

ES&S

EVS 5.2.1.0 – Voting System
Demonstration

Presenter:

- Ben Swartz – ES&S
- Letters of Recommendation:
 - State of Maine
 - Gila County, AZ
 - Santa Cruz County, AZ
 - Graham County, AZ
- EAC – Certification Number
ESSEVS5210



June 22, 2016

Mr. Mark Goins
 Division of Elections
 Tennessee Department of State
 312 Rosa L. Parks Avenue
 7th Floor, William R. Snodgrass Tower
 Nashville, TN 37243

RE: Request for State Certification of Election Systems & Software’s EVS 5.2.1.0 Voting System

Dear Mr. Goins:

Election Systems & Software (ES&S) is pleased to present the Tennessee Department of State and State Election Commission with our request for State Certification of our most recent Election Assistance Commission (EAC) Certified *EVS 5.2.1.0 Voting System*. On December 18, 2015, the EAC granted certification of EVS 5.2.1.0 as a modification to the EAC Certified EVS 5.2.0.0 voting system. The table below represents the EVS 5.2.1.0 version numbers of the software/firmware in comparison to the previous EAC Certified and Tennessee State Certified EVS 5.2.0.0 release.

Tennessee State Certification of EVS 5.2.1.0 <small>EAC Certified: 12/18/2015</small> <small>VVSG Compliance: 2005 VVSG</small>			
		EVS 5.2.0.0	EVS 5.2.1.0
Election Management System (EMS)	ElectionWare	4.6.0.0	4.7.1.0
	Event Log Service	1.5.5.0	1.5.5.0
	Removable Media Service	1.4.5.0	1.4.5.0
	Election Reporting Manager (ERM)	8.11.0.0	8.12.1.0
	VAT Previewer	1.8.6.0	1.8.6.0
	ExpressVote Previewer	1.4.0.0	1.4.1.0
ES&S Tabulators	DS200 Precinct Tabulator (HW 1.2, 1.3)	2.12.0.0	2.12.1.0
	DS850 Central Tabulator (HW 1.0)	2.10.0.0	2.10.1.0
Voter Assist Terminal	AutoMARK (HW 1.0, 1.1, & 1.3)	1.8.6.0	1.8.6.0
Universal Voting System	ExpressVote (HW 1.0)	1.4.0.0	1.4.1.0

Below is a brief summary of the enhancements being submitted for State Certification consideration. Please refer to the System Overview and System Change Notes for additional details pertaining to the products or the EVS 5.2.1.0 voting system.

➤ **Introduction of the ExpressVote Rolling Kiosk**

The *ExpressVote Rolling Kiosk* was designed to be an alternative stand to house the ExpressVote. The stand also can be configured to allow the ExpressVote to eject the ExpressVote cards containing voter selections into a secure bin for later scanning on the DS200 or DS850.

➤ **Key Enhancements to the Election Management System**

Several key enhancements to optimize performance of Election Reporting Manager (ERM) were made in the EVS 5.2.1.0 release.

➤ **Key Enhancements to ES&S' DS200/DS850 Tabulators**

A key enhancement to the DS200 precinct tabulator included an option, after polls closed, for the pollworker to view ballots containing a write-in on the DS200 screen and/or print a write-in report (commonly known as a 'write-in snippet' report) that prints all the write-ins for each contest in that polling location. No enhancements were made to the DS850 firmware that were applicable to Tennessee elections.

Included with this cover letter is a CD-ROM containing the National Technical Systems (NTS) Test Report, EAC certification documentation, ES&S' financial report, and ES&S' Technical Data Package (TDP) which includes the company overview, applicable product brochures, system overview, product maintenance manuals, and system operations manuals. Also included with this submission is the applicable Engineering Change Orders (ECOs) that have been approved by the EAC since January 1, 2016.

In order to demonstrate the enhancements from EVS 5.2.0.0 to EVS 5.2.1.0 to the Department of State and State Election Commissioners, ES&S respectfully requests being added to the State Election Commission's agenda for the upcoming board meeting scheduled for Monday, July 11th at Noon. Prior to July 11th, ES&S will plan on forwarding letters of recommendation from jurisdictions that are on EVS 5.2.1.0 that have also used the release in a recent election.

If you require additional documentation or clarification, please do not hesitate to contact me via telephone at 402-970-1143 or email at brswartz@essvote.com.

Sincerely,



Benjamin Swartz
Sr. State Certification Manager
Election Systems & Software, LLC

cc: Mr. Steve Pearson, Vice President – Voting Systems, ES&S
Ms. Kathy Summers – Tennessee Department of State – Elections Division

encl: *CD-ROM (Technical Data Package)*



United States Election Assistance Commission



Certificate of Conformance

ES&S EVS 5.2.1.0

The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the 2005 *Voluntary Voting System Guidelines (2005 VMSG)*. Components evaluated for this certification are detailed in the attached Scope of Certification document. This certificate applies only to the specific version and release of the product in its evaluated configuration. The evaluation has been verified by the EAC in accordance with the provisions of the *EAC Voting System Testing and Certification Program Manual* and the conclusions of the testing laboratory in the test report are consistent with the evidence adduced. This certificate is not an endorsement of the product by any agency of the U.S. Government and no warranty of the product is either expressed or implied.

Product Name: EVS _____

Model or Version: 5.2.1.0 _____

Name of VSTL: NTS Laboratories _____

EAC Certification Number: ESSEVS5210 _____

Date Issued: December 18, 2015 _____

Executive Director
U.S. Election Assistance Commission

Scope of Certification Attached

Manufacturer: Election Systems & Software
System Name: EVS 5.2.1.0
Certificate: ESSEVS5210

Laboratory: NTS Huntsville
Standard: VVSG 1.0(2005)
Date: December 18, 2015



Scope of Certification

This document describes the scope of the validation and certification of the system defined above. Any use, configuration changes, revision changes, additions or subtractions from the described system are not included in this evaluation.

Significance of EAC Certification

An EAC certification is an official recognition that a voting system (in a specific configuration or configurations) has been tested to and has met an identified set of Federal voting system standards. An EAC certification is **not**:

- An endorsement of a Manufacturer, voting system, or any of the system's components.
- A Federal warranty of the voting system or any of its components.
- A determination that a voting system, when fielded, will be operated in a manner that meets all HAVA requirements.
- A substitute for State or local certification and testing.
- A determination that the system is ready for use in an election.
- A determination that any particular component of a certified system is itself certified for use outside the certified configuration.

Representation of EAC Certification

Manufacturers may not represent or imply that a voting system is certified unless it has received a Certificate of Conformance for that system. Statements regarding EAC certification in brochures, on Web sites, on displays, and in advertising/sales literature must be made solely in reference to specific systems. Any action by a Manufacturer to suggest EAC endorsement of its product or organization is strictly prohibited and may result in a Manufacturer's suspension or other action pursuant to Federal civil and criminal law.

System Overview:

ES&S EVS 5.2.1.0 is comprised of the ExpressVote, AutoMARK Voter Assist Terminal (AutoMARK A100, A200 & A300), DS200 Precinct Digital Scanner (DS200), DS850 high-speed Central Count Digital Scanner, ElectionWare, Election Reporting Manager (ERM), ES&S Event Log Service, Removable Media Service (RMS), ExpressVote Previewer and VAT Previewer.

- The ExpressVote is a universal vote capture device designed for all voters, with independent voter-verifiable paper record that is digitally scanned for tabulation. This system combines paper-based voting with touch screen technology. The ExpressVote includes a mandatory vote summary screen that requires voters to confirm or revise selections prior to printing the summary of ballot selections using the internal thermal

printer. Once printed, ES&S ballot scanners process the vote summary card. The ExpressVote can serve all voters, including those with special needs, allowing voters to cast ballots autonomously. ES&S has fully integrated the ExpressVote with the existing suite of ES&S voting system products.

- AutoMARK Voter Assist Terminal enables voters who are visually or physically impaired and voters more comfortable reading or hearing instructions and choices in an alternative language to privately mark optical scan ballots. The AutoMARK supports navigation through touchscreen, physical keypad or ADA support peripheral such as a sip and puff device or two position switch.
- DS200 digital scanner is a paper ballot tabulator designed for use as a polling place scanner. After the voter makes their selections on their paper ballot, their ballot is inserted into the unit for immediate tabulation. Both sides of the ballot are scanned at the same time using a high-resolution image-scanning device that produces ballot images.
- The DS850 is a high-speed, digital scan central ballot counter that uses cameras and imaging algorithms to capture voter selections on the front and back of a ballot, evaluate results and then sort ballots into discrete bins without interrupting scanning. A dedicated audit printer generates a continuous event log. Machine level reports are produced from a second, laser printer. The scanner saves voter selections and ballot images to an internal hard disk and exports results to a USB Memory stick for processing with Election Reporting Manager.
- ElectionWare integrates the election administration functionality into a unified application. Its intended use is to define an election and create the resultant media files used by the ExpressVote, DS200 tabulator, AutoMARK™ Voter Assist Terminal (VAT), the DS850 Central Ballot Scanner, and Election Reporting Manager (ERM). An integrated ballot viewer allows election officials to view the scanned ballot and captured ballot data side-by-side and produce ballot reports.
- ES&S Event Log Service is a Windows Service that runs in the background of any active ES&S Election Management software application to monitor the proper functioning of the Windows Event Viewer. The ES&S Event Log Service closes any active ES&S software application if the system detects the improper deactivation of the Windows Event Viewer.
- The ExpressVote Previewer is an application within the EMS program that allows the user to preview audio text and screen layout prior to burning Election Day media for the ExpressVote.
- The VAT Previewer is an application within the EMS program that allows the user to preview audio text and screen layout prior to burning Election Day media for the AutoMARK™.
- Removable Media Service (RMS) is an application that runs in the background of the EMS client workstation and supports the installation and removal of election and results media.
- Election Reporting Manager (ERM) generates paper and electronic reports for election workers, candidates, and the media. Jurisdictions can use a separate ERM installation to display updated election totals on a monitor as ballot data is tabulated, and send the results' reports directly to the media outlets.

ERM supports accumulation and combination of ballot results data from all ES&S tabulators. Precinct and accumulated total reports provide a means to accommodate candidate and media requests for totals and are available upon demand. High-speed printers are configured as part of the system accumulation/reporting stations PC and related software.

This modification includes the following updates to the EVS 5.2.0.0 system:

Electionware

- RSACRYPTO update
- Write-in Snippet report flag
- State of Maryland specific export
- Support for Bengali
- Straight Party handling for U.S Virgin Islands

ERM

- General bug fixes

DS200

- Write-in Snippet report flag
- Support for Bengali
- Straight Party handling for U.S Virgin Islands

DS850

- Straight Party handling for U.S Virgin Islands

ExpressVote

- Support for Bengali
- Security checks for fonts
- General bug fixes

Hardware

- ExpressVote Rolling Kiosk
- Delkin CF card reader

Mark definition:

ES&S' declared level mark recognition for the DS200 and DS850 is a mark across the oval that is 0.2" long x 0.03" wide at any direction.

Tested Marking Devices:

Bic Grip Roller Pen

Language capability:

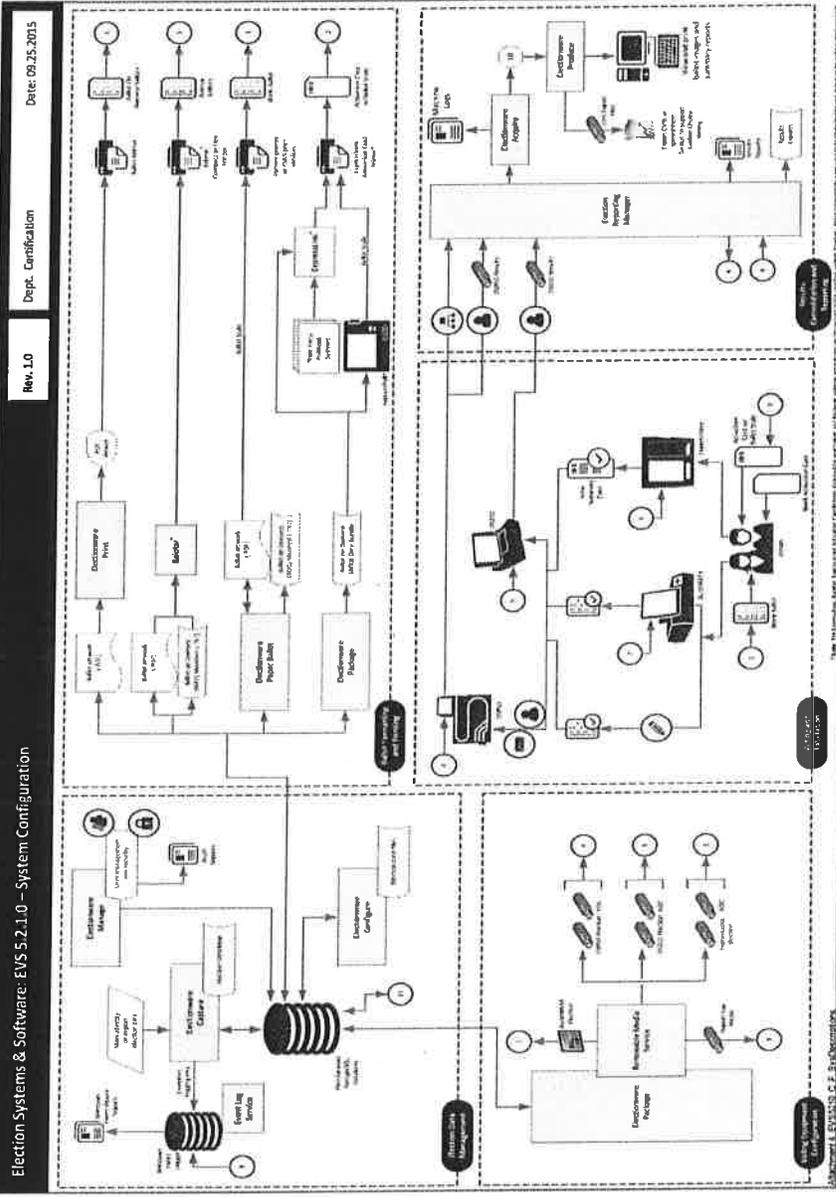
EVS 5.2.1.0 supports English, Spanish, Chinese, Korean, Japanese and Bengali.

Components Included:

This section provides information describing the components and revision level of the primary components included in this Certification.

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
ExpressVote	1.4.1.0	1.0		Accessible Voting Station
ExpressVote		1.0		Rolling Kiosk
DS200	2.12.1.0	1.2.1, 1.2.3, 1.3		Precinct Digital Scanner
AutoMARK A100	1.8.6.0	1.0		ADA Ballot Marking Device
AutoMARK A200	1.8.6.0	1.1, 1.3		ADA Ballot Marking Device
AutoMARK A300	1.8.6.0	1.3		ADA Ballot Marking Device
DS850	2.10.1.0	1.0		Central Count Scanner, high-speed
Ballot Box Hardware		1.2, 1.3		Plastic ballot box
Ballot Box Hardware		1.0, 1.1, 1.2		Metal ballot box with/without diverter
Election Ware	4.7.1.0			
Election Reporting Manager (ERM)	8.12.1.0			
ES&S Event Log Service	1.5.5.0			
VAT Previewer	1.8.6.0			
Removable Media Service	1.4.5.0			
EMS Reporting Workstation		Dell Optiplex 980		
EMS Server		Dell PowerEdge T710		
EMS reporting Laptop		Dell Latitude E6410		
Ballot on Demand Printer		C9650		
DS850 Report Printer		OKI B430dn & Oki B431dn		Laser report printer
DS850 Audit Printer		Oki Microline 420		Dot Matrix Printer
Headphones		Avid 86002		
USB Flash Drive		Delkin 512MB		
USB Flash Drive		Delkin 4GB		
USB Flash Drive		Delkin 8 GB		
USB Flash Drive		Delkin 1 GB		

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
USB Flash Drive		Delkin 2 GB		
Compact Flash		Delkin Devices 1.0 GB capacity		
Motorola QR code scanner		DS9208	COTS	
Zebra QR code scanner		DS457-SR20009	COTS	
Adobe Acrobat Standard	11		COTS	
Cerberus FTP	6.0.7.1		COTS	
Microsoft Server 2008	R2 w/ SP1		COTS	
Microsoft Windows 7	5.1 w/ SP1		COTS	
Microsoft Visual C++ 2008 Redistributable – x64	9.0.30729		COTS	
Microsoft Visual C++ 2010 Redistributable – x64	10.0.40219		COTS	
Microsoft Visual C++ 2010 Redistributable – x86	10.0.40219		COTS	
Microsoft .net Framework	4.5.1		COTS	
Micro Focus RM/COBOL Runtime	12.06		COTS	
Symantic Endpoint Protection	12.1.4		COTS	
SanDisk CF Card Reader		018-6305		
Delkin CF card reader		6381		



System Limitations

This table depicts the limits the system has been tested and certified to meet.

