Thursday, May 3, 2017

Ms. Kari Fresquez
New Mexico Secretary of State Office
325 Don Gaspar, Suite 300
Santa Fe, NM 87501

Dear Ms. Fresquez:

Please accept this letter and enclosed documentation as the official application for the State certification of Election Systems & Software's (ES&S) EVS 5.2.2.0. On February 23, 2017, the EVS 5.2.2.0 voting system successfully completed Voting System Testing Laboratory (VSTL) testing at National Technical Systems (NTS) laboratories. EVS 5.2.2.0 received final approval by the EAC on February 27, 2017.

EVS 5.2.2.0 introduces a number of new enhancements and products to jurisdictions in the state of New Mexico. Below you will find a list of all enhancements and new products offered in this EVS 5.2.2.0 voting system.

ExpressVote Universal Voting System:
The ExpressVote Universal Voting System is a vote capture and marking device designed for all voters. The ExpressVote concept reduces voting time, enhances the voting experience, and provides voting access for those that require it. The ExpressVote uses a touch screen, an optional external code scanner, and/or assistive technology to capture a voter's contest choices. The system prevents overvotes and can alert voters about undervotes. Unlike purely electronic vote capture systems, the ExpressVote's integrated printer marks a voter's contest selections on a verifiable hardcopy vote summary card in human-readable format. The vote summary card enables a voter to confirm the ExpressVote captured all votes correctly, alleviating potential concerns about system accuracy and integrity. Marked ExpressVote cards can be tabulated using the ES&S DS200, DS450, or DS850 scanner/tabulators.

DS450 High-Throughput Scanner & Tabulator:
The ES&S DS450 is a central-count scanner and tabulator with ballot sorting capabilities. The DS450 is designed to process a wide variety of ballot types and lengths, including folded ballots and printed ExpressVote summary cards. The DS450 can accurately discriminate between valid marks and extraneous perforations, smudges, and folds. Both sides of the ballot are scanned simultaneously, producing ballot images that are decoded by a proprietary recognition engine. The system includes a large touch-screen display to provide clear feedback. If any special condition or irregularities (as defined by the election jurisdiction) are recognized, the operator is notified, and the appropriate action can be taken.

Write-in Snip It:
A write-in review report option has been added as a configurable option to the DS200 settings in Electionware. The write-in snip it configures the DS200 to automatically print the Write-in Review Report after closing the poll. After a polling place closes polls, a jurisdiction can review the write-in votes that were cast on each DS200.

Bengali Language:
EVS 5.2.2.0 expands the list of supported languages by adding Bengali for use with Electionware, ExpressVote, and the DS200 tabulator.

Security Enhancements:
At ES&S, we design, build and sell voting systems that adhere to the most current standard for the industry. Keeping our products current with this standard requires diligent supervision and perpetual updates to stay one step ahead of risks.

In EVS 5.2.2.0, ES&S implemented a new set of NIST validated cryptographic modules to maintain FIPS 140-1 and FIPS 140-2 compliance for the EVS 5.2.2.0 suite of products.

For your reference, below is a table with a complete list of all software and firmware versions for EVS 5.2.2.0.

EVS 5.2.2.0 EAC Certified 2/27/2017		
Precinct Tabulator	DS200	2.12.2.0
Central Tabulators	DS450	3.0.0.0
	DS850	2.10.2.0
Universal Voting System	ExpressVote	1.4.1.2
Election Management System	Election Reporting Manager (ERM)	8.12.1.1
	ElectionWare	4.7.1.1
	ExpressVote Previewer	1.4.1.2
	ExpressLink	1.3.0.0
	ToolBox	3.1.0.0

Enclosed with ES&S' application is a CD-ROM containing all required documentation. Should you have any questions regarding ES&S' application of EVS 5.2.2.0, please do not hesitate to contact me via telephone at 402-938-1305 or via email at brooke.thernes@essvote.com.

Sincerely,

Brooke L. Thernes
New Mexico State Certification Manager
Election Systems & Software, LLC

cc: Mr. Steve Pearson, Vice President Voting Systems, ES&S

New Mexico Election Code Voting System Requirements

Company Name: **Election Systems & Software**
Contact: **Brooke Thernes**
Address: **11128 John Galt Blvd. Omaha, NE 68137**
Phone Number: **402-938-1305**   Fax: **402-970-1275**   Email: **brooke.thernes@essvote.com**

ES&S EVS 5.2.2.0 Voting System
ESSEVS5220 – EAC Certified 2/27/2017

EVS 5.2.2.0 includes a series of modifications and subsequent releases to ES&S' EVS 5.0.0.0 release certified on September 19, 2013 by the New Mexico Secretary of State. Because EVS 5.2.2.0 was tested as a modification, the test report for this release primarily focused on the primary changes made from the releases proceeding EVS 5.2.2.0. For more information on this, please reference Table 2-1 Revision History in the document entitled EVS5220 Final Test report within Folder 00_Application & EAC Reports. As a result, for a more in-depth analysis to the answers provided in this document, ES&S recommends looking to the certified Technical Data Package where a more complete analysis can be found in regards to the New Mexico statues highlighted below.

