



**Scott County Auditor's Office, Iowa  
Hash Verification Project Report  
August 27-28, 2026**



# U.S. Election Assistance Commission

## Field Services Program

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Helping America Vote

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## Purpose

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The U.S. Election Assistance Commission (EAC), in partnership with the Iowa Secretary of State's office and Scott County Auditor's Office, performed a review of Scott County's voting system on August 27-28, 2025. The purpose of this review was to confirm that the system certified by the EAC was identical to the one in use by the county. To do so, the EAC:

1. Observed and verified the application of certified verification procedures.
2. Performed a conformance review of the system as deployed in the county.
3. Observed, assisted with, and documented hash verification on a sample of voting equipment, and
4. Observed the physical security measures for the voting system and facility during the project.

## Background

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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 the 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 the 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 its system tested and



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certified by the EAC must provide its software code to an EAC-accredited VSTL for review 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.

Elections Systems and Software (ES&S) ES&S Voting System (EVS) 6.3.0.0 voting system was certified and issued a Scope of Certification by the EAC on November 11, 2022. The EVS 6.3.0.0 system used by Scott County includes specific hardware and software components that are configured for the jurisdiction, which includes the Electionware/Election Management System (EMS) standalone workstation, DS200 precinct scanners/tabulators, ExpressVote ballot marking devices, DS450 central count scanners/tabulators, and other components of the certified system.

## Definitions

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**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/Tabulator:** 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 consistent with the EAC's Scope of Certification for the system.



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**Election Management Guidelines (EMG):** The guidelines were created to assist state and local election officials in effectively managing and administering elections. 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 including physical security and chain of custody. The EMG's goal is to familiarize election officials with election processes and challenges they will likely encounter during their tenure and is 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 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.

**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 what was certified by the EAC and that there has been no manipulation of the program files.

**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 into a fixed-length string of letters and numbers through a mathematical algorithm.

**Help America Vote Act (HAVA):** Act passed by the U.S. 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 election.



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**Quality Monitoring Program (QMP):** The QMP is a post-certification element of the EAC's Testing and Certification Program. QMP consists of several tools, one of which is fielded system reviews. These reviews are designed to ensure systems used by election jurisdictions are identical to those tested and certified by the EAC, monitor the completeness and adequacy of testing with the desired performance in fielded voting systems, and monitor the effectiveness of the VVSG.

**Sample Review:** A review of selected parts or devices from a voting system and its components. This review offers a representative evaluation, providing a solid basis for drawing a conclusion about the overall system.

**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.

**Voluntary Voting System Guidelines (VVSG):** A set of specifications and requirements against which voting systems can be tested to determine if they meet required standards. 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.

**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).

## References

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[EAC Scope of Certification for ES&S EVS 6.3.0.0](#)

[Testing and Certification Program Manual](#)

ES&S EVS 6.3.0.0 Technical Data Package

[CISA Physical Security Guidelines](#)

[Help America Vote Act \(HAVA\)](#)



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[EAC Election Management Guidelines](#)

[EAC Chain of Custody Best Practices](#)

[Voluntary Voting System Guidelines Version 1.0 \(2005\), Volume 1](#)

## Participants

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### **U.S. Election Assistance Commission (EAC)**

Roger Piha-Paul, Field Services Specialist

Thomas Freitag, Field Services Specialist

### **Iowa Secretary of State's Office**

Dylan Lynch, Election Security Specialist

### **Scott County Auditor's Office**

Kerri Tompkins, Scott County Auditor

James Martin, Elections Manager

Scott County Designated Employees

### **Election Systems and Software (ES&S)**

Timothy J. Hallett, JD - Vice President, Certification

Rick Baden - Federal Certification Specialist

ES&S Customer Support Team

## Roles

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### **U.S. Election Assistance Commission**

The EAC provided project scope, guidance, and coordination for the fielded system review. This process involved facilitating introduction and exit interviews, as well as offering technical support to Scott County and the Iowa Secretary of State's office. During the initial phase, EAC staff performed a conformance review of all components from a representative sample of voting system devices to verify compliance with EAC certification requirements. Subsequently, the EAC observed and documented both the procedures and outcomes associated with the voting



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system hash verification review. Finally, the EAC assessed and recorded general security measures, policies, and procedures related to both the voting systems and facilities.