System Characteristic	Boundary or Limitation	Limiting Component
Max. precincts allowed in an election	9900	ERM
Max. count for any precinct element	500,000 (65,500 from any tabulator media)	ERM report (ERM results import)
Max. candidates allowed per election	Depends on election content (limited by 21,000 maximum counters) ¹	ERM
Max. contests allowed in an election	Depends on election content (limited by 21,000 maximum counters) ²	ERM
Max. counters allowed per precinct	Limits candidates and contests assigned to a precinct to 1,000 ³	ERM
Max. contests allowed per ballot style	200 or number of positions on ballot	N/A
Max. candidates (ballot choices) allowed per contest	175	ERM (database create)
Max. number of parties allowed	General election: 75 Primary election: 20 (including nonpartisan party)	ERM (database create)
Max. 'vote for' per contest	98	ERM (database create)
Ballot formats	All paper ballots used in an election must be the same size and contain the number of response rows.	Ballot scanning equipment
Max. Ballot Styles	9900	ERM
Max. District Types/Groups	20	ERM
Max. districts of a given type ⁴	40	ERM

¹ Calculation of the number of counters must include a minimum of 4 counters for each contest, 3 overhead (overvote, undervote, precincts counted) and at least 1 candidate. Additional contest candidates each add a counter. If some precincts are defined as Absentee, a fourth overhead counter (absentee precincts counted) must be added to each contest. The number of statistical counters (Ballots Cast, Registered voters) must be added to the contest counters to determine the total counters.

² Example of maximum contest calculation if all contests had 2 candidates (5 counters each, 3 overhead counters + 2 candidates) and there were 10 statistical counters (i.e. Ballots Cast-Total, Republican, Democratic, Libertarian, Nonpartisan and Registered Voters-Total, Republican, Democratic, Libertarian, Nonpartisan. $(21000-20)/5 = 4196$ or $(\text{counter limit} - \text{statistics} \times 2) / \text{number of counters/contest} = \text{number of contests}$.)

³ Contest counters are calculated as indicated in footnote 1, but two counters must be added for each statistical counter defined for the precinct. There are a minimum of 3 statistic counters assigned to each precinct (six added counters), "Ballots Cast," "Registered Voters" and "Ballots Cast Blank."

System Characteristic	Boundary or Limitation		Limiting Component
Supported Languages	<ul style="list-style-type: none"> • English • Spanish • Chinese 	<ul style="list-style-type: none"> • Korean • Japanese • Bengali 	System Configuration

Component Limitations:

Paper Ballot Limitations

1. The paper ballot code channel, which is the series of black boxes that appear between the timing track and ballot contents, limits the number of available ballot variations depending on how a jurisdiction uses this code to differentiate ballots. The code can be used to differentiate ballots using three different fields defined as: Sequence (available codes 1-26,839), Type (available codes 1-30) or Split (available codes 1-40).
2. If Sequence is used as a ballot style ID, it must be unique election-wide and the Split code will always be 1. In this case the practical style limit would be 26,000.

DS200

1. The ES&S DS200 configured for an early vote station does not support precinct level results reporting. An election summary report of tabulated vote totals is supported.

AUTOMARK Voter Assist Terminal

1. ES&S AutoMARK capacities exceed all documented limitations for the ES&S election management, vote tabulation and reporting system. For this reason, Election Management System and ballot tabulator limitations define the boundaries and capabilities of the AutoMARK system as the maximum capacities of the ES&S AutoMARK are never approached during testing

ElectionWare

1. ElectionWare capacities exceed the boundaries and limitations documented for ES&S voting equipment and election reporting software. For this reason, ERM and ballot tabulator limitations define the boundaries and capabilities of ElectionWare system.

ExpressVote

1. ExpressVote capacities exceed all documented limitations for the ES&S election management, vote tabulation and reporting system. For this reason, Election Management System and ballot tabulator limitations define the boundaries and capabilities of the ExpressVote system as the maximum capacities of the ES&S ExpressVote are never approached during testing.

Election Reporting Manager (ERM)

1. Election Reporting Manager requires a minimum monitor screen resolution of 800x600.

⁴ Excludes the Precinct Group which contains all precincts.

2. ERM Database Create allows 1600 Precincts per Ballot Style.
3. There is a limit of 3510 precincts in the precincts counted/not counted display.
4. There is a limit of 3000 precincts in the precincts counted/not counted scrolling display.
5. Contest/Precinct selection pop up display limited to 3000 contests/precincts.
6. Non-English characters are not supported in ERM. This has to do with the creation of the XML results file out of ERM.
7. ERM's maximum page size for reports is 5,000 pages.

Functionality

2005 VVSG Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
Voter Verified Paper Audit Trails		
VVPAT	No	
Accessibility		
Forward Approach	Yes	
Parallel (Side) Approach	Yes	
Closed Primary		
Primary: Closed	Yes	
Open Primary		
Primary: Open Standard (provide definition of how supported)	Yes	
Primary: Open Blanket (provide definition of how supported)	No	
Partisan & Non-Partisan:		
Partisan & Non-Partisan: Vote for 1 of N race	Yes	
Partisan & Non-Partisan: Multi-member ("vote for N of M") board races	Yes	
Partisan & Non-Partisan: "vote for 1" race with a single candidate and write-in voting	Yes	
Partisan & Non-Partisan "vote for 1" race with no declared candidates and write-in voting	Yes	
Write-In Voting:		
Write-in Voting: System default is a voting position identified for write-ins.	Yes	
Write-in Voting: Without selecting a write in position.	Yes	
Write-in: With No Declared Candidates	Yes	
Write-in: Identification of write-ins for resolution at central count	Yes	
Primary Presidential Delegation Nominations & Slates:		
Primary Presidential Delegation Nominations: Displayed delegate slates for each presidential party	No	
Slate & Group Voting: one selection votes the slate.	No	
Ballot Rotation:		
Rotation of Names within an Office; define all supported rotation methods for location on the ballot and vote tabulation/reporting	Yes	
Straight Party Voting:		
Straight Party: A single selection for partisan races in a general election	Yes	
Straight Party: Vote for each candidate individually	Yes	

Feature/Characteristic	Yes/No	Comment
Straight Party: Modify straight party selections with crossover votes	Yes	
Straight Party: A race without a candidate for one party	Yes	
Straight Party: N of M race (where "N">1)	Yes	
Straight Party: Excludes a partisan contest from the straight party selection	Yes	
Cross-Party Endorsement:		
Cross party endorsements, multiple parties endorse one candidate.	Yes	
Split Precincts:		
Split Precincts: Multiple ballot styles	Yes	
Split Precincts: P & M system support splits with correct contests and ballot identification of each split	Yes	
Split Precincts: DRE matches voter to all applicable races.	No	
Split Precincts: Reporting of voter counts (# of voters) to the precinct split level; Reporting of vote totals is to the precinct level	Yes	It is possible to list the number of voters.
Vote N of M:	Yes	
Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	No	
Vote for N of M: Invalidates all candidates in an overvote (paper)	No	
Recall Issues, with options:		
Recall Issues with Options: Simple Yes/No with separate race/election. (Vote Yes or No Question)	Yes	
Recall Issues with Options: Retain is the first option, Replacement candidate for the second or more options (Vote 1 of M)	Yes	
Recall Issues with Options: Two contests with access to a second contest conditional upon a specific vote in contest one. (Must vote Yes to vote in 2 nd contest.)	No	
Recall Issues with Options: Two contests with access to a second contest conditional upon any vote in contest one. (Must vote Yes to vote in 2 nd contest.)	No	Overtured - US District Court 7/29/03: CA Election Code sect. 11383
Cumulative Voting		
Cumulative Voting: Voters are permitted to cast, as many votes as there are seats to be filled for one or more candidates. Voters are not limited to giving only one vote to a candidate. Instead, they can put multiple votes on one or more candidate.	No	
Ranked Order Voting		
Ranked Order Voting: Voters can write in a ranked vote.	No	
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	No	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	No	

Feature/Characteristic	Yes/No	Comment
Ranked Order Voting: Voters rank candidates in a contest in order of choice. A candidate receiving a majority of the first choice votes wins. If no candidate receives a majority of first choice votes, the last place candidate is deleted, each ballot cast for the deleted candidate counts for the second choice candidate listed on the ballot. The process of eliminating the last place candidate and recounting the ballots continues until one candidate receives a majority of the vote	No	
Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.	No	
Ranked Order Voting: The total number of votes for two or more candidates with the least votes is less than the votes of the candidate with the next highest number of votes, the candidates with the least votes are eliminated simultaneously and their votes transferred to the next-ranked continuing candidate.	No	
Provisional or Challenged Ballots		
Provisional/Challenged Ballots: A voted provisional ballots is identified but not included in the tabulation, but can be added in the central count.	Yes	
Provisional/Challenged Ballots: A voted provisional ballots is included in the tabulation, but is identified and can be subtracted in the central count	Yes	
Provisional/Challenged Ballots: Provisional ballots maintain the secrecy of the ballot.	Yes	
Overvotes (must support for specific type of voting system)		
Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	Yes	
Overvotes: DRE: Prevented from or requires correction of overvoting.	No	
Overvotes: If a system does not prevent overvotes, it must count them. Define how overvotes are counted.	Yes	
Overvotes: DRE systems that provide a method to data enter absentee votes must account for overvotes.	No	
Undervotes		
Undervotes: System counts undervotes cast for accounting purposes	Yes	
Blank Ballots		
Totally Blank Ballots: Any blank ballot alert is tested.	Yes	
Totally Blank Ballots: If blank ballots are not immediately processed, there must be a provision to recognize and accept them	Yes	
Totally Blank Ballots: If operators can access a blank ballot, there must be a provision for resolution.	Yes	
Networking		
Wide Area Network – Use of Modems	No	
Wide Area Network – Use of Wireless	No	
Local Area Network – Use of TCP/IP	No	
Local Area Network – Use of Infrared	No	
Local Area Network – Use of Wireless	No	
FIPS 140-2 validated cryptographic module	No	
Used as (if applicable):		

Feature/Characteristic	Yes/No	Comment
Precinct counting device	Yes	DS200
Central counting device	Yes	DS850

Baseline Certification Engineering Change Order's (ECO)

This table depicts the ECO's certified with the voting system:

Change ID	Date	Component	Description	Inclusion
ECO 911	7/29/15	DS850	Second source for LED on camera circuit board	Non-DeMinimis Optional
ECO 917	7/29/15	DS850	Second source LG display	Non – DeMinimis Optional
ECO 919	7/29/15	ExpressVote	Second source LG display	Non – DeMinimis Optional
ECO 921	10/27/15	DS200 Plastic Ballot Box	Adding Block of security foam underneath the slot of the emergency bin	DeMinimis Optional
ECO 1741	7/29/15	ExpressVote	Add additional labels, Velcro patch for keypad	DeMinimis Optional
ECO 1880	8/5/15	DS200	Additional second source and end of life replacement	Non-DeMinimis Optional
ECO 2018	10/9/15	ExpressVote	Remove English from text on ExpresVote instruction label	DeMinimis Optional



June 22, 2016

Mr. Mark Goins
Division of Elections
Tennessee Department of State
312 Rosa L. Parks Avenue
7th Floor, William R. Snodgrass Tower
Nashville, TN 37243

RE: Notification of Engineering Change Orders (ECOs)

Dear Mr. Goins:

Pursuant to Election Systems & Software, LLC (ES&S) company policy, notice of Engineering Change Orders (ECOs) to an Election Assistance Commission (EAC) Certified component is being provided to the Tennessee Department of State with this correspondence.

Once a component (ie: the DS200) is certified by the EAC, the EAC has established an ECO process where vendors may write ECOs against that hardware component that are minor in nature and therefore don't require full EAC certification (or re-certification) of the certified hardware component.

It is our company policy to not ship or make any hardware modifications in the field until the ECO has been reviewed by a Voting System Testing Laboratory (VSTL), the EAC, and finally the appropriate state authority has been notified of the hardware modification to an EAC Certified component.

Recently, seven ECOs were submitted by ES&S and reviewed by National Technical Systems, an EAC accredited VSTL. Below is a table displaying the seven ECOs, the ECOs description of change, and the final EAC resolution of the ECO.

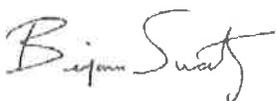
Table with 3 columns: ES&S ECO #, ECO Description of Change, and EAC Resolution. Row 1: 2113, Added tape to DS200 Contact Image Sensor Cable Connector, De Minimis 4/19/2016.

ES&S ECO #	ECO Description of Change (Continued)	EAC Resolution
2106	<p>Optional DS200 Casters on the DS200 Ballot Bin <u>Summary:</u> ECO 2106 introduces new casters to the DS200 Ballot Box Assembly.</p> <p>NTS and the EAC reviewed ECO 2106 and determined it to be De Minimis per section 3.4 of the EAC Voting System Testing and Certification Program Manual, Version 2.0.</p>	De Minimis 4/7/2016
1816	<p>Optional Universal Rails on the Steel Ballot Bin <u>Summary:</u> ECO 1816 adds the universal rails to the Steel Ballot Bin bill of materials.</p> <p>NTS and the EAC reviewed ECO 1816 and determined it to be De Minimis per section 3.4 of the EAC Voting System Testing and Certification Program Manual, Version 2.0.</p>	De Minimis 3/4/2016
941	<p>Alternate DS850 Report Printer <u>Summary:</u> ECO 941 adds an alternate report printer, OKIDATA B431D to the certified configuration due to the current DS850 report printer, OKIDATA B431DN, going end-of-life.</p> <p>NTS and the EAC reviewed ECO 941 and determined it to be De Minimis per section 3.4 of the EAC Voting System Testing and Certification Program Manual, Version 2.0.</p>	De Minimis 6/6/2016
930	<p>Optional Repair Kit for DS200 Carrying Case <u>Summary:</u> ECO 930 creates an optional repair kit for older DS200 carrying cases (prior to HW 1.4) that allows for the HW 1.4 <i>gas strut anchor post</i> certified with EVS 5210 release to be used on older DS200 carrying cases already in the field.</p> <p>NTS and the EAC reviewed ECO 930 and determined it to be De Minimis per section 3.4 of the EAC Voting System Testing and Certification Program Manual, Version 2.0.</p>	De Minimis 3/4/2016
927	<p>AutoMARK Back-up Battery Has Gone End-of-Life <u>Summary:</u> The current back-up battery for the AutoMARK has gone end-of-life. ECO 927 replaces the current Totex Moll Cell Battery with the LG Cell Battery which is the same form, fit, and function of the original back-up battery.</p> <p>NTS and the EAC reviewed ECO 927 and determined it to be De Minimis per section 3.4 of the EAC Voting System Testing and Certification Program Manual, Version 2.0.</p>	De Minimis 1/5/2016
924	<p>ExpressVote Kiosk Enhancements <u>Summary:</u> ECO924 updated the kiosk stand to including shipping stops, dock, feet, and thumbscrews on the leveling feet. Further created a field upgrade kit for those kiosk that were already in the field.</p> <p>NTS and the EAC reviewed ECO 924 and determined it to be De Minimis per section 3.4 of the EAC Voting System Testing and Certification Program Manual, Version 2.0.</p>	De Minimis 2/26/2016

Included with the EVS 5.2.1.0 Certification CD-ROM being sent to you is this cover letter as well as NTS' assessment for each ECO referenced in this letter. ES&S respectfully requests the Tennessee Department of Elections approval of the ECOs presented in this correspondence so field technicians assigned to the State of Tennessee may now or in the future incorporate these ECOs into the products being shipped to or being maintained in the State of Tennessee.

If you require additional information, please do not hesitate to contact me at 402-970-1143 or via email at brswartz@essvote.com.

Sincerely,



Benjamin Swartz
Sr. State Certification Manager
Election Systems & Software, LLC



Key Benefits Summary: ES&S Voting System 5.2.1.0

This Key Benefits Summary provides information about the enhancements available with ES&S Voting System 5.2.1.0. (EVS 5210). Read the sections that are most relevant to your needs.

- Executive Summary - a high-level overview
- General Overview - information relevant to election officials and poll workers
- Cross-Product Enhancement Details and Product-Specific Enhancement Details - detailed information relevant to your technical support staff

Note



This system is an enhanced version of EVS 5.2.0.0. For information about all system features and benefits of that release, refer to *Key Benefits Summary: ES&S Voting System 5.2.0.0*.