Voting Systems used for casting and counting ballots in the state shall meet all outlined requirements in Article 9 of the election code as follows:

1-9-7.7. Voting systems; technical requirements.
Voting systems certified for use in state elections shall:

A. **Have a unique embedded internal serial number for audit purposes**
The DS200, DS450, DS850, and ExpressVote all have internal serial numbers that can be viewed at any time on screen or in an export or print out of the system configuration or audit log reports. In addition, each unit has external labels containing required information.

B. **Be supplied with a dust- and moisture-proof cover for transportation and storage purposes**
A dust and moisture proof cover are provided for both the DS450 and 850 and should be in place while these units are not in operation or when they are being transported out of a storage area.
The DS200 has two types of cases. One is a separate case with a handle and combination lock. Jurisdictions using the metal ballot box should store the DS200 in this case. The other case is utilized as the top section of the plastic ballot box during operation. It can be removed and transported separately from the lower ballot box, and includes rollers and a telescoping handle. This case has seal tabs to provide for physical security.
The ExpressVote has two types of cases. The soft-sided case meets all minimum performance standards for exposure to physical shock and vibration associated with handling and transportation. The ExpressVote Kiosk is a hard-sided enclosure that houses the ExpressVote and accessory panel. Kiosks are able to nest together during storage and keep the ExpressVote secure with locks and seal tabs for physical security.
For more information, please reference Folder 3_System Hardware Specification for each specific piece of hardware.

C. **If the net weight of the system, or aggregate of voting device parts, is over twenty pounds, have self-contained wheels so that the system can be easily rolled by one person on rough pavement and can roll through a standard thirty-inch door frame**
The DS450, DS850, DS200 plastic ballot box case, and ExpressVote Kiosk are all equipped with wheels making transportation simplified. In addition, none of ES&S tabulators/cases/carts exceed the thirty-inch depth requirement. For more information, please reference Folder 3_System Hardware Specification for each specific piece of hardware.

D. **Be a stand-alone, non-networked election system such that all pre-election, election day and post-election events and activities can be recorded and retained in each device**

All ES&S hardware in EVS 5.2.2.0 maintains a real-time log of all events that occur on the specific hardware itself and events specific to an election. These logs can be printed or exported for all pre-election, election day and post-election events and activities via any of the system or election audit logs available on each unit. For more information, please reference Folder 6_System Security Specification.

E. **Employ scalable technology allowing easy enhancements that meet United States election assistance commission standards and state law**
Any and all changes or enhancements made to ES&S technology is reviewed and/or tested by the Election Assistance Commission and a Voting System Testing Laboratory to ensure the enhancement or change simply extended the life of a certified hardware component and/or further reinforced the product while maintaining the same form, fit, function of the certified piece of equipment. For more information, please reference Folder 00_Application & EAC Test Reports. Within the EVS5220-Cert_Scope(FINAL) you will find a complete list of all change orders that were included in EVS 5.2.2.0.

F. **Have ancillary equipment, such as printers, power sources, microprocessors and switch and indicator matrices, that is installed internally or is modular and transportable**
For information on each specific hardware component, please reference the Components Included table in the document entitled EVS5220-Cert_Scope(Final) within the folder 00_Application & EAC Test Reports.

G. **Display publicly the number of ballots processed**
The public and protected count displays the number of ballots scanned in an election and the number of sheets scanned on the DS200 during its lifetime, respectively. The DS850 and DS450 are both central tabulators and can display total ballots processed at any time via the results menu or viewing the total ballots saved section in the scanning tab. For more information, please reference Folder 7_System Operations Procedures for each specific tabulator.

H. **Be able to print:**
(1) **An alphanumeric printout of the contests, candidates and vote totals when the polls are opened so that the poll workers can verify that the counters for each candidate are on zero**
The DS200 precinct scanner and tabulator will automatically print a zero report when polls are opened. The DS450 and DS850 central tabulators can also print zero reports via the results tab on each unit. This process is initiated by the user. For more information, please reference Folder 7_System Operations Procedures for each specific tabulator.

(2) **An alphanumeric printout of the contests, candidates and vote totals at the close of the polls, which printouts shall contain the system serial number and public counter total**
The DS200 precinct scanner and tabulator will automatically print a totals report at the close of polls. Once scanning is complete at the central location, the DS450 and DS850 can print a totals report from the results tab. This process is initiated by the user. For more information, please reference Folder 7_System Operations Procedures for each specific tabulator.

