



**Cerro Gordo County Auditor's Office, Iowa
Hash Verification Project Report
August 18-19, 2025**



U.S. Election Assistance Commission

Field Services Program

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Purpose

The U.S. Election Assistance Commission (EAC), in partnership with the Iowa Secretary of State's office and Cerro Gordo County Auditor's Office, performed a review of Cerro Gordo County's voting system on August 18-19, 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 for Unisyn's OpenElect 2.2 voting system,
2. performed a conformance review of the OpenElect 2.2 system as deployed in the county,
3. observed, assisted with, and documented hash verification on a sample of the OpenElect 2.2 voting equipment, and
4. observed the physical security measures for the voting system and facility 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 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 certified by



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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.

Unisyn's OpenElect 2.2 voting system was certified and issued a Scope of Certification by the EAC on November 18, 2021. The OpenElect 2.2 system used by Cerro Gordo County includes specific hardware and software components that are configured for the jurisdiction, which include Server-Client Election Management System (EMS) workstations, central count scanners/tabulators, precinct scanners/tabulators, ballot marking devices, 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/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.

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



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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. They 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 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.

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.



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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

[EAC Scope of Certification for Unisyn OpenElect 2.2](#)

[Testing and Certification Program Manual](#)

Unisyn OpenElect 2.2 Technical Data Package

[CISA Physical Security Guidelines](#)

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

[EAC Election Management Guidelines](#)

[EAC Chain of Custody Best Practices](#)

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



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Dylan Lynch, Election Security Specialist

Cerro Gordo County Auditor's Office

Adam Wedmore, Cerro Gordo County Auditor

Cerro Gordo Designated Employees

RBM Voting on Behalf of Unisyn

Michael Doyle, RBM Consultant

Roles

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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 Cerro Gordo County and the Iowa Secretary of State's office. During the initial phase, the 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 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.



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Cerro Gordo County Auditor's Office

The Cerro Gordo 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, Cerro Gordo provided the EAC with comprehensive details regarding their operations, the administration of their elections, and the use of their voting system.

Unisyn and RBM Voting Consultant

Unisyn and their Iowa contract representative RBM Voting worked with the EAC, the Iowa Secretary of State's Office, and the Cerro Gordo County Auditor's Office during the review. They trained state and county officials on hash verification per EAC-approved procedures and provided technical support and coordination throughout the process.

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 recommendations.

Device Sample Size

The EAC, in partnership with the Cerro Gordo 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 the Cerro Gordo County's Unisyn OpenElect 2.2 EMS server and client workstations, 12 of 29 or 41% of the Freedom Vote Scanners, and 11 of 29 or 40% of the Freedom Vote Tablets.

Confirm Application of Unisyn's OpenElect 2.2 Certified Verification Procedures

EAC staff observed and documented the verification procedures utilized during the review conducted by the Cerro Gordo County Auditor's Office, confirming alignment with the certified procedures described in the Unisyn OpenElect 2.2 System 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 Unisyn OpenElect 2.2 voting system to



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determine whether the system meets the requirements specified in the EAC's Scope of Certification issued on November 18, 2021.

Hash Verification Review

The EAC observed and documented the county's hash verification for server and client Election Management System (EMS), Freedom Vote Scanner (FVS), and Freedom Vote Tablet (FVT) devices, including serial numbers. The EAC observed and documented the results of the hash verification performed by Cerro Gordo on the EMS Server and Workstation, 12 of 29 or 41% of the FVS, and 11 of 29 or 40% of the FVT. The hash verification procedure used during the review followed the system verification instructions created by Unisyn Voting Solutions under the VVSG 1.0 as certified by the EAC and outlined in the Unisyn OpenElect 2.2 04-00510 System Verification manual.

Physical Voting System and Facility Security Observations

The EAC observed the physical voting system and facility security, processes, and procedures implemented by the Cerro Gordo 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, video monitoring, and documented chain of custody protocols.

Results and Observations

Unisyn OpenElect 2.2 Certified Verification Procedures

EAC personnel observed and verified that Cerro Gordo County followed all system verification procedures in compliance with the certified Unisyn OpenElect verification manual, and no discrepancies were found.

