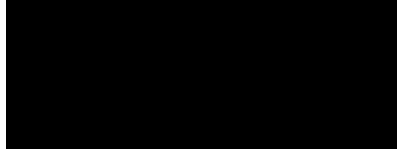


# BRANDON T. HURLEY

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May 13, 2024

Ms. Christina Adkins  
Director of Elections Texas  
Secretary of State Elections  
Division  
208 East 10th Street  
Austin, Texas 78711

Re: ECO 1167 related to ES&S Voting System “ESS 6.3.0.0”

Dear Ms. Adkins:

Pursuant to my appointment by the Texas Secretary of State as a voting systems examiner under TEXAS ELECTION CODE § 122.035, please allow this letter to serve as my report concerning the above referenced examination. I, along with the other statutory examiners and staff from the Secretary of State's office, attended multiple phone calls and in person examinations over the months of January through April of 2024, at which the ES&S ECO listed above was discussed, tested and reviewed

This exam was unique because it was only for the purpose of reviewing an ECO which is not a new system or new version of a system, but merely a change to an existing system that did not justify a new “version” or unique numbering. The genesis of this ECO involved questions raised at the previous ES&S examination for their 6.3.0 System concerning the hash validation process and documentation accompanying it.

In response to previous concerns, ES&S submitted new documentation and improvements to the hash validation process; however, they listed them in new documents as “Texas specific” as though the change was only to satisfy Texas concerns.

On February 1, 2024, the inspectors and Secretary of State staff met with ES&S officials to review the new documentation and hash validation process. Also in attendance were representatives of the Election Administration Commission (“EAC”). The ES&S officials completed a trusted build and then performed a hash validation. The entire group then had an extended discussion about the hash validation process and how the “golden

hashes” that are used to compare to the specific system were generated.<sup>1</sup> Also, the examiners and staff observed the treatment of “semi-static” files that could appear as a mismatches in the hash validation process. A question arose about if there are more than one hash-validation process (with Texas having a unique and separate process from other states). The documentation from ES&S appeared to suggest this fact, but further discussions revealed that this was not the case. There was also a very robust discussion about a process wherein the golden hashes were from the system itself or a source other than a test lab. The examiners and staff expressed concern about both of these issues.

As a result, the examiners and Secretary of State staff requested that ES&S revise their documentation and seek certification of the amended ECO from the relevant agencies and authorities. A subsequent call between the examiners, secretary of state staff and ES&S officials on February 7<sup>th</sup> answered additional questions about the hash validation process.

After the call, ES&S submitted a revised ECO that was approved in mid-April of this year. The revised documentation made it clear that the revisions were not “Texas specific” and resolved any concerns the examiners and staff had about the source of golden hashes and the process to be used.

## **RECOMMENDATION**

Based on the foregoing observations and my examination of the ECO 1167 related to ES&S 6.3.0.0 System, its accompanying literature and the representations made by ES&S officials both in its literature and at the examination, I recommend that the ECO be certified as compliant with the requirements of the TEXAS ELECTION CODE and the TEXAS ADMINISTRATIVE CODE.

As an aside, I am also in full agreement with the Texas Secretary of State that this ECO was appropriate for a full review by all the examiners and was appropriate to put through the examination process usually only used for a system revision. As detailed in previous reports by many examiners (including me), the hash validation process is one that is critically important to the security and confidence each voting system needs. The hash validation process should be as simple and efficient as possible without compromising any integrity in its intended goals. Candidly, I believe more emphasis should be placed on the review and certification of the hash validation process with each voting system since it is the only process that allows the voting public to feel confident that the system they are using is the system certified by both national and state authorities.

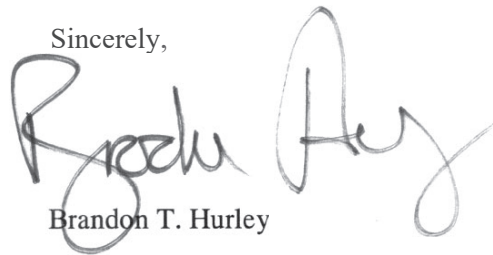
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<sup>1</sup> Hash validation is a critical process in verifying that the product delivered to end users matches the program that has been approved by all relevant agencies.. Much time has spent in past exams and reports on the hash validation systems of all vendors and this ECO exam highlights this importance.

