

# Voting System Examination Election Systems & Software (ES&S)

Prepared for the  
Secretary of State of Texas

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Designee of the Attorney General

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

**Examination Date** June 26-27, 2019

**Report Date** July 26, 2019

## Examination of ES&S Voting System (EVS) 6.0.4.0

EAC Certification Number: ESSEVS6040

| <b>Components Examined</b>          | <b>Version</b> |
|-------------------------------------|----------------|
| ExpressTouch                        | 1.0.3.0        |
| DS200 Precinct Ballot Counter       | 2.17.4.0       |
| DS450 Central Scanner and Tabulator | 3.1.1.0        |
| DS850 Central Scanner and Tabulator | 3.1.1.0        |
| ExpressVote & Previewer, HW v. 1.0  | 1.5.2.0        |
| ExpressVote & Previewer, HW v. 2.1  | 2.4.5.0        |
| ExpressVote XL HW v. 1.0            | 1.0.3.0        |
| Electionware                        | 5.0.4.0        |
| ExpressLink                         | 1.5.1.0        |
| Event Log Service                   | 1.6.0.0        |
| ExpressVote Activation Card Printer | NA             |
| PaperBallot                         | 5.0.4.0        |
| Removable Media Service             | 1.5.1.0        |
| Toolbox                             | 3.5.0.0        |

## Changes from Last Version Examined (EVS 6.0.2.0)

Changes to EVS 6.0.4.0 primarily comprise substitution of new hardware components for those that have reached end of life, along with the software and firmware changes necessary to accommodate them. There is a also new option to use BitLocker, a tool that jurisdictions can use to further lockdown their Election Management System. BitLocker requires a 'key' USB to be

inserted before the computer will boot up. There are also new versions of some COTS components such as Microsoft Windows, Symantec antivirus, and the Cerberus software.

## **System Overview**

EVS is a comprehensive election system that supports most modern voting methods.

Election setup is done using the Electionware software and then transported to the various Election-Day devices on encrypted USB memory sticks.

On Election Day, voters can mark paper ballots manually, or use an ExpressVote or ExpressTouch voting station. ExpressVote is a touch-screen voting station that can be used either as a direct recording electronic (DRE) device that records voters' choices on electronic media, or for printing their choices on a paper *Vote Summary Card* for separate tabulation.

The Vote Summary Card contains a complete record of the voter's choices in both human-readable form (so the voter can verify it) and machine-readable form (for tabulation), so it serves the same function as a paper ballot

ExpressTouch is a tablet voting station that is primarily for curbside voting.

At the polls, election workers first identify a voter's precinct and split, and then use ExpressLink to print an activation card to unlock a voting station. For manual voting, the voter is given a paper ballot.

The paper ballots and vote summary card can be scanned in the precinct using the DS200, or in a central-count location using the DS450 or DS850. The results of DRE voting and the ballots scanned in the precinct are written on USB memory, which is then carried to the central-count location for final tabulation.