Executive Summary

Electionware[®] and the DS200[®] tabulator now include the new Write-In Review option. This enhancement enables you to view on-screen digital images of scanned ballots containing write-in votes. You also can use the DS200 to print write-in images on a paper report.

This release introduces the rolling kiosk for use with the ExpressVote[®]. The rolling kiosk enables you to easily deploy, maneuver, and store the ExpressVote unit in a protective, adjustable hard-sided enclosure at your polling locations. The ExpressVote rolling kiosk requires no assembly and is the simplest booth on the market to set up, providing voter privacy in the sturdiest, most stable design available.

Electionware and Election Reporting Manager[®] (ERM) now use an updated version of the RSA cryptographic algorithm. This enhancement ensures compatibility between these two products and the ExpressVote Universal Voting System.

EVS 5210 expands the list of supported languages by adding Bengali for use with Electionware, ExpressVote, and the DS200 tabulator. This release also incorporates straight-party voting support for the U.S. Virgin Islands.

General Overview

The following sections provide a general overview of enhancements made to each component of the EVS 5210.

Note



Refer to the Cross-Product Enhancement Details and Product-Specific Enhancement Details headings for additional information.

For complete details about these enhancements, refer to the *EVS 5210 System Change Notes*, and to the *Users Guide*, *Operators Guide*, and *System Maintenance Manual* for each component of the EVS 5.2.1.0.

Electionware

EVS 5210 enhancements to Electionware include:

- Updated version of the RSA cryptographic algorithm
- Write-in Review support for DS200
- Enhancements to Maryland state profile data handling
- A new default setting for the Force Unique Ballot Styles function
- Enhanced ballot image handling in the Acquire Module
- Corrected contest order for races with multiple districts of the same district type
- New default language content warning
- Bengali language support
- Straight party voting support for the U.S. Virgin Islands

Election Reporting Manager (ERM)

EVS 5210 enhancements to ERM include:

- Updated version of the RSA cryptographic algorithm
- New options for the Change Control File function
- New Use Ballot Style Statistics option for the Create ERM from XML Files function
- Enhanced processing for multiple uploads from the same DS850 tabulator
- Eliminated check and rebuild processing for old format results and counter files

- Corrected the display of the District Control File name prompt in affected reporting options tabs
- Enhanced the Names and District Totals Canvass Report to filter information by contest
- Resolved the COBOL error that previously occurred when creating a Results XML File on a hardened system
- Improved results collection file processing time between the communication server and the ERM client
- Removed the File decryption failed error message for unsuccessful file transfers
- Enhanced Select Group to be Updated function
- Resolved the duplicate column reporting error when using the Create ERM from XML function to add additional groups to an existing election

ExpressVote

EVS 5210 enhancements to the ExpressVote include:

- Rolling kiosk option
- Enhanced display requirements for Yes/No contest questions
- Enhanced card handling
- Bengali language support

ExpressLink

EVS 5210 enhancements to ExpressLink include enhanced printing quality.

DS200 Precinct Scanner and Tabulator

EVS 5210 enhancements to the DS200 include:

- New Write-in Review functionality
- Bengali language support
- Straight party voting support for the U.S. Virgin Islands

DS850 Central Scanner and Tabulator

EVS 5210 enhancements to the DS850 include straight party voting support for the U.S. Virgin Islands.

Cross-Product Enhancement Details

This section contains additional information about EVS 5210 enhancements affecting multiple products.

ExpressVote Code Check Compatibility

When Electionware generates media for the ExpressVote Universal Voting System, the software digitally signs critical files using an RSA cryptographic algorithm. This digital signature enables the hardware to verify that the files originated with a trusted source and were not altered after origination.

In a previous version of Electionware, if the 128-byte signature started with one or more zeros, the system omitted these leading zeros, causing the ExpressVote to incorrectly flag the file for which this signature file was generated as altered.

With this release, the following software products have been updated with a new version of the RSA algorithm that uses the PKCS1 standard, which always includes the leading zero when writing to the media device. This update ensures that digital signatures are transmitted in a format compatible with the cryptographic library used by the ExpressVote.

- Electionware
- ERM

Bengali Language

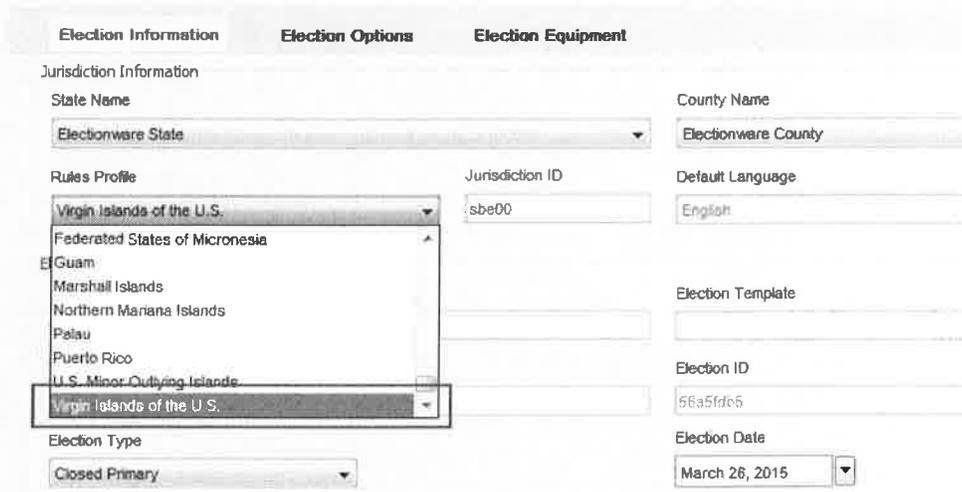
With this release, the following products now support the Bengali language. You can add the Bengali language to your elections via the **Languages** and **Add Language Groups** options in the Capture module of the Design group in Electionware.

- Electionware
- ExpressVote
- DS200



Straight-Party Voting for U.S. Virgin Islands (USVI)

This release adds straight-party handling for the U.S. Virgin Islands. Straight-party voting parameters will apply to your election automatically when you select the **Virgin Islands of the U.S.** option in the Rules Profile drop-down menu on the Election Information screen in the Home module of Electionware.



The screenshot shows the 'Election Information' tab of the Electionware interface. The 'Rules Profile' dropdown menu is expanded, listing various jurisdictions, with 'Virgin Islands of the U.S.' highlighted. Other visible fields include 'State Name' (Electionware State), 'County Name' (Electionware County), 'Jurisdiction ID' (sbe00), 'Default Language' (English), 'Election Template', 'Election ID' (56a5fd65), 'Election Date' (March 26, 2015), and 'Election Type' (Closed Primary).

In addition to Electionware, the following products support straight-party voting for USVI.

- DS200
- DS850
- ExpressVote

Product-Specific Enhancement Details

This section contains additional information about EVS 5210 enhancements affecting individual products.

Electionware Enhancement Details

This release contains the following enhancements to Electionware[®] software.

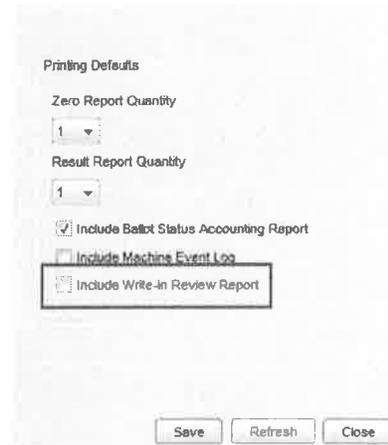
- **Maryland State Profile Data**

Electionware's Maryland state profile data has been updated to disable Maryland-specific options under the **State Transfer** menu in Election Reporting Manager (ERM). These ERM menu items will instead be enabled in the ERM

Results Export Program (EXP) for Maryland as specified by the Maryland State Board of Elections.

- **Write-In Review Support for DS200 Settings**

The **Include Write-In Review Report** option has been added to the Printing Defaults area of the DS200 settings tab of the Manage menu in the Configure module. You can use this option to automatically print the Write-In Review Report after printing the results tape on the DS200 tabulator.



Note Refer to DS200 Enhancement Details for more information about the new Write-in Review functions available with this enhancement.



- **Default Setting for Force Unique Ballot Styles Option**

With this release, the default setting for the **Force Unique Ballot Styles** option on the



Add Poll Place screen in the Capture module of the Design group is blank, or unchecked, meaning that the force unique ballot styles option is turned off or not used by default.

Click to place a check mark in the **Force Unique Ballot Styles** check box if you want to use this option in your election.

- **Ballot Image Handling in the Acquire Module**

With this release, the Acquire Module now validates multiple poll keys when acquiring digitized ballot images from DS200 poll media device, or flash drive. This enhancement ensures that a user can load ballot images into Electionware without error when a single poll media device was used to close multiple DS200 terminals.

• **Additional Electionware Enhancements**

This release includes the following additional enhancements to the Electionware software.

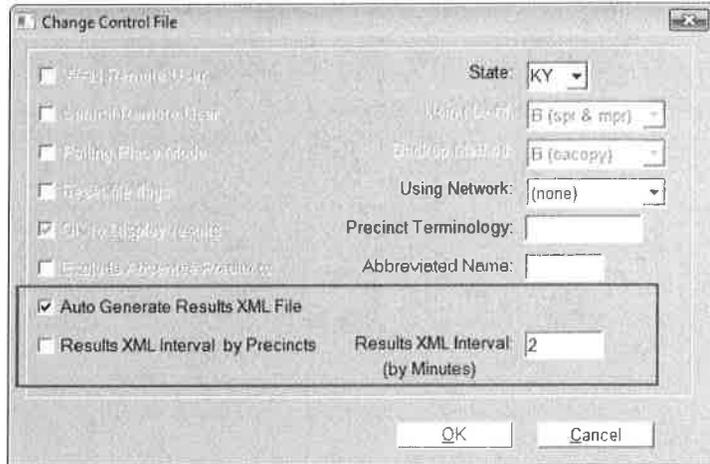
- Corrected contest order for races with multiple districts of the same district type.
- Added a default language content warning to the Paper Ballot design tool in the Design module.

Election Reporting Manager (ERM) Enhancement Details

This release contains the following enhancements to ERM.

• **Change Control File Options**

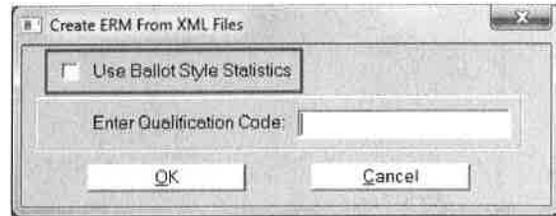
This release adds the following options to the **Change Control File** function under the Miscellaneous menu in ERM.



New Option	Description
Auto Generate Results XML File	Sets up automatic creation of the ERM Results XML file while performing the Process DS200 Memory Device results upload function. Default interval is five minutes.
Results XML Interval by Precincts	Changes the ERM Results XML file interval unit from minutes to number of precincts uploaded. For number of precincts uploaded unit, the default value is 50 (fifty).
Results XML Interval: (by Minutes)	Enter the interval unit's value for minutes since last file creation or for number of precincts uploaded since last file creation.

• **Ballot Style Counts for Results Reporting**

This release adds the **Use Ballot Style Statistics** option to the Create ERM from XML Files function under the Election menu.



Click to place a check mark in the Use Ballot Style Statistics check mark if you want to include ballot style counts in results reporting.

Note



Refer to Chapter 31: Ballot Style Statistics in the *Election Reporting Manager*® *User's Guide* for more information.

• **Multiple DS850 Uploads**

If you update ERM with DS850 results containing one or more precincts with zero ballots cast, the system displays a warning message and enables you to select one of the following three processing options.

- ▶ Use results
- ▶ Don't use results
- ▶ Don't use and exit

In previous releases, this warning prompt occurred only the first time you uploaded results containing precincts with zero ballots cast.

With this release, ERM displays this warning message the first time and each subsequent time that you upload results containing zero-ballot precincts from the same DS850 tabulator unit.

• **Additional ERM Enhancements**

This release includes the following additional enhancements to the ERM software.

- Eliminated check and rebuild processing for old format results and counter files
- Corrected the display of the District Control File name prompt in affected reporting options tabs

- Enhanced the Names and District Totals Canvass Report to filter information by contest
- Resolved the COBOL error that previously occurred when creating a Results XML File on a hardened system
- Enhanced the **Select Group to be Updated** function to always enable the user to check (select) or uncheck (not select) the Precincts Counted check box even when only one group exists for an election.
- Resolved the duplicate column reporting error when using the **Create ERM from XML** function to add additional groups to an existing election.

ExpressVote Enhancement Details

This release contains the following enhancements to the ExpressVote Universal Voting System.

- **Rolling Kiosk Option**

This release includes the rolling kiosk option for the ExpressVote Universal Voting System. The ExpressVote rolling kiosk enables you to easily deploy, maneuver, and store the ExpressVote unit at your polling locations. The rolling kiosk requires no assembly and is the simplest booth on the market to set up, providing voter privacy in the sturdiest, most stable design available.

When the ExpressVote is mounted in the rolling kiosk, the unit is housed in a protective hard-sided enclosure that you can raise and lower for deployment and storage. When you open the enclosure, the attached privacy screens drop down into place to provide voter privacy. You can adjust the angle of the enclosure to accommodate standing or seated voters.



ExpressVote in Rolling Kiosk

The attached secure card container provides a secure repository for marked cards that will be scanned and tabulated by the DS200 or DS850. This feature provides both convenience and accessibility benefits, eliminating the need to carry a marked card to a separate ballot box or tabulator.

- **Additional ExpressVote Enhancements**

This release also ensures that the following conditions are true for ExpressVote operation.

- On-screen Yes/No voter response buttons, such as in the case of contests containing questions, always appear together on the same screen.
- A voted card, when reinserted, is not inadvertently read as a blank card due to a user insertion error.

ExpressLink Enhancement Details

This release improves the quality of first card printing for the ExpressVote Activation Card Printer, also called the ExpressVote Printer.

This enhancement ensures that the ExpressVote Printer produces appropriate margins on the first card you print after powering on the printer unit.

DS200 Enhancement Details

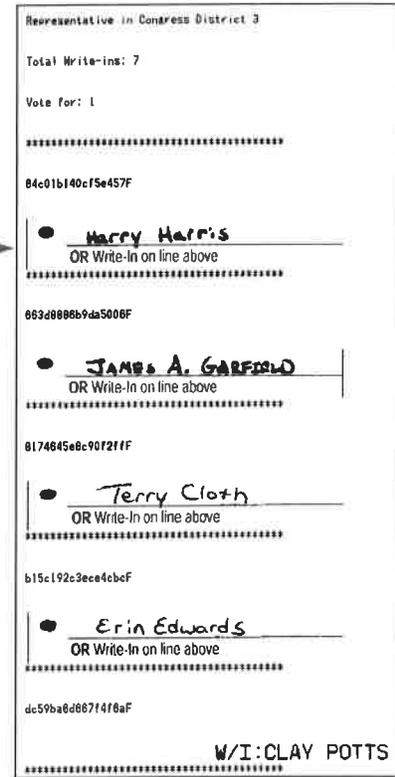
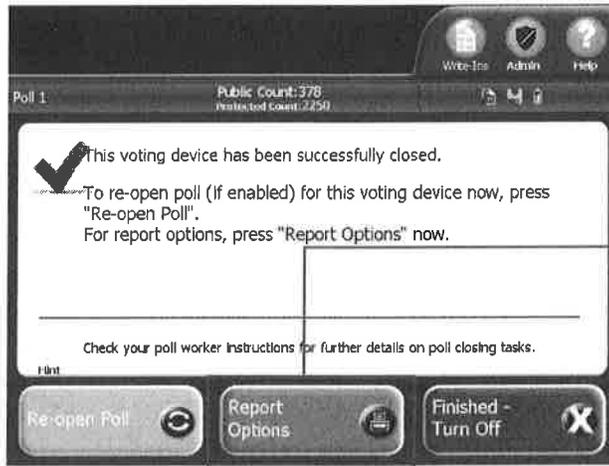
This release contains the following enhancement to the DS200.

- **Reviewing Write-In Votes**

After you close the polls, you can review the write-in votes that were cast on each DS200.

You can print the new Write-in Review Report to view only the write-in portion of each ballot or ExpressVote card that contains a write-in vote. You also can use the DS200 screen to view the digitized images of ballot pages that contain write-in votes.

To print a hardcopy of the new Write-In Review report to paper tape, touch the **Report Options** button, select **Write-in Review Report** on the Report Options screen, then touch **Print**.