This report should not be construed as a tacit or implied comment on any of the technical aspects of the listed ECO except as expressly stated herein. In the event any of the equipment, software or security devices examined are altered, changed or decertified by any accrediting agency (other than a "minor modification qualified for administrative certification process" as that term is defined in § 81.65 of the Texas Administrative Code), this report should be considered withdrawn .

Thank you for the opportunity to serve as an examiner and participate in this important process that protects the integrity of Texas' voting systems.

Sincerely,

A handwritten signature in black ink, appearing to read "Brandon T. Hurley". The signature is fluid and cursive, with the first name "Brandon" and last name "Hurley" clearly distinguishable.

Brandon T. Hurley

# Examination of Election Systems & Software

## 6.3.0.0 Voting System ECO-1167

Brian Mechler, Technical Examiner

Exam Date: February 1, 2024

Report Date: May 13, 2024

### 1 Overview

An examination of an Engineering Change Order (ECO) to the Election Systems & Software (ES&S) EVS 6.3.0.0 voting system was conducted at the Texas Secretary of State Elections Division offices on February 1, 2024. Representatives from the Texas Secretary of State Elections Division, the Office of the Attorney General, the U.S. Election Assistance Commission (EAC), Election Systems & Software (ES&S), and independent examiners were in attendance.

ECO-1167 addresses an oversight in the documentation of Election Management System (EMS) software files that is required by the EAC's Voluntary Voting System Guidelines (VVSG) [1][2].

### 2 Background

It is atypical for the State of Texas to conduct a full examination of an ECO. This section will provide context for why such an event was required to approve what ultimately amounted to a small documentation change related to the listing of software files.

A county in Texas using EVS 6.3.0.0 discovered the documentation error while performing the hash verification process on their Standalone EMS per the EAC-certified Verification Procedure documentation provided by ES&S [3]. Hash verification is a critical component of acceptance testing and logic and accuracy (L&A) testing of voting systems. It is the process that is used to ensure that the software and/or firmware of a voting system matches exactly with what was certified by the EAC. A hash is the output of a cryptographic function run on a file or program executable. If a file or program is changed in any way, it will produce a different hash result.

The county's verification test resulted in zero errors and some number of warnings. According to ES&S's documentation, this is a successful result. The warnings merely represent a mismatch in the hash verification of semi-static files. Semi-static files contain "configuration information for the voting system based on the voting equipment that is installed and the election being conducted" [2]; thus, they may not match the set of trusted hashes generated by the voting system test laboratory (VSTL) at the time of the certified software build. A VVSG 1.0 guideline requires that vendors "shall document all software including voting system software" and that the "documentation shall designate all software files as static, semi-static or dynamic." The county in their diligence wanted to cross-reference the warnings against this documentation to ensure that the mismatches only resulted from semi-static files. What they found was that one of the mismatched files, "C:\ProgramData\Electionware\install.log" was not listed in the Validation File List documentation [4-6].

The Elections Division requested that ES&S file an ECO with the EAC to correct their documentation. The original EAC-approved version of ECO-1167 characterized the remedy as one specific to Texas rather than correcting a VVSG compliance issue (see Figures 1 and 2). Due to concern over the framing of the ECO and because the State of Texas takes the hash verification process very seriously, a full examination was scheduled to better understand ES&S's position.