(3) **As many copies of the alphanumeric printouts as necessary to satisfy state law**
All tabulators are capable of printing as many zero reports or results reports as needed under state statute. Reports can either be accessed in the admin menu on the DS200 or the results menu on the DS450 and DS850. For more information please reference Folder 7_System Operations Procedures for each respective tabulator.

I. **Include a feature to allow reports to be sent to an electronic data file**
At the close of polls, all results, logs and cast vote records are written to a removable media device to be transported to Election Reporting Manager (ERM) for results accumulation. For more information on these data files please reference Folder 7_System Operations Procedures for each respective tabulator.

1-9-7.8. Voting systems; operational requirements
Voting systems certified for use in state elections shall:

A. **Have internal application software that is specifically designed and engineered for the election application**
Both, Electionware and Election Reporting Manager (ERM) is proprietary and specifically designed to define an election definition, design a ballot, produce election day media, and accumulate results. For more information regarding the design of this software, please reference Folder 4_Software Design and Specification. For more information regarding the operation of each module within Electionware and ERM, please reference Folder 7_System Operations Procedures.

B. **Include comprehensive diagnostics designed to ensure that failures do not go undetected**
The Jurisdiction is responsible for managing and archiving all Window's Event Logs related to all phases of an election. The Windows Event Log records each activity executed on the EMS PC including type, date, time, ES&S application, user ID and computer name. All EMS log messages are retrieved from the Windows Event Viewer using the Event Log Service. There are additional logs that are stored in the Electionware database. These logs are maintained and retrieved using Electionware functions. For more information regarding this process please reference Folder 6_System Security and Specification. For more information regarding accessing EMS logs and hardware logs, please reference Folder 7_System Operations Procedures.

C. **Have a real-time clock capable of recording and documenting the total time polls are opened**
All ES&S hardware is equipped with a real-time clock that tags the date and time to which polls are opened and closed in addition to any major events that take place on that specific piece of hardware. For more information on ES&S' real-time clocks, please reference Folder 7_System Operations Procedures.

D. **Have a self-contained, internal backup battery that powers all components of the system that are powered by alternating current power; and, in the event of a power outage in the polling place:**
   (1) The self-contained, internal backup battery power shall engage with no disruption of operation for at least two hours and with no loss of data; and
   (2) The system shall maintain all vote totals, public counter totals and the internal clock time in the event that the main power and battery backup power fail.
   The DS200 is equipped with an external DC power supply, which plugs into a grounded, three-pronged 120-volt AC outlet and supplies power to the DS200. If a power outage occurs, the unit seamlessly transitions to the internal backup battery. The backup battery provides power for a minimum of two hours of scanning activity, or more than two hours of less intense use.
   The ExpressVote is connected to a standard 110-volt AC outlet. In the case of a power outage, the ExpressVote can continue running on a fully-charged internal backup battery power for two hours. If the ExpressVote reaches a critically low battery power level without being shut off, the ExpressVote will initiate a controlled shutdown to prevent the system from being corrupted.
   The DS450 and DS850 are plugged into a UPS, the UPS is plugged into a surge suppressor and the surge suppressor is plugged into a wall outlet. If there is loss of AC power, the DS450 and DS850 will begin to run on the UPS Battery Backup System. This will allow for the continuing of scanning and saving of results for a minimum of 2 hours. For more information on battery backup of all ES&S hardware, please reference Folder 7_System Operations Procedures.

1-9-7.9. Voting systems; memory; removable storage media device; requirements
Voting systems certified for use in state elections shall:

A. **Be programmable with removable storage media devices**
All ES&S hardware is programmed with USB and CF removable storage media devices. The memory device storage capacities can be found in the document entitled EVS5220 Final Test Report located in Folder 00_Application & EAC Reports.

B. **Contain ballot control information, summary vote totals, maintenance logs and operator logs on the removable storage media device**
All information written to the removable media storage is digitally signed and encrypted. The data on the devices contains images of the ballots (if chosen to save during the programming of the election), vote totals and any audit logs from the specific election and the specific piece of hardware. This data is then read into Election Reporting

Manger. For more information on this, please reference Folder 7_System Operations Procedures and Folder 6_System Security Specification.

C. Ensure that the votes stored on the removable storage media device accurately represent the actual votes cast
Because all information on the removable storage media is digitally signed and encrypted, any tampering of results will result in a failure to bring results into ERM. Once results are read in from a trusted media device, cumulative results can be verified against the results reports printed by each precinct tabulator or central tabulator. In addition because this is a paper-based system, the physical paper ballot provides for an additional level of redundancy. For more information, please refer to Folder 7_System Operations Procedures.