The Write-in Review Report shows write-in votes from paper ballots as digital images of the names actually written on the ballots, along with the associated vote session number as printed text. Write-in votes from ExpressVote cards appear as printed text, including the associated vote session number.

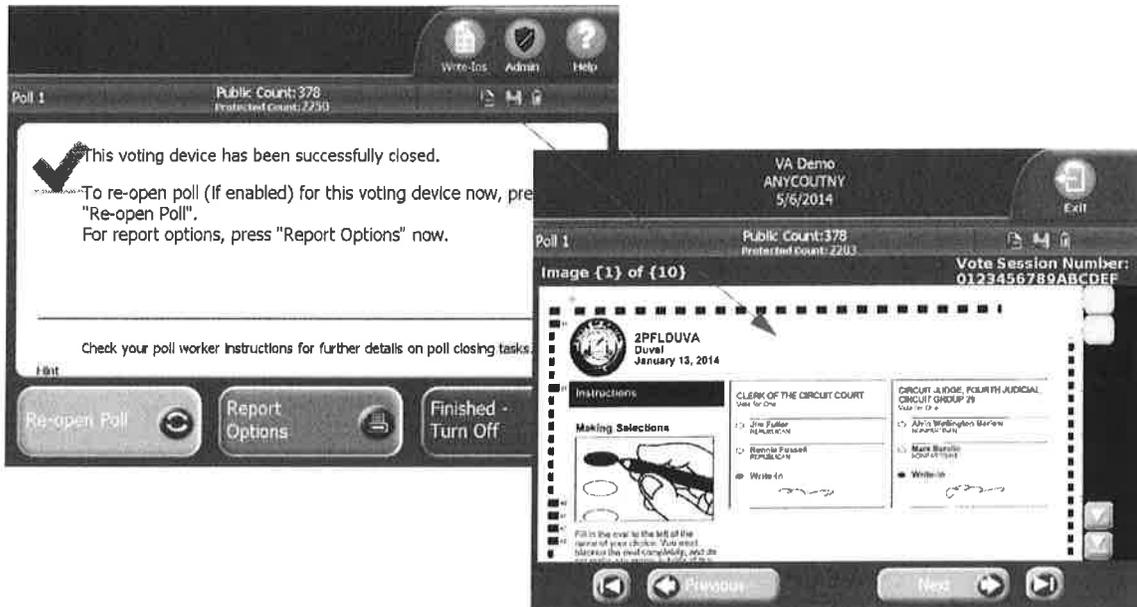
Note



Write-in votes that are part of overvoted contests are excluded from the Write-in Review Report. You can view write-in votes from overvoted contests on-screen using the new **Write-Ins** icon on the poll close confirmation screen.

To view digitized images of ballots containing write-in votes on the DS200 screen, touch the new **Write-Ins** icon on the poll close confirmation screen. The DS200 retrieves digitized ballot images from memory and displays the top portion of the first ballot image containing a write-in vote. You can use the navigational arrow buttons on the ballot viewer screen to page through an

individual ballot image or a set of ballot images, including write-in votes that are part of overvoted contests.



Note



To avoid exceeding the memory capacity on the DS200, ES&S recommends against configuring Write-In Review functionality for DS200 terminals that will be used for a large number of ballots, i.e. absentee and early voting.

Refer to the Write-in Votes Exceed Memory Capacity heading in Chapter 10: Troubleshooting of the *Electionware Volume III: Design User's Guide* manual for more information.

Electionware

Group Structure

KEY FEATURES

EASE OF USE

Electionware is an intuitive, easy-to-use application that streamlines workflow and removes repetition.

SIMULTANEOUS MULTIUSER ACCESS

Electionware enables large jurisdictions to allow multiple authorized personnel to simultaneously create poll media devices. Additionally, multiple teams of election officials can work simultaneously on different elections.

DATA SECURITY

Electionware incorporates the latest in election security, including heightened audit controls and change management processes that are built in to keep election data safe and secure.

COMPLIANT WITH THE LATEST VOTING SYSTEM STANDARDS

Electionware is certified by the U.S. Election Assistance Commission (EAC) according to its 2005 Voluntary Voting Systems Guidelines.

BENEFITS

POWER

Manages thousands of ballot styles and precincts; incorporates many languages; manages and deploys multiple levels of security

INTELLIGENCE

Real-time election data queries and reports; workflow management and error alerts; enforced data accuracy; user customization; tracking of election media; live status indicators for incoming results

PRODUCTIVITY

Fast data import; re-use of election and ballot layout templates; simple translation and audio file management; multiple simultaneous users; ballot image filtering, viewing, and printing



DEFINE

DESIGN

DELIVER

RESULTS

MANAGE

electionware®

election management system

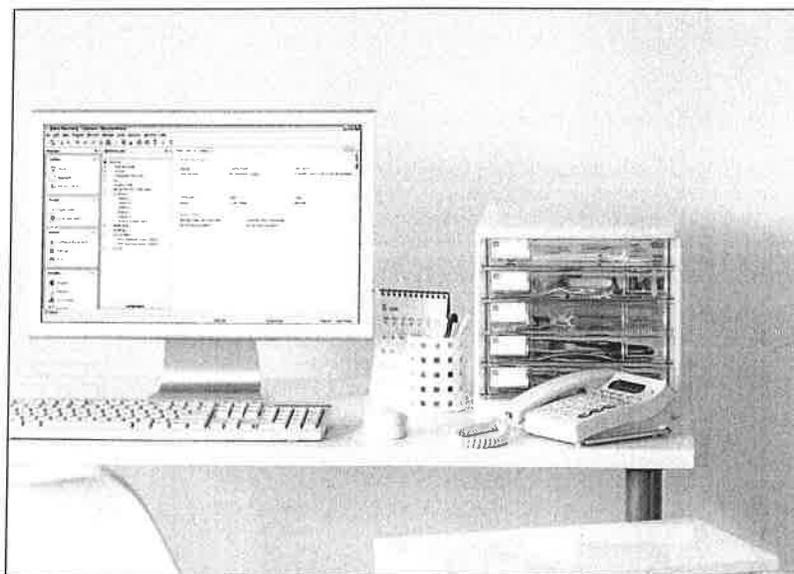
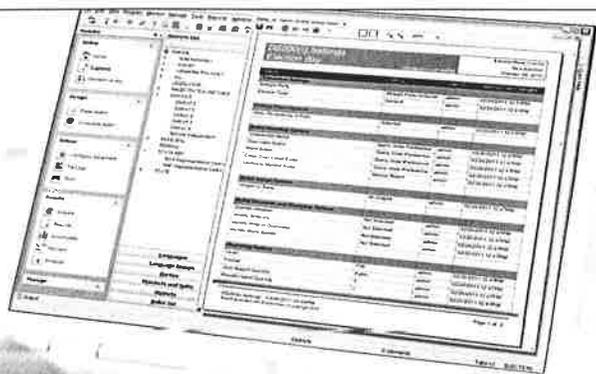
Electionware® allows jurisdictions of all sizes to manage their elections through an easy-to-use interface. This agile election management system is the result of our nearly 35 years of election software leadership.

The election management system provides everything needed to run an election at every stage, enabling election administrators to:

- Create elections
- Design ballots
- Manage election results data
- Configure selected digital scanning and accessible equipment

Electionware's design accommodates the latest in election trends, such as early voting, super polls, and electronic ballot image management.

Electionware's ability to use data from past elections as well as built-in election and ballot templates eliminates the need to re-enter data or re-create templates with each new election. These powerful capabilities enable election administrators to create error-free elections in less time.



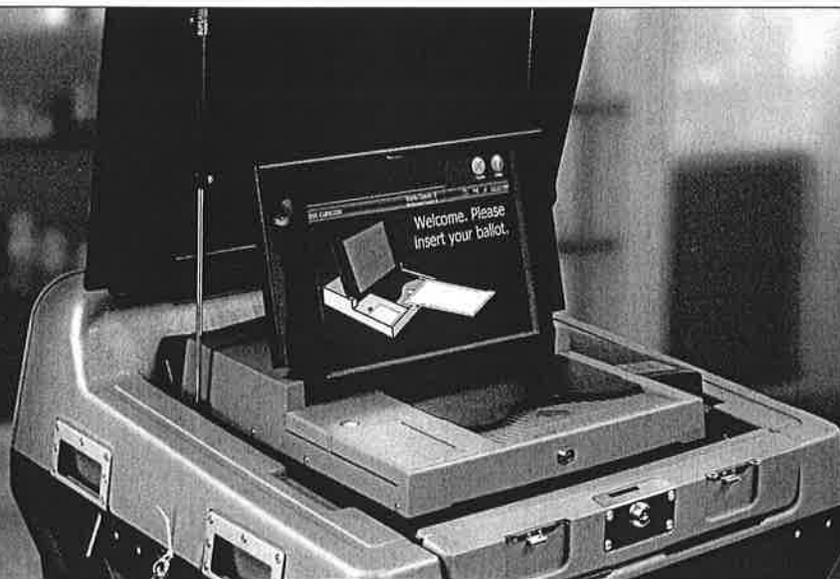
PRECINCT SCANNER & TABULATOR

DS200[®]

THE DS200[®] SCANNER AND TABULATOR – BECAUSE WHO WANTS TO BE STUCK INSIDE COUNTING BALLOTS?

The DS200 is a precinct-based ballot scanner and vote tabulator equipped with the latest in ES&S' patented technology to make your job easier. Fully certified and compliant with the latest federal Voluntary Voting Systems Guidelines, the DS200 enhances the voting experience for voters and officials alike.

Intelligent, integrated, digital, patented, flexible, easy to use, reliable, secure, certified, and accessible – the DS200 is the answer to your precinct-level election needs.



Faster election results and greater voter confidence

KEY FEATURES

LARGE CAPACITY

Handles 450-plus precincts for early voting needs.

SPEED

Completely processes both sides of a ballot in six seconds or less.
Handles bent or folded ballots with ease.

ACCESSIBILITY

Compatible with the ES&S AutoMARK® Americans with Disabilities Act (ADA)-compliant ballot-marking device.

RELIABILITY

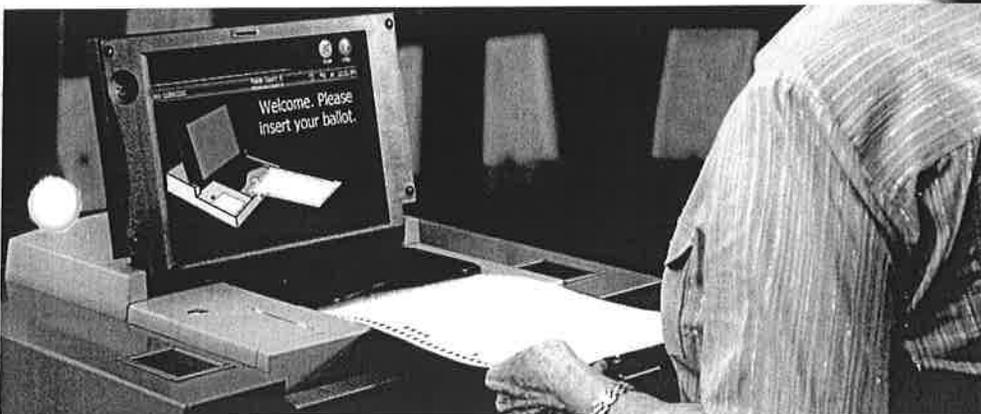
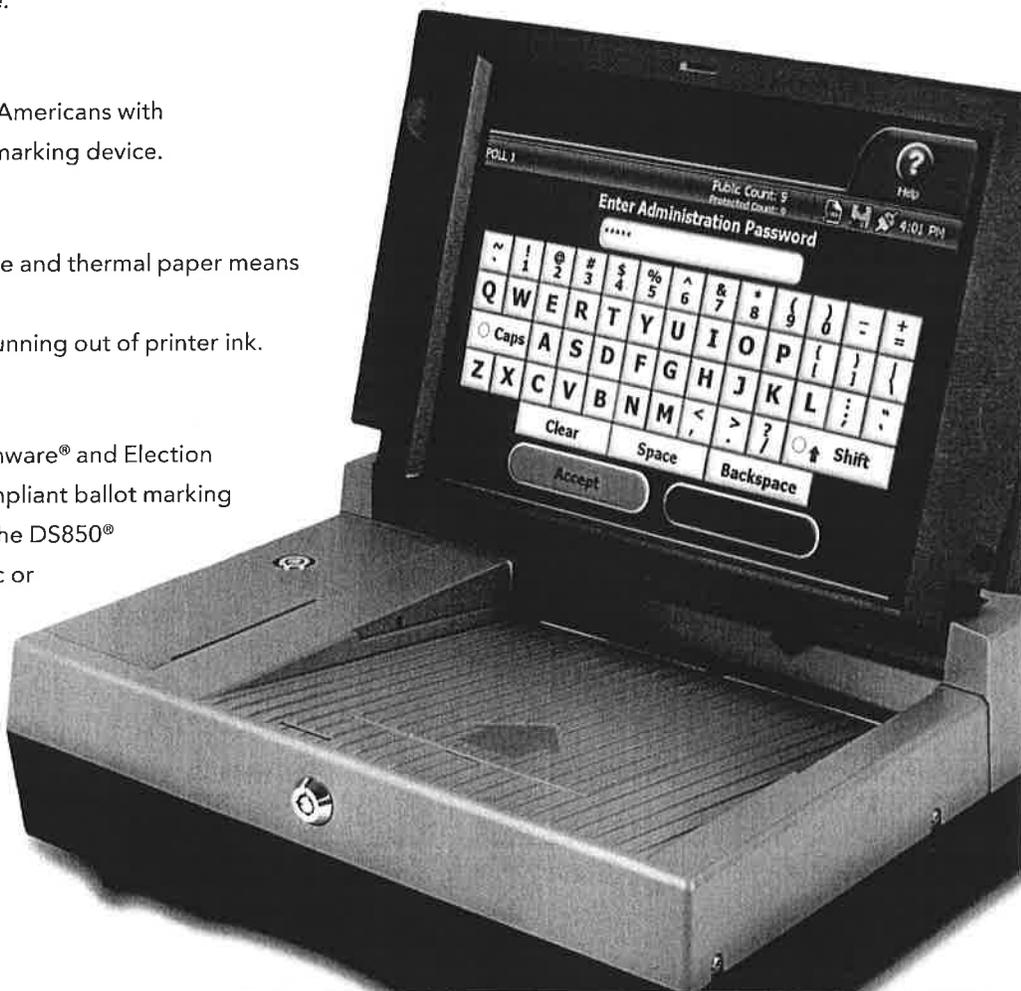
Battery backup in case of a power outage and thermal paper means you never have to worry about power outages or running out of printer ink.

COMPATIBILITY

Works in conjunction with ES&S' Electionware® and Election Reporting Manager® software, ADA-compliant ballot marking devices (AutoMARK® or ExpressVote®), the DS850® central scanner and tabulator, and plastic or metal ballot bins to provide a complete end-to-end election solution.

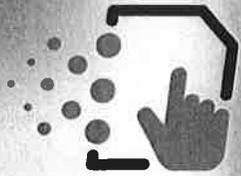
AVAILABLE OPTIONS

Wireless modem and capacity to send data via Secure File Transfer Protocol (SFTP); backup data storage in addition to primary data storage device.