Semi-Static

VOTING SYSTEM FILE LISTS		
Product Name	Electionware, Event Log Service & Removable Media Service	
File List Type	Semi-Static File List	
	File Name	Notes
1	C:\Program Files\Election Systems And Software\Electionware 6.3.0.0\Electionware\etc\electionwaresuite.conf	
2	\$PG_DATA_DRIVE\$\Election Systems and Software\Electionware\Postgres\11\data\pg_hba.conf	
3	\$PG_DATA_DRIVE\$\Election Systems and Software\Electionware\Postgres\11\data\pg_ident.conf	
4	\$PG_DATA_DRIVE\$\Election Systems and Software\Electionware\Postgres\11\data\postgresql.auto.conf	
5	\$PG_DATA_DRIVE\$\Election Systems and Software\Electionware\Postgres\11\data\postgresql.conf	
6	C:\ProgramData\Electionware\install.log	This semi-static file is only applicable for verification in the State of Texas.
<b>END</b>		

Figure 1: Semi-Static File List from "Validation File List: Election Management System – Standalone" Revision 1.1 [7]



**U. S. ELECTION ASSISTANCE COMMISSION**  
VOTING SYSTEM TESTING AND CERTIFICATION PROGRAM  
633 3<sup>rd</sup> Street NW, Suite 200  
Washington, DC 20001

Sent via e-mail

Sue McKay, Vice President of Certification  
Election Systems & Software, Inc (ES&S)  
11208 John Galt Blvd  
Omaha, Nebraska 68137

**Re: Election Systems & Software, Inc (ES&S) ECO-1167 Submitted for Approval**

Dear Sue McKay,

The EAC has reviewed Engineering Change Order **ECO-1167**, including supporting documentation and analysis provided by Pro V&V. This ECO is a documentation change only. This ECO covers the addition of a file in the *Validation File List: Election Management System – Standalone* document to support the State of Texas's method for hash validation. This minor change does not alter the system's reliability, functionality, capability, or operation. Based on the information provided, it has been determined that no further testing is necessary.

The system(s) impacted by this ECO:

EVS 6.3.0.0

This correspondence is to inform you that Election Systems & Software, Inc (ES&S) **ECO-1167** is approved.

Sincerely,

---

Sean Pumphrey  
Election Technology Specialist, U.S. Election Assistance Commission

Cc: Pro V&V

*Figure 2: EAC Approval Letter of ECO-1167 as Originally Submitted [8]*

### **3 Examination**

During the examination, representatives from the State of Texas and the independent examiners explained their view to representatives from the EAC and ES&S that the original language in ECO-1167 was confusing. The citizens of Texas might be led to believe that election administrators in their state follow a different set of hash verification procedures than those examined, tested, and certified at the federal level by the EAC and VSTLs. Interested parties and election administrators outside of Texas might be led to believe that the oversight in ES&S's documentation only affected Texas when, in fact, it potentially affects all U.S. jurisdictions using EVS 6.3.0.0.

Examiners also noticed that the same documentation oversight was also present in the Validation File List documents for the EMS-Server and EMS-Client configurations [5][6], and those documents had not been updated in the original version of ECO-1167.

Representatives from the EAC who attended the exam indicated that ECO-1167 could be amended to clarify the confusing justification and to broaden the scope to include the other EMS configurations. Subsequent to the exam, ES&S submitted an amended version of ECO-1167 to the EAC which included the recommended changes [1]. The note next to the "C:\ProgramData\Electionware\install.log" entry in the Validation File List documents now states [9-11], "The install.log file is created upon installation and is unique to each system; therefore, it will not match the reference hash for the certified system." The language in the amended EAC approval letter no longer characterizes the issue as specific to Texas [1].

### **4 Recommendation**

I approve of ECO-1167. The changes are de minimis; they do not negatively affect the voting system's suitability for use in Texas.

