The State of Texas

Elections Division
P.O. Box 12060
Austin, Texas 78711-2060
www.sos.state.tx.us

Phone: 512-463-5650
Fax: 512-475-2811
Dial 7-1-1 For Relay Services
(800) 252-VOTE (8683)

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 12, 2023

RE: Election Systems & Software – EVS 6.3.0.0 Voting System 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 January 24-25, 2023 and March 31, 2023, in the offices of the Texas Secretary of State at the James E. Rudder Building, 1019 Brazos, Austin, Texas 78701.

On January 24-25, 2023, the examiners appointed by the Texas Secretary of State and the Texas Attorney General examined EVS 6.3.0.0, a voting system that was presented by Election Systems & Software ("ES&S") for certification in Texas. A follow-up examination of the system was conducted on March 31, 2023. The following hardware and software components were examined at the Office of the Secretary of State:

Component	Version	Previous Texas Certification Date
ExpressTouch	4.2.1.0	01/08/2021
DS200 (HW 1.2)	3.0.0.0	01/08/2021
DS200 (HW 1.3)	3.0.0.0	01/08/2021
DS200 (HW 1.3.13)	3.0.0.0	N/A
DS300	3.0.0.0	N/A
DS450	4.2.0.0	01/08/2021
DS850	4.2.0.0	01/08/2021
DS950	4.2.0.0	N/A
ExpressVote (HW 1.0)	4.2.1.0	01/08/2021
ExpressVote (HW 2.1)	4.2.1.0	01/08/2021
ElectionWare	6.3.0.0	01/08/2021

ExpressLink	3.0.0.0	01/08/2021
Event Log Service	3.0.0.0	01/08/2021
ExpressVote Activation Card Printer	N/A	01/08/2021
PaperBallot	6.3.0.0	01/08/2021
Removable Media Service	3.0.0.0	01/08/2021
Toolbox	4.3.0.0	01/08/2021
Regional Results	1.5.0.0	N/A

For the reasons outlined below, I recommend that this system be certified by the Texas Secretary of State under Tex. Elec. Code §§122.031 and 122.039.

Background

ES&S previously received certification in Texas for the Unity voting system and previous versions of EVS. The most recent version of their software, EVS 6.1.1.0, was presented by ES&S in August 2020, and was certified on January 8, 2021.[1]

The voting system that was the subject of this examination, EVS 6.3.0.0, was certified by the U.S. Election Assistance Commission ("EAC") on November 17, 2022.

Summary of the Examination

The examination of EVS 6.3.0.0 took place on January 24-25, 2023. A follow-up examination of the DS200 and the ExpressVote 2.1 was conducted on March 31, 2023.

On January 24, 2023, 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 firmware for EVS 6.3.0.0 off of the trusted build. After completing the installation, we performed a hash validation on each piece of equipment using the procedures provided by the vendor. The examiners compared the generated hashes from each device to the trusted hashes provided to our office by the EAC. That hash validation was successful.

On January 25, 2023, the vendor conducted their presentation of the system and the updates involved in the current version of EVS. The vendor's presentation included one new piece of hardware, the DS300 precinct scanner, and an additional hardware revision of an existing component, the DS200 HW 1.3.13.

After the vendor presentation, the in-person examiners tested the equipment by voting a series of test ballots and comparing the results of those test ballots. The test election was successful and

[1] EVS 6200 was also submitted for certification, and the examination of that system took place in June 2022. At the time of this report, the certification of EVS 6.2.0.0 is still pending.

did not identify any issues. The examiners also asked questions of the vendor regarding various components of the system and the nature of the updates included in this version of the system.

The examiners also conducted accessibility testing on each of the voting devices included with the system, and verified that those devices are in compliance with the accessibility requirements of Texas law.

In the course of the first two days of testing, the examiners expressed concern with two different issues that ultimately required a subsequent examination of those components of the system. First, in the course of testing the DS300 issue, a paper jam issue occurred that required further testing. Second, due to some discrepancies in the documentation relating to the version numbers of the ExpressVote 2.1 hardware, the examiners requested an opportunity to examine the different production run models of that hardware component. Both issues are addressed in more detail in my analysis below.

An additional follow-up examination was held on March 31, 2023 to allow the examiners to inspect the DS300 and the different production run models of the ExpressVote 2.1 hardware. That follow-up examination was focused on the two issues described above, and my conclusions from that follow-up examination are outlined in more detail below.

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 system satisfies each of those requirements, I would recommend that this system be certified, subject to the conditions outlined below.

In general, EVS 6.3.0.0 is an accurate and efficient voting system that generally performed well in the examination. The examiners raised specific concerns that are addressed in more detail below, but those concerns do not impact the reliability, accuracy, or security of the system if proper procedures are followed, and therefore they do not impact my recommendation regarding certification. I would recommend that the vendor make adjustments to these procedures based on the feedback of the examiners.

<u>DS300 Paper Jam Issue</u>

During the testing of the DS300, a paper jam issue was identified under specific conditions. Specifically, if a full-size ballot was fed into the scanner and an ExpressVote ballot was fed into the scanner immediately after, then a paper jam would occur and a message appeared on the screen indicating that the ballot was counted. Upon further examination, it was determined that the full-size ballot was counted but the ExpressVote card was not counted.

After further discussion with the vendor, it was determined that the cause of the paper jam issue was related to the installation of the imprinter on that device. When using the imprinter, the

scanner would trigger a backward movement of the rollers to align the ballot into place so that the RLA audit number could be imprinted on the ballot. When this backward movement was activated, it would catch the second ballot, causing a jam but resulting in the second ballot not being scanned. If the imprinter was not installed, then the scanner would not trigger the backward movement of the rollers and the second ballot would not be caught by the device.