UNIVERSAL VOTING SYSTEM



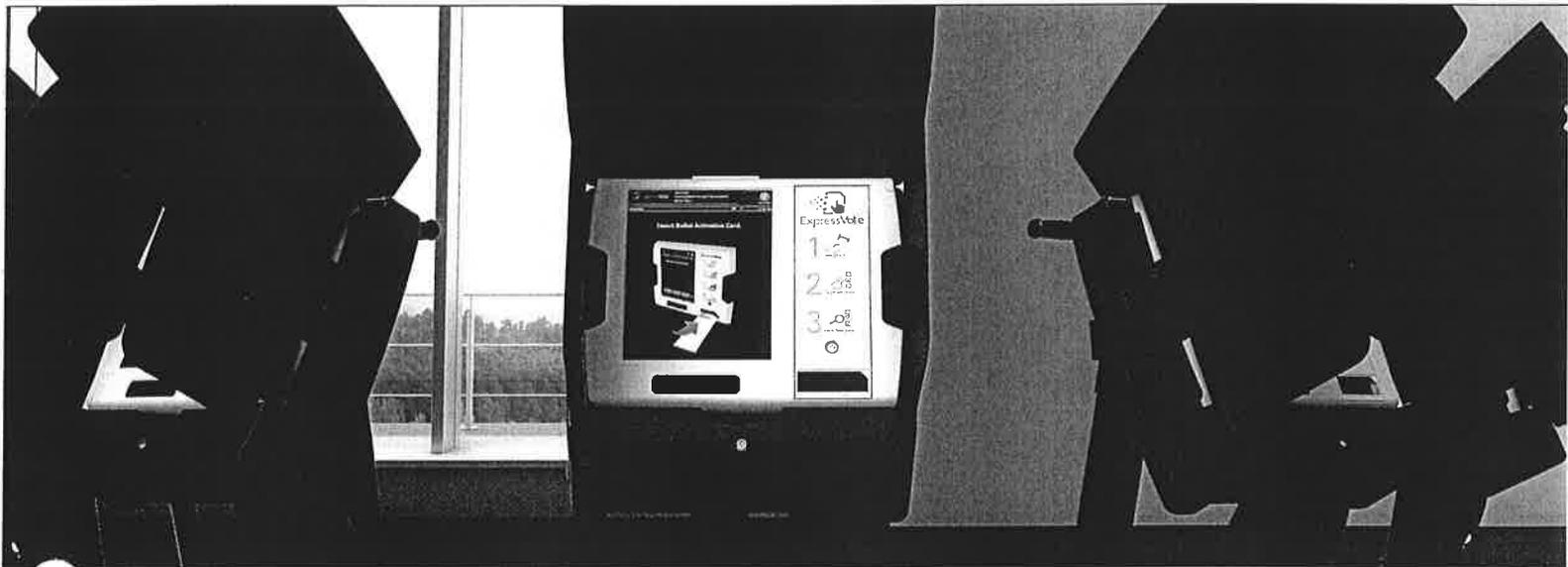
ExpressVote®

THE ES&S EXPRESSVOTE HANDLES IT ALL.

The ExpressVote Universal Voting System combines paper-based voting with touch screen technology to create an innovative breakthrough in voting solutions.

Used in early vote centers and on Election Day in precincts or vote centers, the ExpressVote handles the entire ballot-casting process. Election officials no longer have to guess the number of ballots to print — instead, an inexpensive Vote Session Activator™ card determines the ballot style presented on the touch screen.

ExpressVote can serve every eligible voter, including those with special needs. As a fully compliant ADA (Americans with Disabilities Act) voting solution, ExpressVote enables each voter to cast his or her ballot independently.



Choose Leading-edge Technology

KEY FEATURES

VOTE SESSION ACTIVATOR

The voter receives a voting session activator card to begin the process. Election officials can choose from three options:

- If only one ballot is programmed for the election, a blank card activates the ballot.
- If the election has multiple ballots, a blank card requires a poll worker to select the correct ballot for the voter.
- If the election has multiple ballots, a card with an activation barcode displays the correct ballot for the voter.

CASTING OPTIONS

The ExpressVote enables casting options. Voters can:

- Manually place ballots in the DS200 for scanning and tabulating.
- Use AutoCast® to place ballots into a secure container for later tabulation by an election official, who may use the DS850 central scanner and tabulator.

VERIFIABLE PAPER RECORD

After all selections are made, a human- and machine-readable paper record is produced, including text and an optical scan barcode. All votes are digitally scanned for tabulation on ES&S' DS200 and DS850 devices.

EASY TO SET UP AND USE

The one-step startup and poll-closing procedure makes the ExpressVote an ideal device for poll workers. The intuitive design offers streamlined simplicity for all voters, poll workers and election staff. The paper card is the vote session activator – there is no expensive technology to manage or program. The ExpressVote is small, lightweight at less than 20 pounds, and easy to carry.

CONTROLLED AND REDUCED COSTS

Traditional ballot printing costs can be reduced significantly by eliminating the need and expense for pre-printed paper ballots. With low operation and maintenance fees, budgeting for recurring expenses with the ExpressVote is easy. The system does not use ink, toner, or paper rolls and consumes 70 percent less paper than traditional ballots.

INNOVATIVE DESIGN

Complete and total independence is maintained while voters cast their own records. Voters review a summary page and can make changes before casting ballots. A voter's selection changes will not spoil the voting session. The system produces a verifiable paper record for each voter that is digitally scanned for tabulation. ExpressVote neither stores nor tabulates vote counts. The system is secure – the election definition media device is protected in a locked environment.



HIGH-SPEED SCANNER & TABULATOR

DS850[®]

**THE INDUSTRY LEADING HIGH-SPEED
CENTRAL SCANNER AND TABULATOR.**

The DS850 central scanner and tabulator is a high-speed digital ballot scanner and tabulator equipped with the latest ES&S technology to make your job easier. The DS850 system is the fastest central scanner in the industry. Fully certified and compliant with the latest federal Voluntary Voting Systems Guidelines, the DS850 enhances the voting experience for voters and election officials.



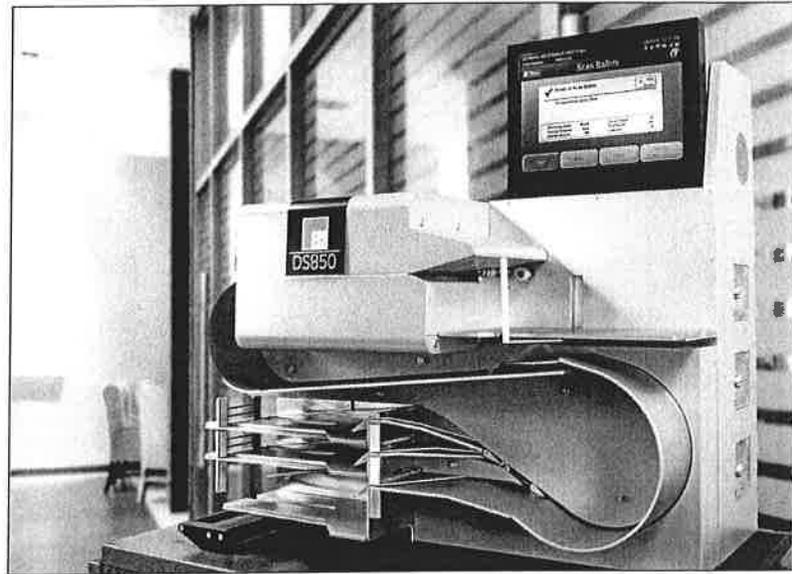
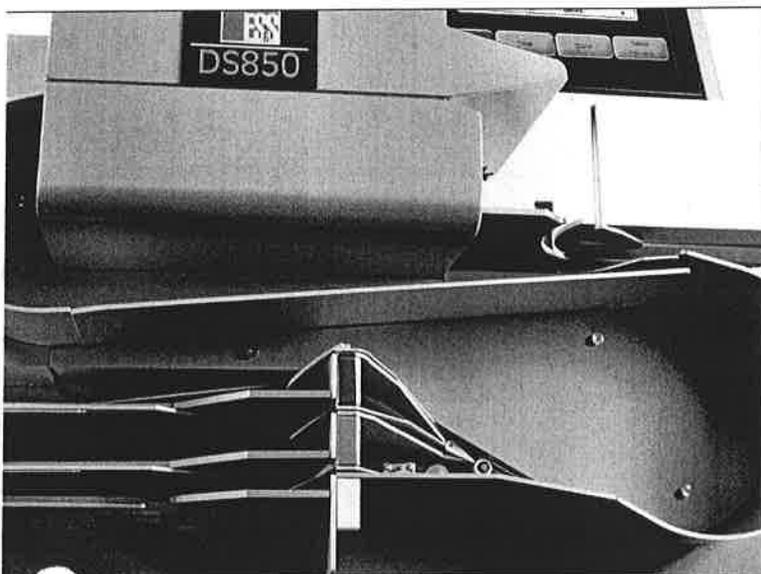
ES&S



CERTIFIED
VVSG
2005
CERTIFIED



CERTIFIED
EAC
CERTIFIED



Enhance the Voting Experience

KEY FEATURES & BENEFITS

SPEED

The DS850 can scan ballots of multiple sizes and handle folded and roughed-up ballots with ease. For example, the system can scan 14-inch double-sided ballots at the rate of 300 per minute with next to no ballot jams. The DS850 is three times faster than any other digital scanner on the market.

EASE OF USE

The durable 15-inch color touch screen and user-friendly interface walk you through every step of the process.

FLEXIBILITY

With three separate sorter bins, you can determine whether you want to set apart specific types of ballots for further review. Let the DS850 handle separating write-in votes, over-votes, and blank ballots – *all without missing a beat.*

SECURITY

Safeguard your election data with the DS850's system integrity, electronic audits, data encryption, and digital signatures. Nearly 35 years of election industry experience makes ES&S the vendor you can trust.

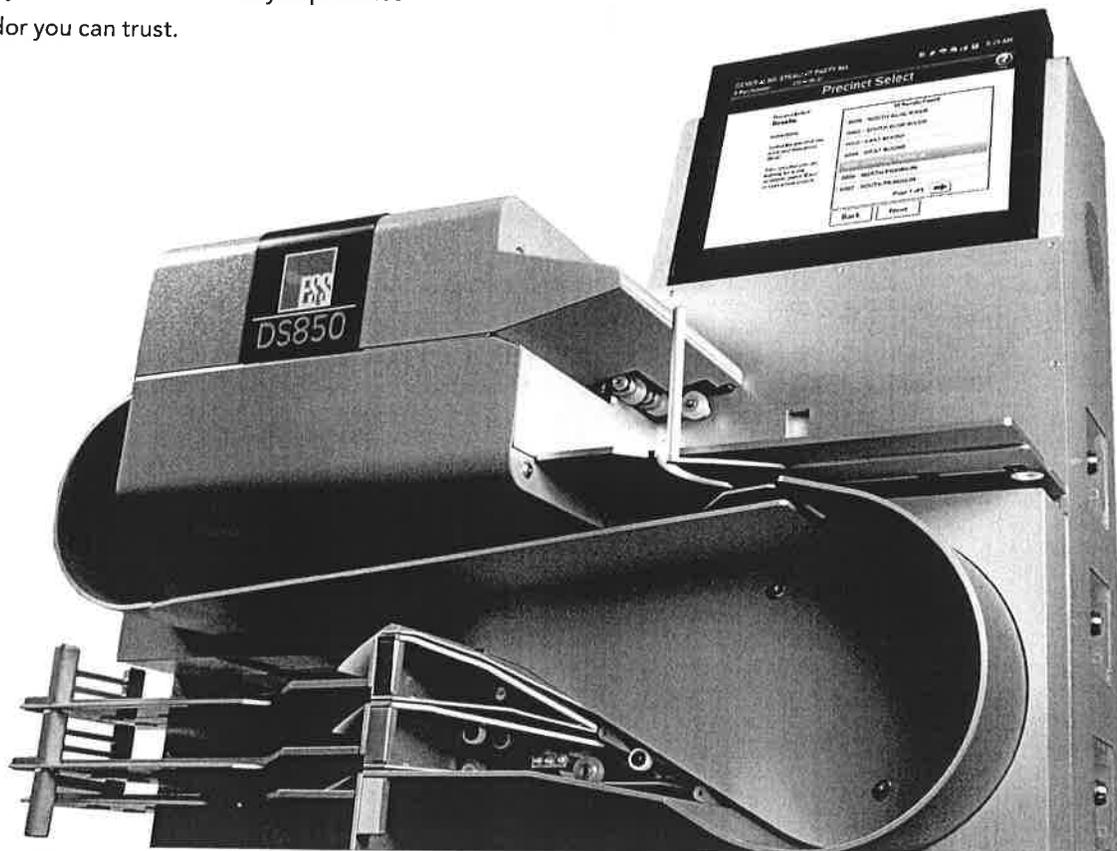
ACCURACY

ES&S' patented Intelligent Mark Recognition™ (IMR) and PTRAC™ technology ensure that ballots are read accurately and consistently, protecting voter intent and eliminating manual adjudication time.

PTRAC (Positive Target Recognition & Alignment Compensation) corrects for variations in ballot alignment and printing, allowing the digital scanners to zero in on the marking area. IMR then digitally subtracts the outline of the voting target to read only the voter's mark. Our competitors' optical scanners require you to set an arbitrary pixel threshold to determine what counts as a mark.

Instead, the DS850 does the work for you. To determine which marks were intentional, sophisticated algorithms analyze the mark's darkness (pixel density) and directionality. Unlike other scanners, the DS850 is not fooled by erasures or other stray marks.

Does the election require a recount? With the DS850, you get the same consistent and accurate results every time.





VOTER ASSIST TERMINAL

AutoMARK[®]

Election officials and organizations representing people with disabilities wanted to give voters with special needs the ability to mark their ballots independently and privately.

ES&S listened and developed the AutoMARK[®], a ballot-marking system designed to provide autonomy to voters who are blind, visually impaired, or have a disability or condition that makes it difficult to traditionally mark a ballot. With its revolutionary technology, AutoMARK Voter Assist Terminal is the future of paper ballot marking.



Key Features & Benefits

AUTOCAST™

Allows voters to cast ballots without assistance directly into a secure ballot box after verification

HASH CHECK

Provides jurisdictions the opportunity to securely validate the firmware version

AUDIO FUNCTION

- Voter hears list of candidates through headphones
- Synthesized voice enables voter control of speech speed and volume
- Choices may be repeated easily
- Selections are read back to voter at the end of session, ensuring proper selections were made

SUMMARY VERIFICATION PROCESS

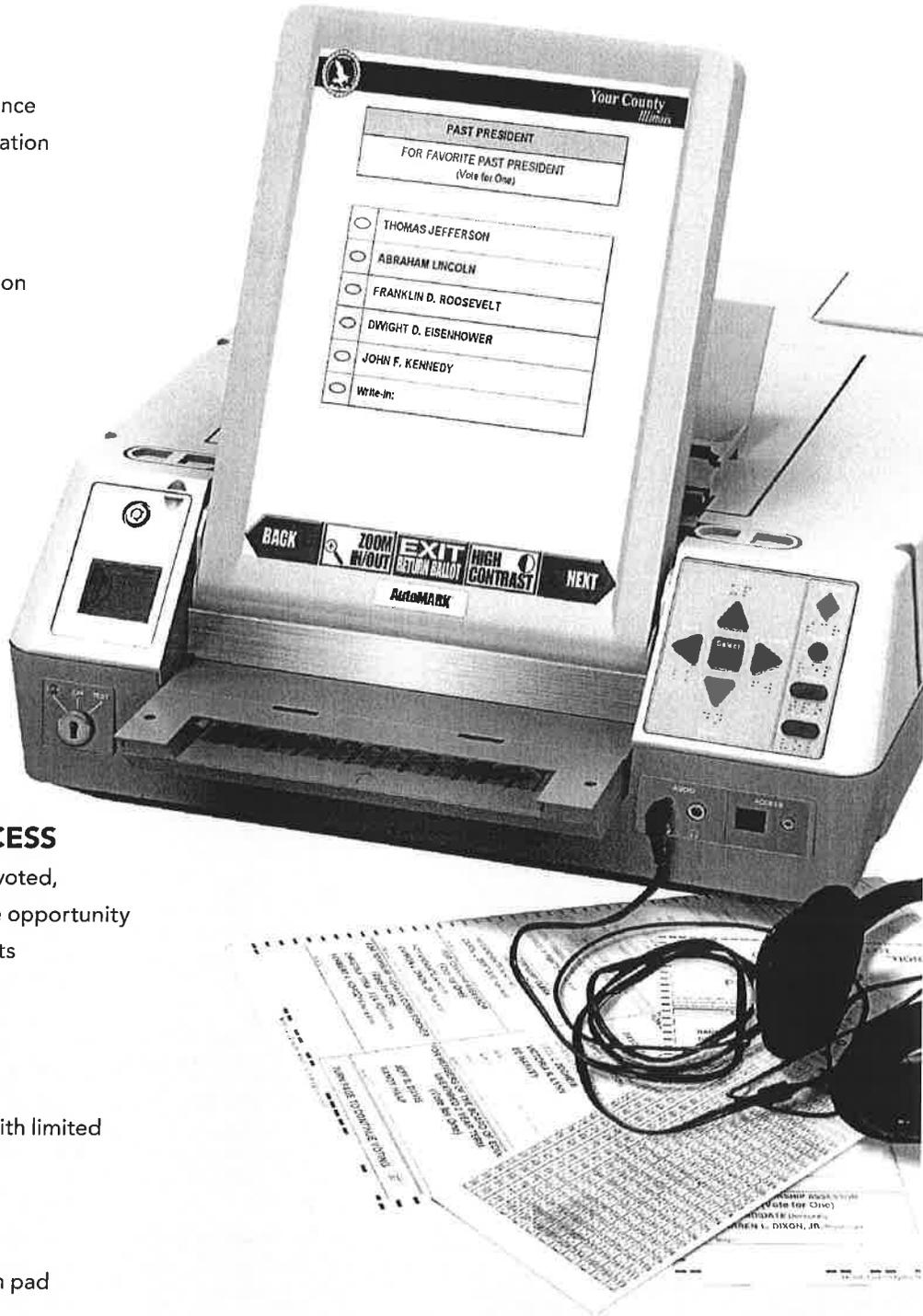
Ensures that no races are accidentally under-voted, over-voted, or left blank, providing voters the opportunity to adjust selections before casting their ballots