### **Iowa Secretary of State's Office**

The Iowa Secretary of State's office coordinated the review and supplied technical resources and expertise. During the configuration and hash review, they oversaw procedures, verified election equipment integrity, and offered guidance as needed.

### **Scott County Auditor's Office**

The Scott County Auditor's Office supplied the technical personnel required for the hash verification review and provided access to voting equipment and facilities. Throughout the process, they maintained continuous oversight of their election equipment to preserve the system's chain of custody. Furthermore, Scott County provided the EAC with comprehensive details regarding their operations, the administration of their elections, and the utilization of their voting system.

### **Election Systems and Software (ES&S)**

ES&S worked with the EAC, the Iowa Secretary of State's Office, and the Scott County Auditor's Office during the review. They trained state and county officials on hash verifications per EAC-approved procedures and provided technical support and coordination throughout the process.

## **Scope of Review**

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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 recommendations were provided.

### **Device Sample Size**

The EAC, in partnership with the Scott County Auditor's Office and the Iowa Secretary of State, selected a random sample of equipment for inspection based on a risk-based approach. Sample size included Scott County's ES&S Standalone Workstation, four or 100% of the DS450 central count scanners/tabulators, 34 of 72 or 47% of the DS200 scanners/tabulators, and four of 72 or 5% of the ExpressVote BMDs. Only a 5% sample of ExpressVotes were selected for review because of the risk-based assessment indicating that the county uses BMDs for voters with accessibility needs; therefore, the impact on an election was low.



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### **Confirm Application of ES&S' Certified Verification Procedures**

EAC staff observed and documented the verification procedures utilized during the review conducted by the Scott County Auditor's Office, confirming alignment with the certified procedures described in the ES&S' EVS 6.3.0.0 Verification Manual in the Technical Data Package (TDP).

### **Voting System Conformance Review**

During the conformance review process, the EAC staff examined and confirmed the components of the selected sample of the EVS 6.3.0.0 voting system to determine whether the system meets the requirements specified in the EAC's Scope of Certification issued on November 11, 2022, and any other changes to the system configuration made through an engineering change order (ECO), if applicable.

### **Hash Verification Review**

The EAC observed and documented the county's hash verification for the Election Management System (EMS) standalone workstation, DS200 precinct scanners/tabulators, ExpressVote ballot marking devices, and DS450 central count scanners/tabulators, including their serial numbers. 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 ES&S EVS 6.3.0.0 System Verification Procedure manuals.

### **Physical Voting System and Facility Security Observations**

The EAC observed the physical voting system and facility security, processes, and procedures implemented by the Scott County Auditor's office to ensure that they meet industry best practices, as outlined in the EAC Election Management Guidelines, and are adequate to ensure the robust security of the voting system and facility. Specific measures observed included the use of tamper-evident seals, restricted access to sensitive areas, security, and documented chain of custody protocols.

## **Results and Observations**

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### **System Verification Procedures**

EAC personnel observed and verified that Scott County followed all system verification procedures in compliance with the ES&S EVS 6.3.0.0 System Verification Procedure manuals.



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### **System Conformance**

#### **EVS 6.3.0.0 EMS Standalone Workstation**

The Dell Latitude 5530 standalone workstation meets ES&S' functional specifications as listed in EVS 6.3.0.0 Scope of Certification. All related software, hardware, and USB devices were reviewed and found compliant within EVS 6.3.0.0 Scope of Certification.

#### **DS200 Scanners/Tabulators**

The 34 selected DS200 Scanners/Tabulators were reviewed; all DS200 devices matched the models specified in the Scope of Certification with compliant components and had clear and visible EAC marks of certification.

#### **DS450 Central Count Scanners/Tabulators**

The four DS450s were reviewed along with their corresponding COTS devices, and all matched the Scope of Certification. Each had clearly visible and intact EAC marks of certification.