To test the resolution to the paper jam issue, an additional examination was scheduled to test the DS300 both with the imprinter installed and without the imprinter installed. The issue was reproduced when testing the DS300 with the imprinter installed, but the issue could not be reproduced with the imprinter removed.

The circumstances of this particular paper jam are uncommon and unlikely to occur for a voter in a polling place, as it requires two ballots to be inserted nearly simultaneously. While the issue could occur in a situation where a DS300 is used to scan ballots at a central location if the worker attempts to insert those ballots very quickly one after another, this is a rare scenario. However, because the issue can be avoided entirely by removing the imprinter, I would recommend that the DS300 be certified with a condition that the imprinter will not be installed.

Version Numbering

There was some confusion during the exam regarding the version numbers of the ExpressVote 2.1 models and the DS200 due to some minor differences between the documentation on the vendor's Form 100 and the EAC's Certificate of Scope and Conformance.

With regard to the ExpressVote HW 2.1 system component, the EAC lists two hardware versions in their Certificate of Scope and Conformance, 2.1.0.0 and 2.1.2.0. While the EAC included both of those hardware versions as part of the certified ExpressVote HW 2.1 component, the examiners requested additional clarification regarding the differences between those two hardware versions and asked for an opportunity to review those two hardware versions during the follow-up examination that was conducted to review the resolution to the DS300 paper jam issue outlined above.

The vendor explained that the third digit in the version number referred to the production run of those units, but that the hardware components used in those different production runs was identical except for two minor differences. First, the vendor received approval for ECO 975, which allowed for an alternative display replacement due to the fact that the components used in a prior production run had gone end of life. Second, a panel on the side of the device was changed from a metal to a plastic component.

These two ExpressVote 2.1 hardware revisions were also reviewed during the EVS 5.2.4.0 exam, as indicated by Mr. Watson's examiner report from that certification exam.

Based on the vendor's explanation, the supporting documentation from prior certification exams, and the examiner's review of those two different hardware versions, I am satisfied that both hardware versions have been adequately reviewed during the certification process for this

version and prior versions of the EVS system, and that there are no significant differences between those hardware versions that would adversely impact the performance of the system.

Regional Results

The Regional Results module is a component of the EVS system that was first demonstrated in the course of the EVS 6.2.0.0 certification exam. The purpose of that module is to allow for a jurisdiction to transmit unofficial results via a secure network from a regional substation to the central counting station. This process allows these jurisdictions to timely provide unofficial results to the public while maintaining the integrity and security of the official results. Jurisdictions using this module are required to follow procedures prescribed by the Secretary of State's Office under Election Code 127.1231(b).

The procedure for use of this module is dependent on creating a backup media drive from the tabulation devices, and segregating that backup drive from the original drive containing the official results. The backup drive can then be used with the regional results module at the regional substation to transmit unofficial results over a secure network to the central counting station, while the original drive is physically delivered to the central counting station without ever interacting with that secure network.

The vendor provided more detailed best practices documentation for use of this module as part of the EVS 6.3.0.0 release. I would recommend that the vendor continue to refine this documentation, with a specific emphasis on the need to segregate and clearly identify the backup drives that are used for the transmission of unofficial results versus the original drives that are used to tabulate the official results and which do not interact with any network.

I would also recommend that a condition be placed on certification that the use of this module is only considered within the scope of the certification of this system if the module is used in accordance with any procedures prescribed by the Secretary of State's Office under Election Code 127.1231(b).

Because the Regional Reporting module complies with the standards outlined in Election Code 127.1231(b) and with the procedural requirements outlined in Advisory 2019-23, I would recommend certification of this module with the condition that the use of that module must be consistent with the procedures prescribed by the Secretary of State's Office in order for the module to be considered to be within the scope of certification.

Thermal Printing

During the course of the exam, the examiners voted a number of test ballots from a specific batch of ballot stock provided by the vendor that experienced issues with the thermal printing.

After the ballot stock was inserted into the ExpressVote device, the selections were made by the examiner, and the ballot was printed, the machine produced an error message indicating that the printed card could not be read. Upon a physical examination of the ballot, there was some speckling in the barcode and printed text that made the barcode unreadable by the scanners.

While the choices on the ballot were human-readable and the voter's intent on the ballot was clear, the scanner was unable to read the ballot and would outstack the ballot when it was fed into the scanner. In the course of testing the issue, it was determined that the cause of the error was the ballot stock from that specific batch.

The vendor reviewed the ballot stock that was used and reported that the cause of the error was that the ballot cards in that batch had not been properly stored or transported during the exam. According to the vendor, this impacted the quality of the thermal coating on the card.

If the issue were to occur in the field, the voter's choices are correctly printed on the ballot stock, meaning that the voter's ballot would still be counted through a manual count under Election Code 127.130 or through the duplication procedures outlined in Election Code 127.126.

The vendor's manuals for the system outline the best practices for proper storage and transportation of ballot stock, which should be followed by entities using this system to ensure that they do not encounter this issue. At the time of this report, I am unaware of any jurisdictions that have experienced this particular issue during an election or during pre-election testing of their equipment. Entities using this system should take care to ensure that their ballot stock is properly stored and transported to avoid this issue occurring in the field.

Conclusion and Recommendation

Because EVS 6.3.0.0 complies with the necessary requirements for a voting system under Texas law, I would recommend certification of this system, with a recommendation that the following conditions be placed on the certification of this system:

- That the imprinter attachment will not be installed on any tabulation devices used with the system; and

- That the Regional Results module must be used in accordance with the procedures prescribed by the Secretary of State's Office under Election Code 127.1231(b) in order for the module to be considered within the scope of the certification of this system.