ZOOM FEATURE

- Voters are able to increase font size displayed on the viewing touch screen
- Adjustable brightness contrast helps voters with limited vision or macular degeneration
- Compatible with current voting systems

SIP-AND-PUFF TUBE

- Voters unable to use the touch screen or touch pad are able to vote autonomously



ELECTRONIC POLLBOOK

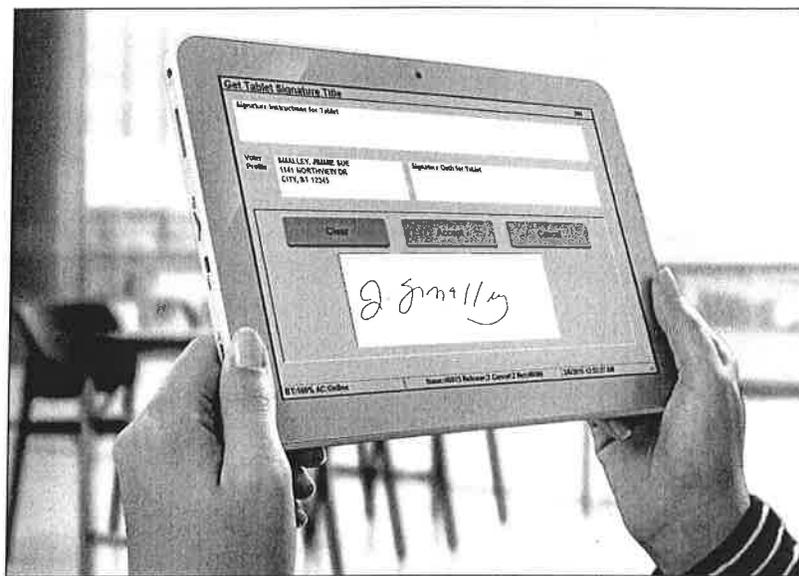
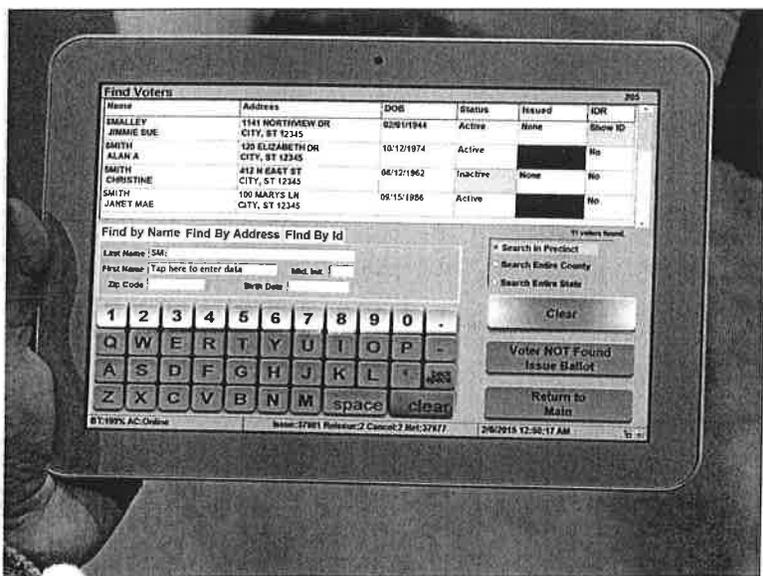


THE FUTURE OF ELECTRONIC POLLBOOK TECHNOLOGY FITS IN YOUR HANDS.

The ExpressPoll® system gives election poll workers a simple-to-operate voter check-in device that slashes waiting time for voters, increases the accuracy of voters' personal information, and improves the Election Day experience for voters and poll workers alike.

Our popular electronic pollbook software, EZRoster, now runs on low-cost touchscreen tablets using the Windows® 8 operating system, giving poll workers an intuitive, easy-to-understand user interface that's similar to the devices they use in their everyday lives.

Gone are the days of many peripheral devices needed to check in voters. Instead, devices such as a signature pad and barcode reader are built right in to each tablet, making the devices easy to use and set up. The ExpressPoll can be mixed with both new and existing DRE and paper ballot-based election system technologies to provide a complete low-cost voter check-in solution.



A LOW-COST VOTER CHECK-IN SOLUTION

KEY FEATURES

BUILT-IN PERIPHERALS

Poll workers scan barcodes with the tablet's built-in camera and capture voters' signatures on the unit's touch screen. This makes the device easy to set up and operate and avoids the cost of purchasing external peripheral devices

REDUNDANT DATA STORAGE

The ExpressPoll Electronic Poll Book offers "redundant" integral data storage, ensuring that voter validation information can be retrieved following each election. Validation data is stored in solid state internal memory and on a Micro-SD card installed in the tablet. If one of these storage areas experiences any issue, data can be easily retrieved from the other data storage location.

FASTER VOTER HISTORY UPLOADS

After an election, voter history is uploaded directly from the ExpressPoll unit, dramatically slashing upload times.

SMALL AND LIGHT

Unlike laptop computers and older tablet technology, the ExpressPoll tablets are compact and light. Poll workers do not need special equipment to carry the poll books to polling locations.

WORKS WITH THE EXPRESSPOLL-5000

Are you a current ExpressPoll-5000 customer? Our new ExpressPoll tablets can seamlessly be added to your existing system. Both solutions use the same EZRoster software, database, and resource file to provide the same user experience.

FULLY INTEGRATED SOLUTION

Our new ExpressPoll system will communicate seamlessly with our data conversion software and CentralPoint® for integrated poll management.



Find Voters 205

Name	Address	DOB	Status	Issued	IDR
SMALLEY JIMMIE SUE	1141 NORTHVIEW DR CITY, ST 12345	02/01/1944	Active	None	Show ID
SMITH ALAN A	120 ELIZABETH DR CITY, ST 12345	10/12/1974	Active		
SMITH CHRISTINE	412 N EAST ST CITY, ST 12345	08/12/1962	Inactive	None	No
SMITH JANET MAE	100 MARYS LN CITY, ST 12345	09/15/1986	Active		

11 voters found.

Find by Name Find By Address Find By Id

Last Name Mid. Init.

First Name Birth Date

Zip Code

1 2 3 4 5 6 7 8 9 0 .

Q W E R T Y U I O P -

A S D F G H J K L ' back

Z X C V B N M space clear

Search in Precinct
 Search Entire Cour
 Search Entire St

Voter Issu

Return to Main

Issue:37981 RelIssue:2 Cancel:2 Net:37977 2/6/2015 12:50:17 AM

BT:100% AC:Online



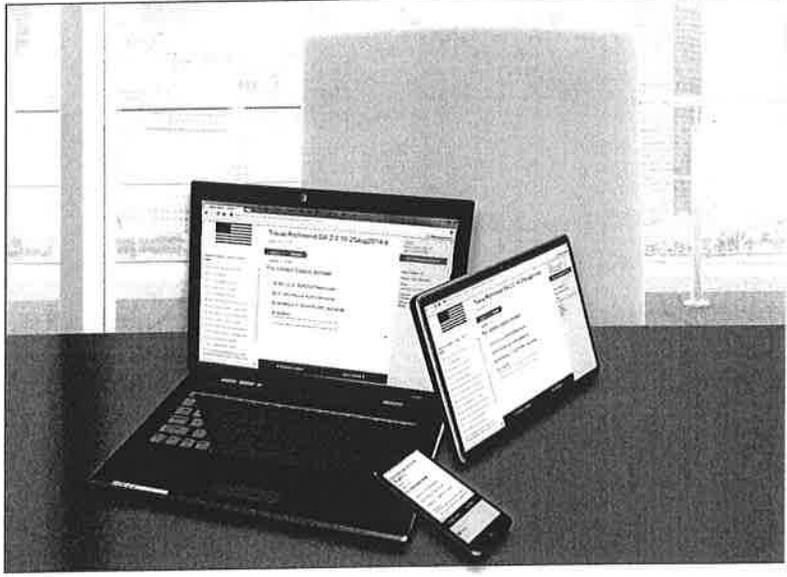
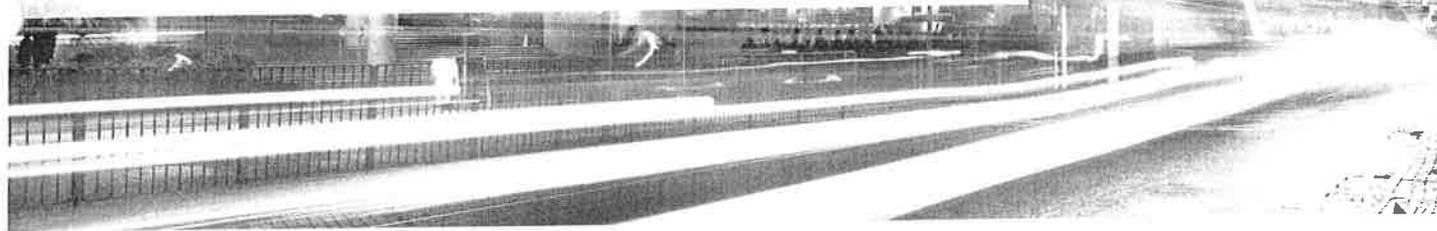
MAKE YOUR MARK™

ExpressPass®

The ExpressPass system offers an interactive, voter-specific sample ballot, that they can view online at anytime. This gives voters the freedom to research candidates and contest that will appear on their ballot, allowing them to make the most informed decisions.

Voters also have the ability to mark their selections, which can be printed or save to their mobile device. This gives them an easy reference guide at the polling location, and helps make their voting experience quick and stress-free.

The ballot information that is provided online are SAMPLE BALLOTS. Actual casting of a ballot is still done in person or through an Absentee Ballot by Mail.



www.essvote.com/expresspass

Make Your Mark

CONVENIENCE:

The ExpressPass Sample Ballot system can be accessed from the voter's computer, tablet or smartphone. From the security of their own homes, voters can research their choices and take as much time as needed to mark their sample ballots. Voters have the option to print their choices or save them to a mobile device. They can then take their "marked" sample ballot to the poll to use as a guide for voting. Their printout will even provide them with our Early Voting locations and/or their personal Election Day Polling location.

CONTINUITY:

The interactive sample ballot is identical to the ballot the voter will see in their polling location. Once the voter logs on to the site, they will enter their address. From there, our system will select the correct ballot for their residential address. Navigating through the ballot and marking choices is intuitive. The process is as easy as completing an online form.

CLARITY:

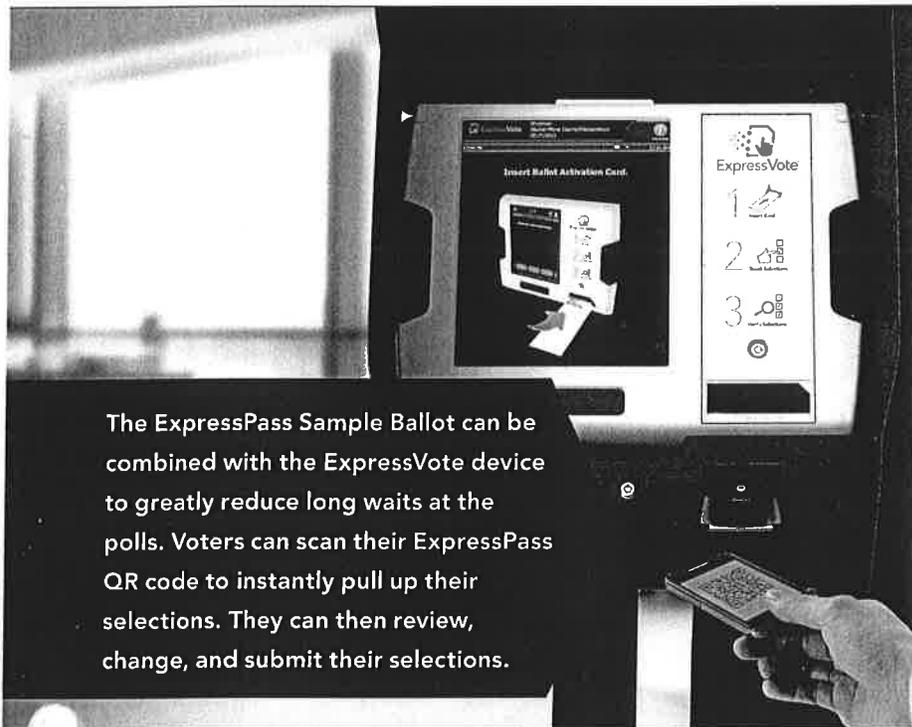
Voters will feel empowered to make educated choices. Polling location information and directions are provided.

ACCESSIBILITY:

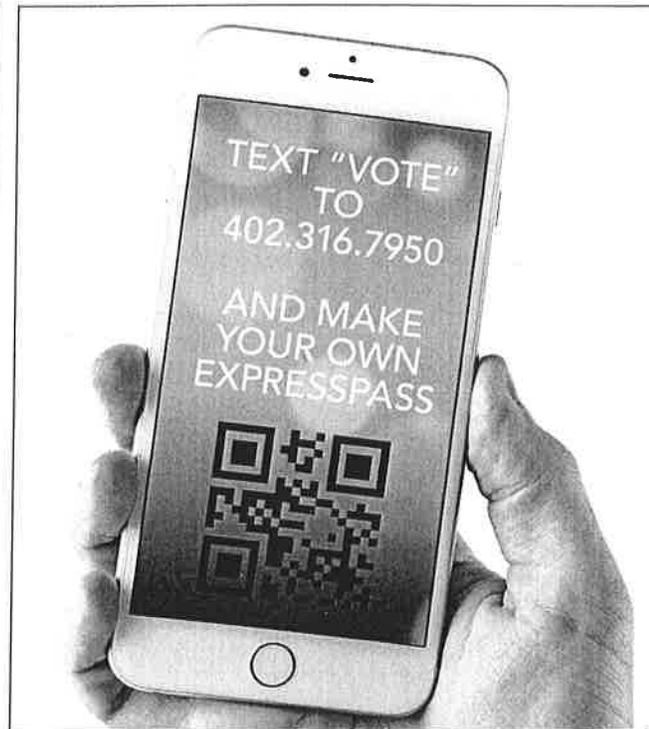
ExpressPass Sample Ballots are provided in an accessible format for voters utilizing assistive technologies (screen readers and navigational software). They meet ADA requirements of Section 508 of the U.S. Rehabilitation Act.

PRIVACY:

The ExpressPass Sample Ballot look-up based on voter address is anonymous. Although the voter may choose to mark their choices online, no records of a voter's choices are recorded. This system passed the highest standards and voters may rest assured that their anonymity and privacy is protected.



The ExpressPass Sample Ballot can be combined with the ExpressVote device to greatly reduce long waits at the polls. Voters can scan their ExpressPass QR code to instantly pull up their selections. They can then review, change, and submit their selections.



www.essvote.com/expresspass

Kathy Summers

From: Swartz, Benjamin <brswartz@essvote.com>
ent: Wednesday, July 06, 2016 3:11 PM
To: Swartz, Benjamin; Mark Goins
Cc: Kathy Summers; Pearson, Steve
Subject: RE: EVS 5.2.1.0 Request for Certification **Letters of Recommendation**
Attachments: Gila County, Arizona.pdf; State of Maine.pdf; Graham County, Arizona.pdf; Santa Cruz County, Arizona.pdf

*** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. ***

Good Afternoon Mark,

Attached you will find four *Letters of Recommendation* from EVS 5.2.1.0 users in other states to satisfy the third bullet point of the *Second Step – B. Voting Machine Software Systems Upgrade* of the certification procedures for the Tennessee State Election Commission.

Each of the attached jurisdictions recently upgraded from EVS 5.2.0.0 (the last system certified in TN) to EVS 5.2.1.0 (presenting to the SEC on July 11th). All four of the jurisdictions have also ran elections using the EVS 5.2.1.0 release during the primary season and most importantly to us is each jurisdiction continued to be very satisfied with the EVS 5.2.1.0 upgrade.