## 5 References

- [1] URL: <https://www.eac.gov/voting-equipment/engineering-change-orders/ess-e o-1167>
- [2] United States Election Assistance Commission Voluntary Voting System Guidelines, Volume I Version 1.0, 2005, Section 7.4.4 Software Distribution  
URL: [https://www.eac.gov/sites/default/files/eac\\_assets/1/28/VVSG.1.0\\_Volume\\_1.PDF](https://www.eac.gov/sites/default/files/eac_assets/1/28/VVSG.1.0_Volume_1.PDF)
- [3] Verification Procedure: Election Management System, Document Revision 1.0  
Document ID: ESSSYS\_6'3'0'0\_D\_VERPROC\_EMS
- [4] Validation File List: Election Management System – Standalone, ES&S Standards and Procedures Revision 1.0, Document ID: EMS\_6'3\_L\_ValFileList\_Standalone
- [5] Validation File List: Election Management System – Server ES&S Standards and Procedures Revision 1.0, Document ID: EMS\_6'3\_L\_ValFileList\_Server
- [6] Validation File List: Election Management System – Client ES&S Standards and Procedures Revision 1.0, Document ID: EMS\_6'3\_L\_ValFileList\_Client
- [7] Validation File List: Election Management System – Standalone, ES&S Standards and Procedures Revision 1.1, Document ID: EMS\_6'3\_L\_ValFileList\_Standalone
- [8] Sean Pumphrey, Election Technology Specialist, U.S. Election Assistance Commission, “Re: Election Systems & Software, Inc (ES&S) ECO-1167 Submitted for Approval” letter to Sue McKay, Vice President of Certification, ES&S
- [9] Validation File List: Election Management System – Standalone, ES&S Standards and Procedures Revision 1.3, Document ID: EMS\_6'3\_L\_ValFileList\_Standalone
- [10] Validation File List: Election Management System – Server, ES&S Standards and Procedures Revision 1.2, Document ID: EMS\_6'3\_L\_ValFileList\_Server
- [11] Validation File List: Election Management System – Client, ES&S Standards and Procedures Revision 1.2, Document ID: EMS\_6'3\_L\_ValFileList\_Client





KEN PAXTON  
ATTORNEY GENERAL OF TEXAS

May 13, 2024

Ms. Christina Adkins  
Director of Elections, Texas Secretary of State  
Elections Division  
P.O. Box 12060  
Austin, Texas 78711-2060

Re: Examination of Engineering Change Order 1167 and Election Systems & Software 6.3.0.0  
February 1, 2024

Dear Ms. Adkins:

Pursuant to Texas Election Code section 122.036 and 1 Texas Administrative Code section 81.60, by this letter I am transmitting my examiner's report for the Secretary of State's February 1, 2024, voting system examination of Engineering Change Order (ECO) 1167 to the Election Systems & Software (ES&S) 6.3.0.0 electronic voting software.

The factual background for the OAG's conclusion includes ECO 1167, ES&S's presentation to the examiners during an examination at the Texas Secretary of State's offices, statements made by ES&S's representatives during that examination, and any e-mail responses to the examiners' follow-up questions along with supporting documentation sent by ES&S to the Secretary of State's office and then forwarded to the examiners.

The review was based on documentation changes noted in ECO 1167. The reviewers provided feedback to ES&S on ECO 1167. Based on the feedback, ES&S submitted a revised ECO that was approved by the United States Election Assistance Commission. After a thorough review of the system and revised ECO, the Office of the Attorney General concludes there are no legal compliance issues with ECO 1167 and the ES&S 6.3.0.0 software.

Sincerely,

A handwritten signature in blue ink that reads "Justin Gordon".

Justin Gordon  
General Counsel

cc: Charlton Johnson, Secretary of State's Office  
Charles Pinney, Secretary of State's Office

# **Voting System Examination**

## **Election Systems & Software EVS 6.3.0.0, ECO 1167**

prepared for the Secretary of the State of Texas

Robert Thomson, Poreuo Partners LLC  
Designee of the Attorney General

Examination Date: February 2, 2024  
Report Date: May 13, 2024

This report conveys the opinions of the Attorney General's designee from an examination of the voting system identified above, pursuant to Title 9, Chapter 122 of the Texas Election Code, section 122.036(b).

On February 2, 2024, examiners appointed by the Texas Secretary of State and Attorney General met with representatives of Election Systems & Software (“ES&S”) at the offices of the Texas Secretary of State to review ECO 1167, an engineering change order to the EVS 6.3.0.0 voting system. This system revision was originally examined on January 24-25 and March 31, 2023; this author’s findings from that examination are covered in a report dated April 17, 2023. On June 29, 2023, the Secretary of State certified EVS 6.3.0.0 for use in Texas elections.