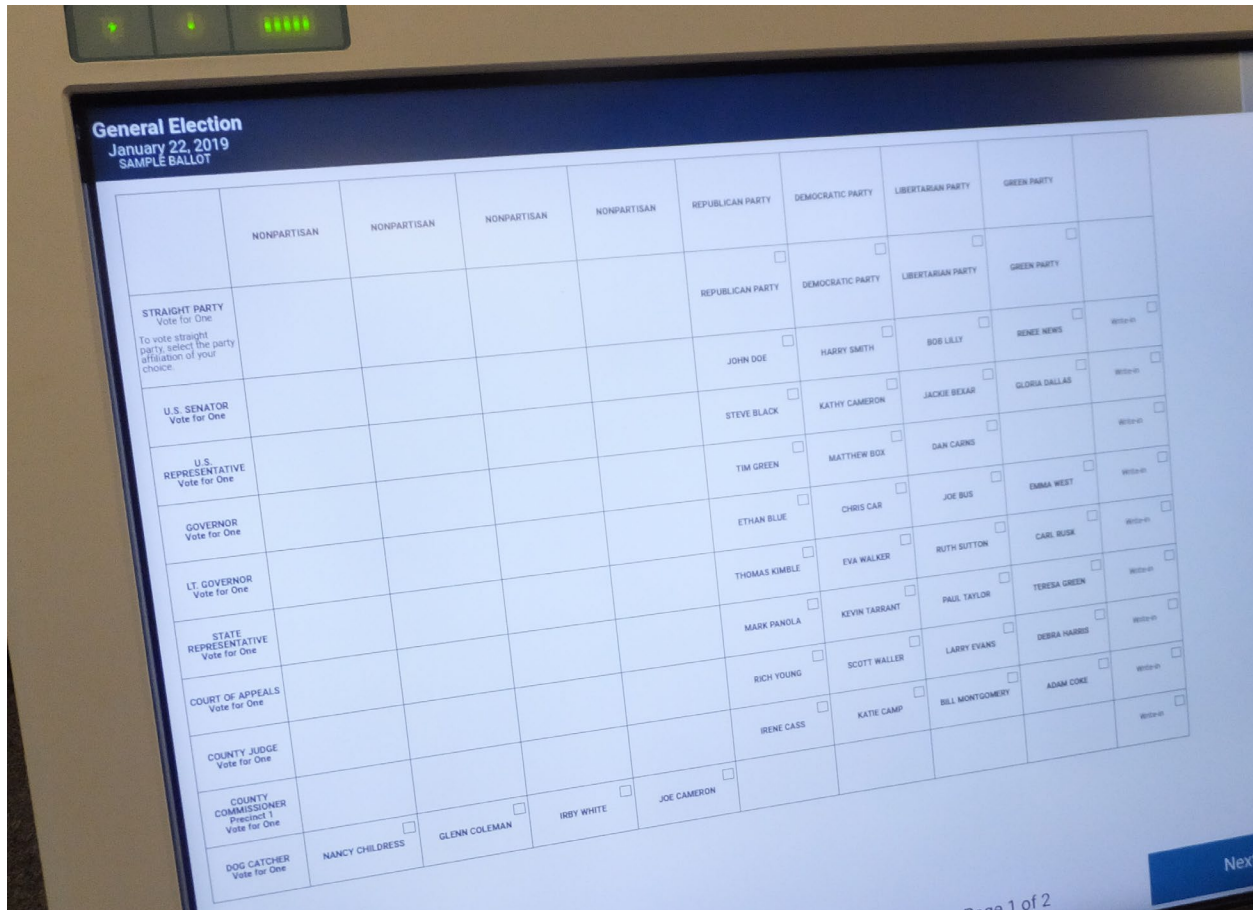
## **Examination Procedures**

This was a two-day examination. On the first day, we observed as the vendor installed the firmware and software using files obtained directly from the VSTL by the Secretary of State, thus providing chain of custody. Then we verified version numbers, asked technical questions, and discussed the technical aspects of the system.

On the second day, we heard a presentation about the system, voted on the different voting stations, tabulated using each scanner, transported election results to the central-count system, and verified that the results were tabulated properly.

## Concerns

At present, ES&S has not addressed my concern about the ExpressVote XL, which was identified in my report from the previous exam, on January 22, 2019. My concern is that it is possible to create the confusing ballot layout shown in the photo (from the prior exam), with four columns labeled non-partisan and the others labeled with party names. This confusing layout is made worse by the partisan races being listed on the right, so that the voter must scan across all the empty columns to see which party a candidate belongs to.



One solution to this would be to list the non-partisan candidates in a separate table from the ones with party affiliations.

Some may think that no one would lay out a ballot like the one in the photo, but someone at ES&S did so. Also, the example given by ES&S (shown below) from the *Electionware Vol. III: Design User Guide* in section 3.1.2 is also laid out this way, except that the partisan and non-partisan races are reversed. Furthermore, this is the only example of a ballot layout I found in their documentation.

It's important to provide guidance to counties about how to use the ExpressVote XL to lay out ballots so they can be clearly understood by voters. ES&S argues that the Electionware software is merely a tool, and the responsibility for designing a user-friendly ballot resides with the

customer. However, I believe that the tool should provide guidance regarding best practices and cautions regarding misuse.

REP Precinct 1

0 1 2 3 4 5 6 7 8 9

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|   |  |                          |                          |             |                                      |
|---|--|--------------------------|--------------------------|-------------|--------------------------------------|
|   | REPUBLICAN   | REPUBLICAN               | NONPARTISAN              | NONPARTISAN |                                      |
| 2 | UNITED STATES SENATOR<br>Vote for ONE                    | <input type="checkbox"/> | <input type="checkbox"/> |             | Write-In -> <input type="checkbox"/> |
| 3 | UNITED STATES REPRESENTATIVE IN CONGRESS<br>Vote for ONE | <input type="checkbox"/> | <input type="checkbox"/> |             | Write-In -> <input type="checkbox"/> |
| 4 | STATE SENATOR<br>Vote for ONE                            | <input type="checkbox"/> | <input type="checkbox"/> |             | Write-In -> <input type="checkbox"/> |
| 5 | COUNTY ATTORNEY<br>Vote for ONE                          | <input type="checkbox"/> | <input type="checkbox"/> |             | Write-In -> <input type="checkbox"/> |
| 5 | SHERIFF<br>Vote for ONE                                  | <input type="checkbox"/> | <input type="checkbox"/> |             | Write-In -> <input type="checkbox"/> |

Context Menu:

- New Candidate Style Sheet
- Edit Candidate Style Sheet
- Edit Office Section

## Summary

In my opinion the EVS 6.0.4.0 is an excellent voting system, and I recommend certification.

For the ExpressVote XL, I recommend the certification be conditional -- the condition being that ES&S modify their documentation by changing the example shown above and warning against the usability concern I have raised. In later versions, they could warn from within Electionware.