A few details for each of the jurisdictions that you may be interested in:

State of Maine

- 533 Polling Locations/Precincts
- 982,532 Registered Voters
- 280 DS200s and 500 ExpressVotes.
- 2016 Elections using EVS 5.2.1.0 – March 5th & 6th, and June 14th
- Contact: Judy Flynn (207-624-7736)

Gila County, AZ

- 16 Election Day Precincts (5 Vote Centers)
- 20,503 Registered Voters
- 30 ExpressVotes and scans all ExpressVote cards/ballots on the DS850.
- 2016 Elections using EVS 5.2.1.0 – March 22nd and May 17th
- Contact: Eric Mariscal (928-402-8708)

Santa Cruz County, AZ

- 12 Election Day Precincts (9 Vote Centers)
- 15,707 Registered Voters
- 15 ExpressVotes and scans all ExpressVotes cards/ballots on the DS850/DS200.
- 2016 Elections using EVS 5.2.1.0 – March 22nd and May 17th
- Contact: Melinda Meek (520-375-7808)

Graham County, AZ

- 9 Election Day Precincts (6 Vote Centers)
- 13,073 Registered Voters
- 11 ExpressVotes and scans all ExpressVote cards/ballots on the DS850/DS200.

- 2016 Elections using EVS 5.2.1.0 – March 22nd and May 17th
- Contact: Judy Dickerson (928-792-5037)

Please let me know if you think these letters will be sufficient to satisfy *Item 2B* for the State Election Commission meeting next week. I plan to have each letter printed out as part of the packet of info I usually hand out to each of the board members prior to the presentation.

Take care,

Benjamin Swartz
Election Systems & Software
State Certification Manager
brswartz@essvote.com
402-970-1143

From: Swartz, Benjamin
Sent: Wednesday, June 22, 2016 4:56 PM
To: Mark Goins
Cc: 'Kathy Summers'; Pearson, Steve
Subject: EVS 5.2.1.0 Request for Certification

Good Afternoon Mark,

Being sent to your attention via UPS (Tracking #: 1ZE691810797799493) is a formal request to state certify our most recent EAC Certified Voting System, *EVS 5.2.1.0*. On December 18, 2015, this release was EAC Certified as a modification or minor upgrade to the EAC Certified/State Certified *EVS 5.2.0.0* release.

A key enhancement for this release is a DS200 firmware enhancement for the ability to print or view after polls close a write-in review tape (commonly referred to as a write-in snippet report) or view ballots/summary cards that contain write-ins on the DS200 touchscreen. Another key enhancement to the system is the addition of the Bengali language to the ExpressVote firmware which is not applicable to Tennessee however to add the Bengali language to the ExpressVote firmware we also had to update the operating system of the ExpressVote. As a byproduct of the operating system upgrade, the scanning/printing of the ExpressVote card also got a boost in speed when compared to the *EVS 5.2.0.0* release. Finally, *EVS 5.2.1.0* also provides a few cleanup items within the ElectionWare/ERM software as well as enhancements to the ExpressVote Rolling Kiosk.

Attached to this correspondence is a copy of the certification request as well as the *EVS 5.2.1.0* Key Benefits Summary which provides you a more detailed summary of the enhancements made in the release compared to the above paragraph. Being sent to your attention are the attached documents as well as product brochures and a CD-Rom containing the NTS Test Report, EAC Certification, ES&S' Technical Data Package, financials, and applicable Engineering Change Orders (also attached).

We respectfully request the Tennessee Secretary of State's Office and State Election Commission accept our request for certification and if at all possible we ask to be added to the agenda for the upcoming July 11th SEC Meeting in order to demonstrate the minor but beneficial enhancements from the last state certified system (*EVS 5.2.0.0*) to the *EVS 5.2.1.0* release.

We also plan to have available at the SEC meeting letters of recommendation from other jurisdictions regarding the *EVS 5.2.1.0* release in order to satisfy the Second Step – Item B.

As always, please do not hesitate to contact me with any further questions or request for additional information.

Take care,

Benjamin Swartz
Election Systems & Software
TN State Certification Manager
brswartz@essvote.com
402-970-1143



Matthew Dunlap
Secretary of State

Department of the Secretary of State

Bureau of Corporations, Elections and Commissions

Julie L. Flynn
Deputy Secretary of State

July 1, 2016

Dear Election Official Colleague:

I am happy to provide this letter of reference in support of Election Systems & Software (ES&S). ES&S and its predecessor BRC have supported elections at the municipal level in Maine since the mid 1980's. In 2012, the Secretary of State conducted a competitive bid process and selected ES&S to be its sole-source vendor for a uniform system of tabulation (i.e., the DS200 digital scan tabulator) deployed in 280 municipalities across the state between 2012 and 2013. These municipalities serve over 90% of Maine's voters.

In early 2016, the Secretary of State completed another competitive bid process and selected ES&S to be its sole-source vendor for a uniform system of accessible voting in all 500 municipalities (i.e. the Express Vote™ Universal Voting System). The ExpressVote™ units were successfully deployed and used for the June 14, 2016 State Primary Election, providing a significant improvement in accessible voting from the prior telephone voting system. Due to some unforeseen delays in the bid process, we had a compressed deployment schedule before the primary, and staff from ES&S went above and beyond to make sure we received timely support for all phases of the rollout.

ES&S has been a great partner for the State of Maine, providing hardware and software support to the Elections Division and user municipalities, biennial on-site preventative maintenance (in 280 municipalities) for the DS200 units, ballot layout, printing and coding support for both the State and the municipalities, election day support – both in person and via telephone help desk, and implementation support. We have interacted with staff from many departments at ES&S, and at many levels of the organization, and are always satisfied with the outcome. Their commitment to ensuring we have a successful election is apparent.

We are especially pleased with the upgrade to the EVS 5.2.1.0. The DS200 user interface provides intuitive screen prompts and instructions for both voters and election officials. The ExpressVote™ is very simple for voters and election officials to use and the marked ballot can be tabulated by the DS200, which was not something we could do with the prior accessible ballot. Although turnout was light for the primary election, we have received many positive comments from disability advocates and voters on the new ExpressVote™ and we expect usage to increase significantly for the general election.

You are welcome to contact me if you have questions about Maine's experience with ES&S products and services. You may reach me by phone at 207-624-7659 (direct) or by email at julie.flynn@maine.gov.

Sincerely,

A handwritten signature in black ink that reads 'Julie L. Flynn'.

Julie L. Flynn
Deputy Secretary of State

Eric A. Mariscal, Director
emariscal@gilacountyaz.gov
(928) 402-8708



Alfonzo M. Alvarez, Elections Specialist
aalvarez@gilacountyaz.gov
(928) 402-8750

Josephine Goode, Voter Outreach Coordinator
jgoode@gilacountyaz.gov
(928) 402-8628

Cate Gore, Elections Assistant
cgore@gilacountyaz.gov
(928) 402-8709

GILA COUNTY DEPARTMENT OF ELECTIONS

5515 S. Apache Ave., Ste. 900
Globe, Arizona 85501

June 30, 2016

To Whom It May Concern:

Please accept this letter of reference for Election Systems & Software (ES&S). ES&S has supported elections with equipment and service support in Gila County since 2011.

In January of 2015 the Gila County Elections Department began the process seeking an elections system that could synthesize the most modern and up to date equipment while at the same time be easy to use by our poll workers and elections staff. Gila County found such a system in the ES&S line of products.

Gila County procured the Electionware software management system, Expresspoll electronic pollbook, ExpressVote, the C711 Ballot on Demand Printer and the DS850 High Speed Tabulator. The versatility of this system has given the Gila County Elections Department the ability to provide seamless and highly effective Election Day services to the citizens of Gila County.

In May of 2016, for a Special Statewide Election we used our new equipment for the first time. The response from both poll workers and voters was unanimous, we got it right. A comment made to me by a voter summed it up very well. Gila County has moved into the 21st century.

ES&S has a quality elections system from start to finish, but their greatest asset is to be found in their staff. The ES&S staff is highly competent, experienced and very easy to work with. ES&S staff constantly checked in on us wanting to know how they could help, a very refreshing experience. The combination of quality products and a dedicated staff makes it easy to recommend the ES&S product line.

Please contact me for additional specifics about Elections Systems & Software. If you would like to speak with me in person about ES&S products and services, please call me at (928) 402-8708 or email me at emariscal@gilacountyaz.gov.

Sincerely,

Eric A. Mariscal, Director
Gila County Elections Department

GRAHAM COUNTY ELECTION DEPARTMENT

921 Thatcher Boulevard • Safford, AZ 85546

Ph: (928) 792-5037 • Fx: (928) 428-5951

E-mail: jdickerson@graham.az.gov

Judy Dickerson, Election Director

June 30, 2016

To Whom It May Concern:

I'm writing this letter of recommendation for Election Systems & Software (ES&S) because I am pleased to have been a customer of theirs since 1997. They were there when we needed them and they let us stand on our own when we were ready.

We purchased M-100 in 1997 and found them to be extremely reliable, efficient and easy to use. We just recently upgraded to Central Count and ExpressVotes and am happy to say the level of training and support has been top notch.

Staff, poll workers and the voters find ES&S equipment very easy to use. The equipment is reliable and accurate. ES&S support staff is the best I have seen and it is a pleasure to work with them at every level.

In conclusion, I highly recommend ES&S for their quality equipment, superior support and knowledge of the election process. They are truly one of the best teams I have ever worked with.

Please feel free to contact me if you have additional questions.

Sincerely,



Judy Dickerson
Election Director



Board of Supervisors

Santa Cruz County

MANUEL RUIZ
District 1
RUDY MOLERA
District 2
JOHN MAYNARD
District 3

June 29, 2016

To whom it may concern:

We have had the pleasure of establishing a business relationship with Election Systems & Software (ES&S) as we upgraded from our post-2000 elections equipment to the latest technologies. While we approached the transition with the normal degree of hesitation and trepidation, we have been delighted with the results. ES&S has been all that we could hope for both from an equipment standpoint and in terms of support. We are particularly excited with how user-friendly, accurate and helpful the EVS 5.2.1.0 voting system is as well as the products within that voting system.

Any legitimate elections equipment company can come up with the technology to securely manage local elections. However, ES&S has made it not only easy for local officials in their own training, but also a simple process to teach to novice and veteran pollworkers alike. Frankly, we have not seen the level of enthusiasm among our pollworkers in years and it is all because of the technology and the support of ES&S.

We have been through our first election here in Santa Cruz County using ES&S equipment. While not a flawless process, it was lightyears ahead of our former system in terms of voter acceptance and confidence, poll worker effort, and results delivery.

Without hesitation, we highly recommend ES&S for elections equipment and support and feel confident that any local government user will be very happy with choosing them for their provider.

Please feel free to contact me for any additional information about our experience with ES&S at mmEEK@santacruzcountyaz.gov or by phone at 520-375-7812.

Sincerely,

Melinda Meek
Elections Director

**ES&S Voting System
5.2.1.0**

System Change Notes

Document Revision 1.2

Department: Certification
Released by: Director, Certification



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United States Election Assistance Commission Notification for Approved Voting Systems

In accordance with the United States Election Assistance Commission (EAC) Testing and Certification Program Manual, Version 2.0, ES&S hereby notifies the purchaser that any changes or modifications to an EAC approved voting system which have not been tested and certified by the EAC will void the EAC certification for such EAC approved voting system.

Document Distribution

This document may contain product information and/or procedures that are confidential or sensitive to ES&S and is intended only for the use of the individual or entity named below. The information may not be used, disclosed or reproduced beyond the indicated entity without the prior written authorization of ES&S and those so authorized may only use the information for the purpose of evaluation consistent with such authorization.

Document Security Level	Customer Confidential – Contains product information or procedures that derive independent economic value. Approved for customer use only.
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Table of Changes

Revision	Date	Notes
0.1	09.18.2015	Initial draft – CC
0.2	09.23.2015	Update content to match final development. – RT, MD, DB
1.0	09.23.2015	Release for publication with TDP Rev01. – CC
1.1	10.19.2015	Added two clean-up tickets: BUG34660 and BUG34632. – PR, CC Added two RSA Crypto tickets: BUG33894 and BUG34031. – CC
1.2	10.23.2015	Corrected RSA Crypto tickets from “BUG33894” to “ENH33894”. – CC Corrected RSA Crypto tickets from “BUG34031” to “ENH34031”. Changed “ERM” to “Electionware”. – CC Clarified BUG34449 to include the word “candidate”. – CC Updated the descriptions of ENH34120 and ENH34130. – MN, GS

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I. INTRODUCTION

System Change Notes detail the functional changes added between the previous and current voting system certifications. Changes are organized by system component and version implemented.

I.1 SCOPE

System Change Notes detail the changes implemented between ES&S Voting System 5.2.0.0 and ES&S Voting System 5.2.1.0.

I.2 TARGET AUDIENCE

The primary audience for this document includes test stakeholders and system end users.

I.3 USING THIS DOCUMENT

This document is organized to satisfy the requirements listed in the 2005 EAC Voluntary Voting System Guidelines (VVSG) and directly addresses the following requirements.

VVSG Requirements Addressed in this Document

VVSG Section	Title
V II, Section 2.12	System Change Notes

Other Requirements Addressed in this Document

Reference	Title
N/A	

I.4 DEFINITIONS AND ACRONYMS

Definitions used in this document conform to company standards set forth herein and to definitions included in the EAC 2005 *Voluntary Voting System Guidelines*. Other definitions are consistent with those found in *ANSI/IEEE Std 610.12-1990, IEEE Standard Glossary of Software Engineering Terminology*.

I.4.1 DEFINITIONS

Term	Definition
N/A	

1. SYSTEM CHANGE NOTES

1.1 HARDWARE CONFIGURATION CHANGES

There were no changes to the hardware configuration as part of this release.

1.2 AUTOMARK

There were no changes made to the AutoMARK as part of this release.

1.3 DS200

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
2.12.1.0	BUG34299	Write-in Snippets	Enhance write-in snippet capture to prevent dense ballots from occasionally cutting off part of snippet.
	ENH34179	USVI Straight Party	Support version of straight party required for US Virgin Islands.
	ENH34221	Bengali Language support	Support Bengali language for voter facing U/I content.
	ENH34234	Write-in Snippets	Add support of data from election to enable autoprinting of the write-in snippet report and passing size of the print used on ExpressVote card to allow for write-in snippet detection.
	ENH34410	Cleanup	Clarify wording on undervote screen to make clearer.

1.4 DS850

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
2.10.1.0	ENH34181	USVI Straight Party	Support version of straight party required for US Virgin Islands.

1.5 ELECTIONWARE – ACQUIRE

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
4.7.1.0	BUG34101	Cleanup	Changes have been made to Acquire for better handling of DS200 results media which have been closed on more than one DS200 Terminal.

1.6 ELECTIONWARE – CAPTURE

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
4.7.1.0	BUG34128	Cleanup	In a ballot style with contests in multiple districts of the same type, contest order will be determined by district order.
	ENH34130	Other	This change affected adding Election Day polls only. When the user adds an Election Day poll, the "Force Unique Ballot Styles..." checkbox will now be unchecked by default. Adding an Absentee/Early poll or a poll from the "Poll Places" node in the tree and then changing the Poll Place Type to Election Day will cause the "Force Unique..." checkbox to be checked.

1.7 ELECTIONWARE – CONFIGURE

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
4.7.1.0	BUG34632	Write-in Snippets	Configure DS200 Settings report option added for Write-In Review Report.
	BUG34660	Other	Updated Configure's DS200 Settings report to show Election Day then Absentee settings.
	ENH34119 ENH34120 ENH34121	Write-in Snippets	Added the option to auto-print the write-in report during the DS200 polls close process.
	ENH34294	Write-in Snippets	The setting of the selected ExpressVote font size will be provided to the DS200 to help with write-in capture.

1.8 ELECTIONWARE – FRAMEWORK

Version	Change ID	Reason for Change	Description
4.7.1.0	ENH34031	RSA Crypto	Include a new version of RSACRYPTO in the Electionware install that now uses the PKCS1 padding scheme to ensure compatibility with the MS Crypto library used by the ExpressVote.
	ENH34118	Maryland Flag	Updates were made to allow for EXP use in Maryland.
	ENH34123	Bengali Language Support	Updates were made for adding Bengali and Vrinda font support to Electionware.
	ENH34133	Bengali Language Support	Updates were made for adding Bengali support to the ExpressVote.
	ENH34180	USVI Straight Party	Flag for requested Straight Party handling for USVI will be passed when "Virgin Islands of the U.S." is selected in Election Information.
	ENH34503	Cleanup	Comments were updated in the Electionware Code per NTS requirement.

1.9 ELECTIONWARE – PACKAGE

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
4.7.1.0	ENH34349	Bengali Language Support	When Bengali is added to an election, the Vrinda font will be added to the ExpressVote poll stick.