ECO 1167 involved only documentation changes that are described and discussed below. The February 2<sup>nd</sup> examination was based on an initial version of ECO approved by The U.S. Election Assistance Commission (“EAC”) following the ECO’s approval on January 11, 2024 by Pro V&V, a voting system test lab. Based on feedback from the examiners, ES&S prepared a revision of this ECO that was approved by Pro V&V on April 4, 2024. In its Engineer Change Order Analysis Form, Pro V&V noted that the ECO was “a procedure change for end-users utilizing [the ES&S hash] verification method” that “did not adversely impact system reliability, functionality, capability, or operation.” EAC concurred in its approval letter dated April 9, 2024.

The substance of the final ECO is the addition of the file “C:\ProgramData\Electionware\install.log” in the set of semi-static files listed in the following ES&S technical documentation:

- *Validation File List: Election Management System – Standalone, Revision 1.3, dated 3/21/2024*
- *Validation File List: Election Management System – Server, Revision 1.2, dated 3/21/2024*
- *Validation File List: Election Management System – Client, Revision 1.2, dated 3/21/2024*

In each table where this file is listed, the accompanying note states the following: “The install.log file is created upon installation and is unique to each system; therefore, it will not match the reference hash for the certified system.”

The examination on February 2<sup>nd</sup> included the following, primary activities:

- Installed the trusted build of EVS 6.3.0.0 in the test devices from a USB drive that a representative of the SOS’ office obtained directly from the EAC.
- Confirmed that the trusted build on this USB was the same as the build the examiners used in their original testing of the EVS 6.3.0.0 system in January and March 2023.
- Followed verification procedures to execute the provided PowerShell script that compared the EAC ‘golden hash’ to the locally-generated hash, which produced warnings on two of six semi-static files listed in the documentation as expected.
- Reviewed and discussed the document changes comprising the ECO in the context of verification procedures published within the product documentation set distributed by ES&S.

Based on the revised ECO together with the overall examination process, this examiner concludes that the documentation changes comprising the ECO satisfactorily address semi-static file warnings that may arise when the approved hash validation process is performed against the EAC trusted build by Texas counties using the EVS 6.3.0.0 voting system.

## ES&S Software Validation

The ES&S software validation process was examined in the Secretary of State's office on February 1, 2024. The processes used for the 6300 EMS server, the DS200 precinct scanner and the Expressvote voting devices were observed. There was no test voting done for this examination as the purpose of the meeting was to review the software validation process that a jurisdiction is required to do for each election. Some of the findings were learned from a follow-up email after the examination.

### Findings

- The validation process worked. The generated hashes matched the golden hashes.
- There were hashes on the ES&S validation software CD. The vendor should not supply the golden hashes. They should be removed from the verification software package. The EMS document says to use the golden hashes provided by the VSTL. A jurisdiction should get the golden hashes from the Election Assistance Commission (EAC) Texas Office of the Secretary of State (SOS).
- The validation procedure used during the exam is outlined in the *ES&S Standards and Procedures* document. It was the same as followed during the full EVS 6300 exam except for the addition of the reference to the install.log (see below).
- There is a separate validation file list for each type of EMS configuration: standalone, client, and server.
- Ideally, the validation CD and golden hashes file would be opened from a sealed envelope during the public L & A testing.
- Section 7.4.6.a of the VVSG states: *Setup validation methods shall verify that only certified software is present on the voting equipment. Certified software is **COTS software** components needed to run the voting system and voting software components identified by the manufacturer as authorized.* I did not see the Microsoft software listed in the static file lists provided by the vendor.
- The verification program ideally would be a binary program, not a plain text script that can be easily modified. It could be modified by a bad actor so that the script would report no software discrepancies. The powershell script at the very least should be obfuscated so it is not so easy to modify. There are also programs available that will convert a script to an exe (binary) file which would be harder to modify. An ES&S engineer agreed that it would be a good improvement. He agreed that the labs could be provided a text version to review. The lab could then convert the file to an obfuscated or binary format. The more secure validation script (or program) could be sent to the EAC along with the golden hashes. The chain of custody should be honored: jurisdictions would receive the validation packages and golden hashes from either the EAC or the SOS, not the election system vendor.