#### **ExpressVotes**

The four ExpressVotes were reviewed and all matched the Scope of Certification. Each had clearly visible and intact EAC marks of certification.

### **Hash Verifications**

#### **EVS 6.3.0.0 EMS Standalone Workstation**

Hashes for the Dell Latitude 5530 standalone workstation were generated and verified against trusted values using ES&S' EVS 6.3.0.0 certified method using PowerShell and no discrepancies were found.

#### **DS200 Scanners/Tabulators**

The DS200 Scanner/Tabulator hashes were extracted from the scanners/tabulators using certified USB drives in accordance with ES&S' EVS 6.3.0.0 system verification procedures. Hash values were verified using a secure laptop running Ubuntu supplied by the Scott County Auditor's Office. The hashes generated for the DS200 Scanners/Tabulators corresponded with the trusted hashes, and no discrepancies were found.

#### **DS450 Central Count Scanners/Tabulators**

DS450 Central Count Scanner/Tabulator hashes were extracted from the devices using certified USB drives in accordance with ES&S' EVS 6.3.0.0 system



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verification procedures. The Scott County Auditor's Office verified the hashes using a secure laptop running Ubuntu that they supplied. All hashes matched the trusted versions, with no discrepancies found.

### **ExpressVote Ballot Marking Devices**

ExpressVote BMD hashes were extracted from the devices using certified USB drives in accordance with ES&S' EVS 6.3.0.0 system verification procedures. The Scott County Auditor's Office verified the hashes using a secure laptop running Ubuntu that they supplied. All hashes matched trusted versions, with no discrepancies found.

### **Physical Voting System and Facility Security Observations**

Restricted access is maintained at the Scott County facility, covering both its office and voting machine warehouse. Voting equipment is always sealed, whether in use or not. Sensitive systems and designated work areas are protected by limiting badge-key access, reserved for authorized staff. Every critical location—including facilities, workspaces, storage areas, and ballot drop boxes—is under continuous 24-hour video surveillance. Armed security monitors the office, ensuring controlled entry to the auditor's area. Only approved personnel can access sensitive keys and important data storage, which are always kept securely. Staff with voting system access work in pairs to boost security. The office also provides written procedures and contingency plans for staff to handle emergencies.

## **Suggestions**

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### **Hash Verification Program**

The EAC recommends that Scott County and the Iowa Secretary of State's Office regularly perform hash verifications on voting system devices. Possible timeframes, if feasible, include during annual maintenance or during pre-election tests, post-election audits, or both.

### **Monitored Alarm System**

The Scott County Auditor's Office maintains onsite security and video surveillance throughout all sensitive areas; however, the EAC recommends that, if feasible, the office should consider utilizing additional layers of security to increase confidence.



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## Conclusions

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The Scott County voting system review conducted on August 27-28, 2025, identified no issues impacting the deployed voting system. The facilities and voting system security measures were assessed as appropriate, with only minor suggestions provided. Scott County demonstrates strong leadership and a committed staff, contributing to robust physical and system security. All certified verification procedures were properly executed, and the reviewed devices corresponded with the VSTL trusted hashes. The EAC verifies that both the software and hardware conform to the Scope of Certification for ES&S' EVS 6.3.0.0, certified on November 11, 2022.

## Recognition

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### Scott County Auditor's Office

The EAC's Field Services Team thanks the Scott County Auditor's office for their leadership and dedication to this successful project, ensuring safe and secure elections for the county.

### Iowa Secretary of State's Office

The EAC Field Services Team extends its appreciation to Iowa Secretary of State Paul D. Pate, Dylan Lynch, and their staff for their valuable support and provision of critical resources and personnel for this project. Their dedication to ensuring secure and accessible elections is highly regarded, and we anticipate continued collaboration in the future.

### Election Systems and Software

The EAC Field Services Team thanks Tim Hallett and ES&S for their thorough training and support to Scott County, which helped ensure an efficient review. Their ongoing commitment to customer service meant all issues were quickly resolved.