System Conformance

OpenElect Central Suite Server and Client Workstations

The Dell OptiPlex 7010 server, Dell Precision T3600 client, and all related software, hardware, and USB devices were reviewed and found to be compliant with the OpenElect 2.2 Scope of Certification.



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Freedom Vote Scanners (FVS)

The 12 selected FVS were reviewed; all FVS devices matched the models specified in the Scope of Certification with compliant components and had clear and visible EAC marks of certification.

Freedom Vote Tablets (FVT)

Of the Cerro Gordo County's 29 FVTs, the 11 selected were reviewed and all matched the Scope of Certification. Each had clearly visible and intact EAC marks of certification.

Hash Verification

OpenElect Central Suite Server and Client Workstations

Hashes for the Dell OptiPlex 7010 server workstation and Dell Precision T3600 client workstation were generated and verified against trusted values using Unisyn's OpenElect 2.2 certified method.

Freedom Vote Scanners (FVS)

The FVS software was extracted from the scanners/tabulators using approved USB drives, following Unisyn's OpenElect 2.2 system verification procedures. Hash values were generated and verified in Excel on a laptop supplied by the Cerro Gordo County Auditor's Office. The hashes generated for the FVSs corresponded with the trusted hashes, and no discrepancies were found.

Freedom Vote Tablets (FVT)

FVT hashes were extracted from the 11 randomly selected devices using county USB drives according to Unisyn OpenElect 2.2 procedures. The Cerro Gordo County Auditor's Office verified the hashes with Excel on a standard standalone laptop. All generated hashes matched the trusted versions, with no discrepancies found.

Physical Voting System and Facility Security Observations

The Cerro Gordo County facility maintains restricted access to its office and its courthouse annex building. Sensitive voting system equipment and designated work areas are secured by limiting the distribution of access keys. All critical locations; including facilities, workspaces, storage rooms, and onsite ballot drop boxes, are continuously monitored by 24-hour video surveillance. Access to sensitive keys and crucial data storage media is limited to authorized personnel, and these items are stored securely within the courthouse annex building or the courthouse vault. During the election cycle, ballots are safeguarded within the courthouse vault. Additionally,



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the office has written procedures and contingency plans available for staff in case of emergency.

Suggestions

Hash Verification Program

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

Security Seals

The Cerro Gordo County Auditor's Office uses security seals on voting equipment throughout the election cycle to ensure chain of custody and comply with EAC recommended guidelines. The EAC recommends all voting equipment be sealed when not in use or during maintenance, with a log documenting security and custody.

Monitored Alarm System

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

Conclusions

The Cerro Gordo County Unisyn OpenElect 2.2 voting system review on August 18-19, 2025, found no issues affecting the deployed system. Cerro Gordo County has strong leadership and a dedicated veteran staff that ensures the physical and voting system security. Cerro Gordo County's facilities and voting system security were deemed appropriate with minor suggestions. All certified verification procedures were followed, and the reviewed devices matched the VSTL trusted hashes. The EAC can confirm that both software and hardware are consistent with the Scope of Certification for Unisyn's OpenElect 2.2 issued on November 18, 2021.

Recognition

Cerro Gordo County Auditor's Office

The EAC's Field Services Program Team thanks the Cerro Gordo County Auditor's office and staff for their leadership, hospitality, and dedication in making this project



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a success. Their commitment ensures safe, secure, accurate, and accessible elections for the county.

Iowa Secretary of State's Office

The EAC Field Services Team thanks Iowa Secretary of State Paul D. Pate, Dylan Lynch, and their staff for supporting this project with essential resources and personnel. Their commitment to secure and accessible elections is commendable, and the EAC looks forward to continued collaboration.

Unisyn and RBM Voting

The EAC's Field Services Team extends its gratitude to Unisyn, RBM Voting, and the supporting staff for their comprehensive training and technical expertise provided to Cerro Gordo County before and throughout the project. Their commitment to customer support played a key role in facilitating an efficient review process and they assured us that any issues encountered by Cerro Gordo County would be promptly addressed.