D. Be designed so that no executable code can be launched from random access memory
ES&S' Election Management System is hardened, locked down and restricted from the outside world. As a result once all proprietary and commercial off the shelf (COTS) software have been installed, the system is locked down in a manner that protects the system from any external threats to the system. For more information, please refer to Folder 6_System Security Specification.

E. Have any operating system software stored in nonvolatile memory, which shall include internal quality checks such as parity or error detection and correction codes, and which software shall include comprehensive diagnostics to ensure that failures do not go undetected
ES&S has the OS stored in nonvolatile memory. Quality checks for errors would be done through the workstations system diagnostic report which comes standard on all deployed systems. For more information please reference Folder 6_System Security Specification

F. Allow for pre-election testing of the ballot control logic and accuracy, with results stored in the memory that is used on election day, and shall be capable of printing a zero-results printout prior to these tests and a results printout after the test
ES&S tabulators and the ExpressVote are capable of performing end-to-end testing of the entire voting system to ensure the election has been coded correctly, the ballots are printed correctly, and that the DS200, DS450, DS850, and ExpressVote correctly reads votes in each possible voting target. In addition, a jurisdiction is able to test the process for collecting results from the tabulators and entering them into Election Reporting Manager. For more information, please refer to Folder 7_System Operations Procedures.

G. Have internal audit trail capability such that all pre-election, election day and post-election events shall be stored, recorded and recovered in an easy-to-read printed form and be retained within memory that does not require external power for memory retention
During the polls close process, audit logs from the tabulators will be written to the removable media device. Once these devices are read into ERM, those audit logs can be viewed, saved, and exported in any manner a jurisdiction sees fit. In addition, the DS450 and DS850 are connected to a real-time audit log printers which act as another means in which to access logs. The DS200 has the capability of printing an audit log immediately after result totals are printed during the close poll process or at anytime throughout the election process. In addition to a hard copy of all audit log reports, EVS 5.2.2.0 also provides a manner in which to save those logs to a location of a jurisdictions choosing to be retained for as long as need be. For more information please refer to Folder 7_System Operations Procedures.

H. Possess the capability of remote transmission of election results to a central location only by reading the removable storage media devices once they have been removed from the tabulation device after the poll closing sequence has been completed
EVS 5.2.2.0 does not allow for modem transmission. As a result, once polls have closed and results are written to the removable media device, that device must be physically transferred to a central location for results accumulation. This process is followed on the DS200, DS450, and DS850. For more information, please refer to Folder 7_System Operations Procedures.

I. Prevent data from being altered or destroyed by report generation or by the transmission of results.

The removable media devices that contain results from each tabulator are digitally signed and encrypted. As a result, if any data is destroyed or tampered with, ERM will produce an error message that prohibits those results from being accumulated into the EMS database as to protect any results that currently reside in the database. For more information please refer to Folder 6_System Security Specification.

1-9-7.10. Voting systems; ballot handling and processing requirements

Voting systems certified for use in state elections shall**:**

A. **Accept a ballot that is a minimum of six inches wide and a maximum of twenty-four inches long, in dual columns and printed on both sides**
   ES&S tabulators are capable of reading 11", 14", 17", and 19" paper ballots and ExpressVote cards in any orientation. For more information regarding ballot size and target specificity, please refer to Folder 1_System Overview.

B. **Accept a ballot in any orientation when inserted by a voter**
   ES&S tabulators accept ballots inserted in any orientation. For more information, please refer to Folder 1_System Overview for more information.

C. **Have the capability to reject a ballot on which a voter has made more than the allowable number of selections in any contest**
   Tabulators can be configured to accept, query or reject undervoted, blank, and overvoted ballots. This is configured in the Deliver module of Electionware. For more information, please refer to Folder 7_System Operations Procedures.

D. **Be designed to accommodate the maximum number of ballot styles or ballot variations encountered in the largest New Mexico election jurisdiction**
   ES&S tabulators are able to support 9,990 precincts and 40 ballot styles per precinct in a 'ballots by style' election. The ExpressVote can support 6,400 ballots styles in a single election. For information on system limitations, please refer to the System Limitations table in the document entitled EVS5220-Cert_Scope within Folder 00_Application & EAC Reports.

E. **Be able to read a single ballot with at least four hundred twenty voting positions.**
   ES&S can support as little as 912 ballot targets and as many as 2184 targets depending on the size of ballot. Please refer to Folder 1_System Overview for a full listing of the maximum ballot targets for ES&S' various size of ballot lengths.

1-9-7.11. Voting systems; source code; escrow.

As a condition of initial certification and continued certification, the source code that operates a voting system shall be placed in escrow and be accessible to the state of New Mexico in the event the manufacturer ceases to do business or ceases to support the voting system. EVS 5.2.2.0 is escrowed at Iron Mountain. Please see Folder 14_Escrow for more information.