## ECO-1167

- Subsequent to the full EVS 6300 examination, an Engineering Change Order was issued. The ECO-1167 added a file (**C:\ProgramData\Electionware\install.log**) to the **semi-static file list** table which lists the files that will not match their golden hashes. There are now five files in the semi-static list; the install.log and four Postgres database configuration files.
- Originally, ECO-1167 indicated that the file (C:\ProgramData\Electionware\install.log) is only significant to the Texas validation method. This is an error. There is no Texas specific validation method. The documented method is the same for any state, and the install.log file is relevant to the semi-static file list as a known discrepancy for the hash comparisons. A rewrite of the ECO-1167 removed all references to the “Texas” method from the documentation.

## Conclusion

A straight-forward, transparent validation process is essential to the integrity of an election voting system. Due to the public's heightened scrutiny of the election/voting process, this is more important than ever. Software validation needs to be comprehensive, secure in itself, and be easy, and quick enough to use prior to each election. The ES&S validation method works, but it needs improvement in these areas.

The updated version of ECO-1167 corrects the issues raised during the validation examination.

# The State of Texas



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Jane Nelson  
Secretary of State

## MEMORANDUM

TO: Christina Adkins, Director of Elections, Texas Secretary of State

FROM: Chuck Pinney, Staff Attorney, Elections Division, Texas Secretary of State

DATE: May 13, 2024

RE: Election Systems & Software – ECO 1167 Examination

In accordance with my appointment by the Texas Secretary of State as a voting system examiner under Tex. Elec. Code §122.067, I present my report on the voting system examination which took place on February 1, 2024, in the offices of the Texas Secretary of State at the James E. Rudder Building, 1019 Brazos, Austin, Texas 78701.

On February 1, 2024, the examiners appointed by the Texas Secretary of State and the Texas Attorney General examined ECO-1167, which was a minor modification to EVS 6.3.0.0, a voting system that was certified for use in Texas on June 29, 2023.

For the reasons outlined below, I recommend that this modification be approved by the Texas Secretary of State under Tex. Elec. Code §§122.061 and 122.071.

### **Background**

ES&S received certification in Texas for the EVS 6.3.0.0 system on June 29, 2023.

The modification that was the subject of this examination, ECO-1167, was approved by the U.S. Election Assistance Commission (“EAC”) on April 9, 2024.<sup>1</sup>

### **Summary of the Examination**

The examination of ECO-1167 took place on February 1, 2024.

The exam began with the decryption of the trusted build from the hard drive provided to our office by the testing lab. The examiners then performed the installation of the software and

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<sup>1</sup> The initial version of ECO-1167 was approved by the EAC on January 23, 2024. In response to comments and recommendations made by the examiners during the examination process, the vendor made revisions to their original documentation and submitted those revisions to the EAC for review. The revised ECO-1167 was approved by the EAC on April 9, 2024.

firmware for EVS 6.3.0.0 off of the trusted build. After completing the installation, we performed a hash validation on the equipment using the procedures provided by the vendor. The examiners compared the generated hashes from the equipment to the trusted hashes provided to our office by the EAC. That hash validation was successful.

## **Analysis**

The standards for a voting system in Texas are outlined in Texas Election Code Chapter 122. Specifically, the system may only be certified for use in Texas if it satisfies each of an enumerated list of requirements contained in Texas Election Code §122.001.

Because the proposed modification satisfies those requirements and because the documentation provides additional clarification on the hash validation procedures for this system, I recommend approval of the modification to EVS 6.3.0.0 contained in ECO-1167.

