountable election processes.

Suggestions

Hash Verification Program

The EAC recommends that Cochise County Elections Department implement a hash verification program conducted on a sampling of all equipment to regularly conduct hash verifications including during pre-election and post-election testing of voting system devices or upon system upgrades.

Conclusions

The ES&S EVS 6.3.0.0 procedural, conformance, hash, and security review conducted September 29-30, 2025, yielded no findings, observations, or issues that could potentially impact the security of the system as deployed. All ES&S system verification procedures, as certified, were followed during the review. The EMS workstation, DS200s, DS450, DS850, DS950s, and ExpressVote components that were reviewed fell within the Scope of Certification or applicable EAC approved ECOs. The EMS workstation, DS200s, DS450, DS850, DS950s, and ExpressVote hashes were reviewed, and all matched the EAC trusted hashes in accordance with ES&Ss EAC-certified verification procedures. Therefore, the EAC can independently confirm that the software compared is equivalent to, and the hardware inspected is consistent with, the Scope of Certification issued by the EAC for the EVS 6.3.0.0 voting system. Cochise County has successfully taken on a critical security tool with hash verification and is successfully standing this up as a pre-election practice.

Recognition

Cochise County Elections Department

The EAC's Field Services Team would like to express its sincere appreciation to the County Election Director for their support and permission to conduct this review in Cochise County. Special thanks are also extended to the Cochise County Election support staff for their instrumental role in facilitating the project and providing the resources necessary to ensure its success. Their leadership and commitment to secure, accurate, and accessible elections are commendable. Cochise County proactively reached out to the EAC to participate in this initiative. Their early engagement and willingness to collaborate demonstrate a strong commitment to strengthening election administration and transparency. The EAC also recognizes



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Field Services Program

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and appreciates the Cochise County Board of Supervisors for authorizing this observation and supporting the county's participation in this initiative. Their approval enabled full access to review the county's processes and produce this report. The EAC looks forward to continued collaboration with Cochise County and appreciates their contribution to advancing election integrity across the State of Arizona.

Arizona Secretary of State

We extend our sincere gratitude to the Arizona Secretary of State's Elections Services Division for authorizing the EAC's Field Services Program to collaborate with local county election departments. This partnership reflects the Secretary of State's strong commitment to preserving the integrity, transparency, and security of the electoral process across Arizona. By facilitating our engagement with county officials, the State Election Director has enabled the EAC to support and contribute meaningfully to the administration of fair and secure elections throughout the state.

Election Systems & Software (ES&S)

The EAC's Field Services Team would like to thank the Senior Account Manager and the rest of the staff at ES&S for the training and expertise they provided to the Cochise County Elections Department prior to and during the project. Their customer support with Cochise County Elections Department helped ensure the review process went smoothly and that in the event Cochise County had any issue, they would be there to assist.