## **Additional Background**

After the certification of the EVS 6.3.0.0 system, the vendor contacted the Secretary of State's Office regarding the procedures for performing a hash validation on the EMS component of the EVS 6.3.0.0 system. In the course of those discussions, the Secretary of State's Office determined that certain documentation relating to the hash validation process for the EMS system for the EVS 6.3.0.0 system had not been provided to the office or to the examiners. The vendor then provided the relevant documents to the Secretary of State's Office, who provided them to the examiners.

The hash validation procedures performed during the examination of the EVS 6.3.0.0 were based around the comparison of an EAC-provided trusted hash to a user-generated hash from the EMS system. The hash validation that was conducted during the EVS 6.3.0.0 examination was successful. This method of hash validation is outlined in the vendor's documentation and was reviewed and approved by the EAC during the federal certification process. This is also the method that is required under Texas law and the procedures prescribed by the Secretary of State's Office.

The hash validation procedures contained in the additional documentation provided by the vendor are based on the comparison of a user-generated hash from the EMS system to another user-generated hash from the same system. This method is not consistent with Texas requirements, though it may be permissible in other states that require different hash validation procedures.

As outlined below, in the course of those discussions, the Secretary of State's Office also identified a need for additional documentation relating to the hash validation process, and requested that the vendor revise that documentation through an Engineering Change Order ("ECO").

Due to the important role of hash validation in ensuring security and transparency in the election process, the Secretary of State's Office determined that a full examination should be conducted

to allow the examiners to review this documentation while performing the hash validation procedures described in those documents.

### Hash Validation Procedures for the EVS 6.3.0.0 EMS System

When a hash validation is performed between the EAC-provided trusted hash and a user generated hash on the EVS 6.3.0.0 EMS system, a successful hash validation will produce zero errors, and may produce a certain number of known warnings. Based on the vendor's documentation, the warnings refer to semi-static files in the system.<sup>2</sup>

One of the semi-static files that could produce a warning is the "install.log" file. Specifically, when the EAC-provided trusted hash is compared to the user generated hash, that file comparison will produce a warning because the "install.log" file contains the date and time that the software was installed on the system, and the date and time that the software was installed on the EAC's testing system will not match the date and time that the software was installed on the user's own system.

The vendor's list of semi-static files originally did not include the "install.log" file. The purpose of ECO-1167 was for the vendor to include that file in the list of semi-static files, so that a jurisdiction that is comparing the EAC-provided trusted hash to their user generated hash will be able to verify that a warning relating to the "install.log" file was an expected outcome of the validation process.

The documentation change contained in ECO-1167 correctly includes the "install.log" file in the list of semi-static files for this system.

### ECO-1167 Revision

The original version of ECO-1167 that was approved by the EAC contained a statement that the labeling of the "install.log" file was applicable only to the Texas hash validation process. While Texas laws and procedures do require the comparison of an EAC-provided trusted hash to a user-generated hash, that process is not unique to Texas and was certified during the EAC's own testing and certification process.

Because the semi-static file list and this hash validation process is applicable to other jurisdictions, the examiners recommended that the vendor revise the documentation to remove the references that indicated that these procedures were Texas-specific. The revised documentation addresses those concerns.

The examiners also noted that other documentation in the vendor's TDP should include the reference to the "install.log" file in the semi-static file lists contained in those other documents.

---

<sup>2</sup> The Voluntary Voting System Guidelines ("VVSG") provide that semi-static files contain "configuration information for the voting system based on the voting equipment that is installed and the election being conducted." United States Election Assistance Commission Voluntary Voting System Guidelines, Volume I, Version 1.0, 2005, Section 7.4.4 Software Distribution.



The vendor's revisions also included that file in those other documents as recommended by the examiners.

### **Conclusion and Recommendation**

Hash validation is critical to transparency and security in an election, and it is important that the expected outcomes of the validation process are well-documented to promote transparency and assist election officials in performing the validation process.

Because the vendor's documentation change in ECO-1167 provides necessary documentation to assist election officials and interested parties in determining whether the validation process is successful, I would recommend approval of the modification.