1.10 ELECTIONWARE – PAPER BALLOT

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
4.6.1.0	BUG34465	Bug Fix	Write-in snippets will be handled for landscape ballots.

1.11 ELECTIONWARE – PRODUCE

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
4.7.1.0	BUG34545	Bug Fix	Write-in snippets will be handled for landscape ballots.

1.12 ELECTION REPORTING MANAGER

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
8.12.1.0	BUG33881	ERM Updates	Creating ERM from XML for a 2nd time and adding additional groups will not check for duplicates between 0 value columns.
	BUG33886	ERM Updates	Changes were made to remove an outdated file version check.
	BUG33887	ERM Updates	Pre-populated NNNNNNNNNNNN was removed from file names.
	BUG33888	ERM Updates	Users will now be able to indicate Update Precincts Counted in an election with only one group.
	BUG33889	ERM Updates	Users will be notified of 0 ballot cast precincts in the reading of a 2nd stick from the DS850.
	BUG33892	ERM Updates	EL45 will no longer report precincts as counted when Update Precinct Counted is turned off.
	BUG34011	ERM Updates	Update Precinct Results from SFTP Server is not a selectable option in this release.
	BUG34220	Cleanup	ERM can be created from XML files when ERM is mapped to a network drive.
	BUG34228	ERM Updates	ERM will show all parties for a Cross-Endorsed candidate.

Version	Change ID	Reason for Change	Description
	BUG34316	ERM Updates	2nd users will no longer be asked to create Results Database when it has already been created.
	BUG34412	Cleanup	The correct totals will show for the Name and District Totals Canvass for parties which do not have party ballots in all precincts.
	BUG34413	ERM Updates	Subset elections can again be created when the election is located on a network drive.
	ENH33890	ERM Updates	Users are able to skip all precincts with zero ballots cast.
	ENH33893	ERM Updates	Users are able to set a time interval for the automatic creation of the Results XML file.
	ENH33894	RSA Crypto	Include a new version of RSACRYPTO in the ERM install that now uses the PKCS1 padding scheme to ensure compatibility with the MS Crypto library used by the ExpressVote.
	ENH33927	Canvas Report	Users are able to Generate the Names and District Totals report for a specific contest.

1.13 EVENT LOG SERVICE

There were no changes made to ELS as part of this release.

1.14 EXPRESSLINK

Note: The name for this product has changed from "ExpressPass" to "ExpressLink."

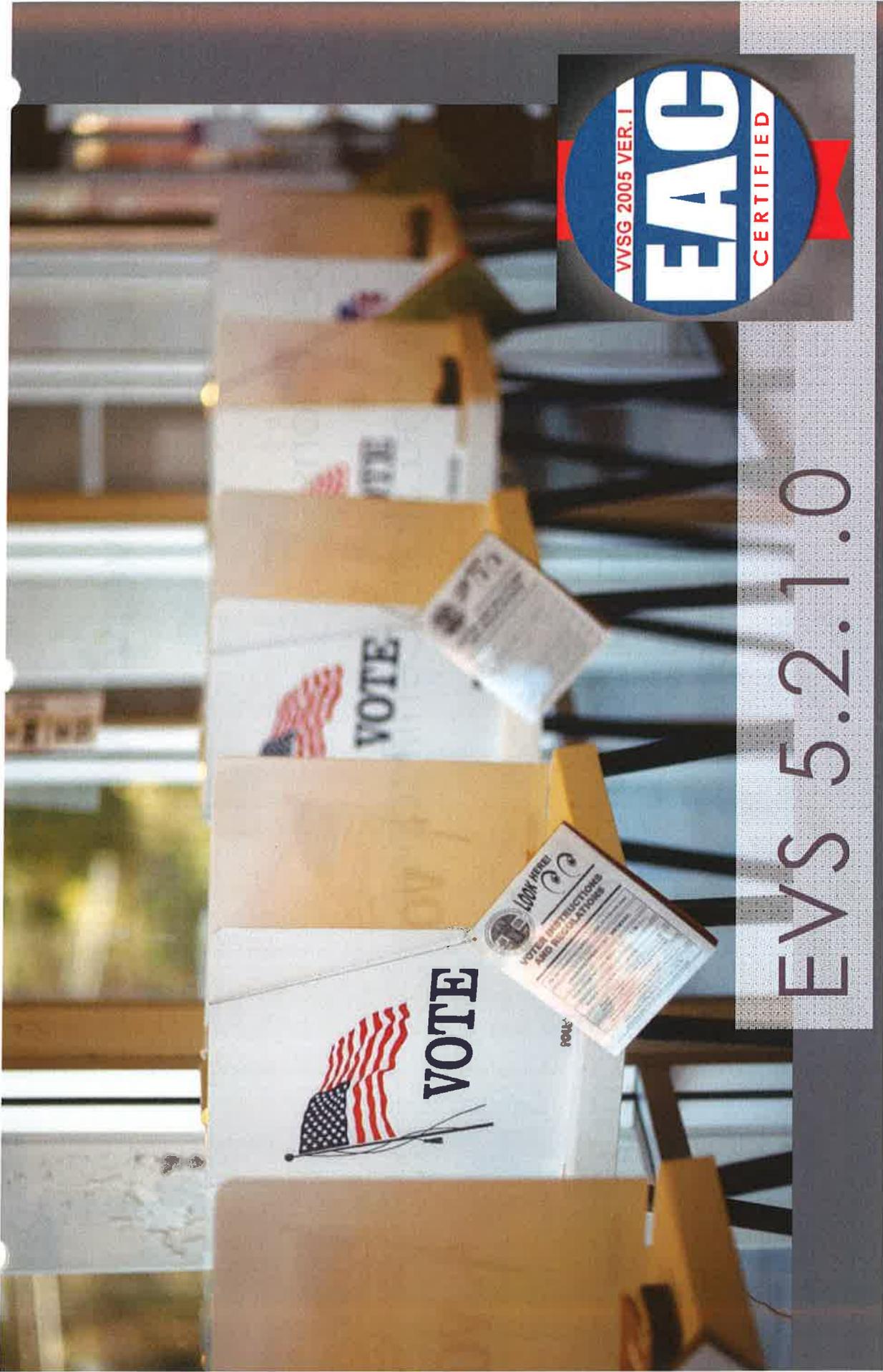
In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
1.3.0.0	ENH34074	Usability	Improved quality of 1st card printing on ExpressLink.

1.15 EXPRESSVOTE

In addition to bug fixes and code optimization, the following changes were added:

Version	Change ID	Reason for Change	Description
1.4.1.0	BUG34293	Bengali Language Support	Added additional language support for Bengali.
	BUG34330	Cleanup	Holding voted card on insertion caused card to be seen as blank.
	BUG34335	Cleanup	Code maintenance no features added.
	BUG34398	Routine	Copyright screen date change.
	BUG34402	Other	Updated Windows CE version number.
	BUG34443	Other	Imperfect bar code caused card to be seen as blank.



EVS 5.2.1.0

July 11, 2016

Tennessee State Certification



Presentation Overview

- Introductions
- Federal and State Certification
- Product Overview
- Voting Method and Equipment Demonstration
- Product Enhancements
- Final Remarks

Federal Certification

EAC Certified Releases

	EVS 5.2.0.0 (7/2/14)	EVS 5.2.1.0 (12/18/16)
ElectionWare	4.6.0.0	4.7.1.0
Election Reporting Manager	8.11.0.0	8.12.1.0
Event Log Service	1.5.5.0	1.5.5.0
Removable Media Service	1.4.5.0	1.4.5.0
ExpressVote	1.4.0.0	1.4.1.0
DS200 Precinct Tabulator	2.12.0.0	2.12.1.0
DS850 Central Tabulator	2.10.0.0	2.10.1.0
AutoMARK	1.8.6.0	1.8.6.0

✓ EVS 5.2.1.0 Key Objectives:

- Add the ExpressVote Rolling Kiosk
 - Add the write-in review report
 - Make other beneficial enhancements to the EAC certified EVS 5.2.0.0 release for 2016 Elections.
- ✓ Election Assistance Commission (EAC) Certified EVS 5.2.1.0 on Dec. 18, 2015 for conformance to the 2005 Voluntary Voting System Guidelines (VVSG)
- ✓ The EAC Certified EVS 5.2.1.0 as a modification to the EVS 5.2.0.0 release
- ✓ Completed VSTL testing at National Technical Systems (NTS)



Product Overview

- Electionware
- DS200
- DS850
- ExpressVote
- AUTOMARK

Electionware

User Friendly

- Imbedded help guides and user status messages
- Ability to complete certain tasks via the menu option, button icons, or a 'right-click'
- Ability to preview Expressvote and AutoMARK presentation before burning election day media

Accommodating to all jurisdictions

- Support for 9900 ballot styles
- Flexible layout options allows each ballot face to accommodate 1-5 columns



DS200 Precinct Tabulator



Digital Scanning

- Scans 11, 14, 17, 19 inch paper ballots and Expressvote cards in any orientation
- Option to save images of all ballots, ballots that contain a write-in, or no ballots

Internal Battery Back-up

- Enclosed internal back-up battery to provide additional 2+ hours of power

Touch Screen Interface

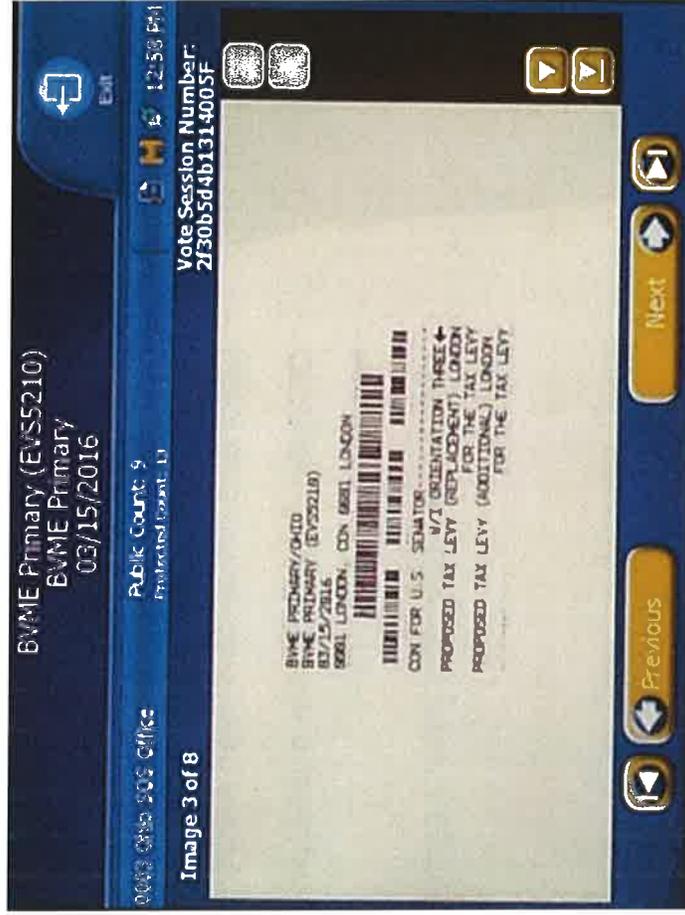
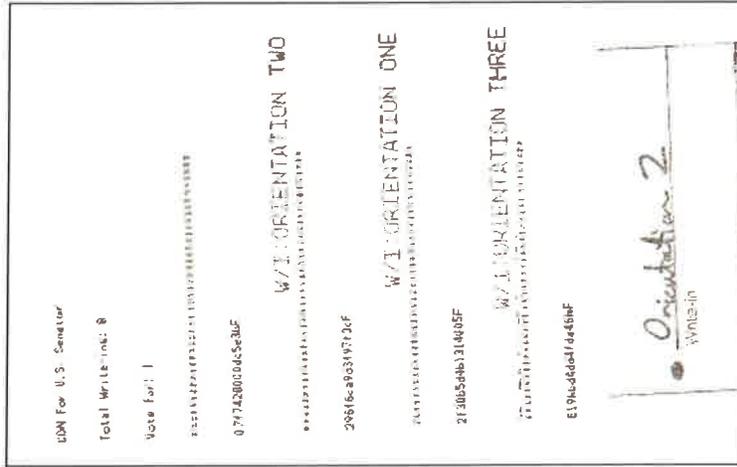
- Clear and simple on-screen messages guiding the voter through each voting session
- On-screen display of the public/protected count, admin menu, battery status, and help icon
- Allows user to preview reports on-screen prior to printing

EVS 5.2.1.0 Product Enhancements

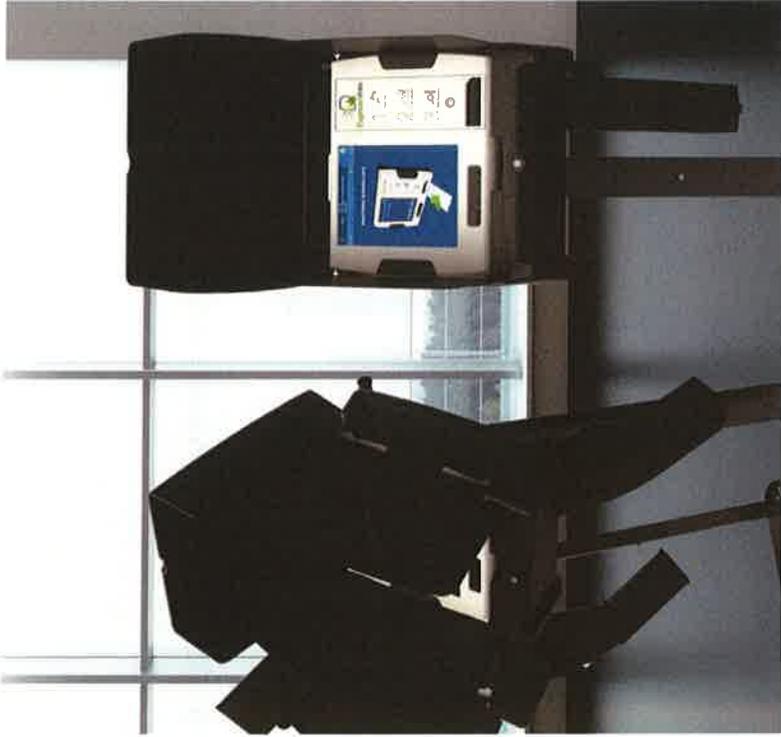
DS200 Precinct Scanner

Product Enhancements since the EVS 5.2.0.0 release

- ✓ **DS200 Precinct Tabulator**
 - Added the 'Write-in Review Report' and 'Write-in Viewer' as an optional feature.



ExpressVote



Designed for ALL voters

- One device providing all voters with the same voting experience.

Three functions in a single device:

1. Ballot presentation
2. Vote-capture (does not tabulate or keep voter's selections)
3. Print voter selections on verifiable paper record

Touchscreen Interface

- Provides help guides and user friendly messages

ADA Accessible

- Navigation keypad, audio jack, support for ADA equipment (sip-n-puff)

EVS 5.2.1.0 Product Enhancements

ExpressVote

Product Enhancements since the EVS 5.2.0.0 release

- ✓ **ExpressVote**
 - Updated Operating System and Scanner Printer Engine (SPE) board firmware for improved ExpressVote card handling
 - Minor screen updates (ie: updated Copyright screen, etc.)

 - ✓ **ExpressVote Rolling Kiosk**
 - Added another ExpressVote stand option for counties to use.
 - Designed for easy transport to and from polling locations and provides a secure card container for counties who want to use the 'rear-eject' feature. The ExpressVote summary cards remain in the secure container and would later be tabulated on the DS200 or DS850.
 - Integrated the QR-Code Scanner for optional 'ExpressPass' implementation
-

Automark Voter Assist Terminal (VAT)

Fully ADA Compliant

- Navigation keypad, audio jack, support for ADA equipment (sip-n-puff)
- Supports the scanning, presenting, and printing of 11, 14, 17, and 19 inch paper ballots inserted in any orientation.

Associated Software

- **VAT Previewer** allows a jurisdiction to preview the on-screen layout prior to burning the election definition onto the CF Card, saving time and effort.

No firmware modifications from the certified EVS 5.2.0.0 release.



DS850 Central Tabulator



Digital Scanning & S-Curve Design

- Scans 11, 14, 17, or 19 inch paper ballots and Expressvote cards **in any orientation**
- 22 rollers maintain control during the scanning process
- S-Curve allows enough time for processing and sorting
- Network option to send results and files to the EMS server

Touchscreen Interface

- Provides help guides and user friendly messages
- Ability to preview any report prior to printing

Configurable Sorting Options

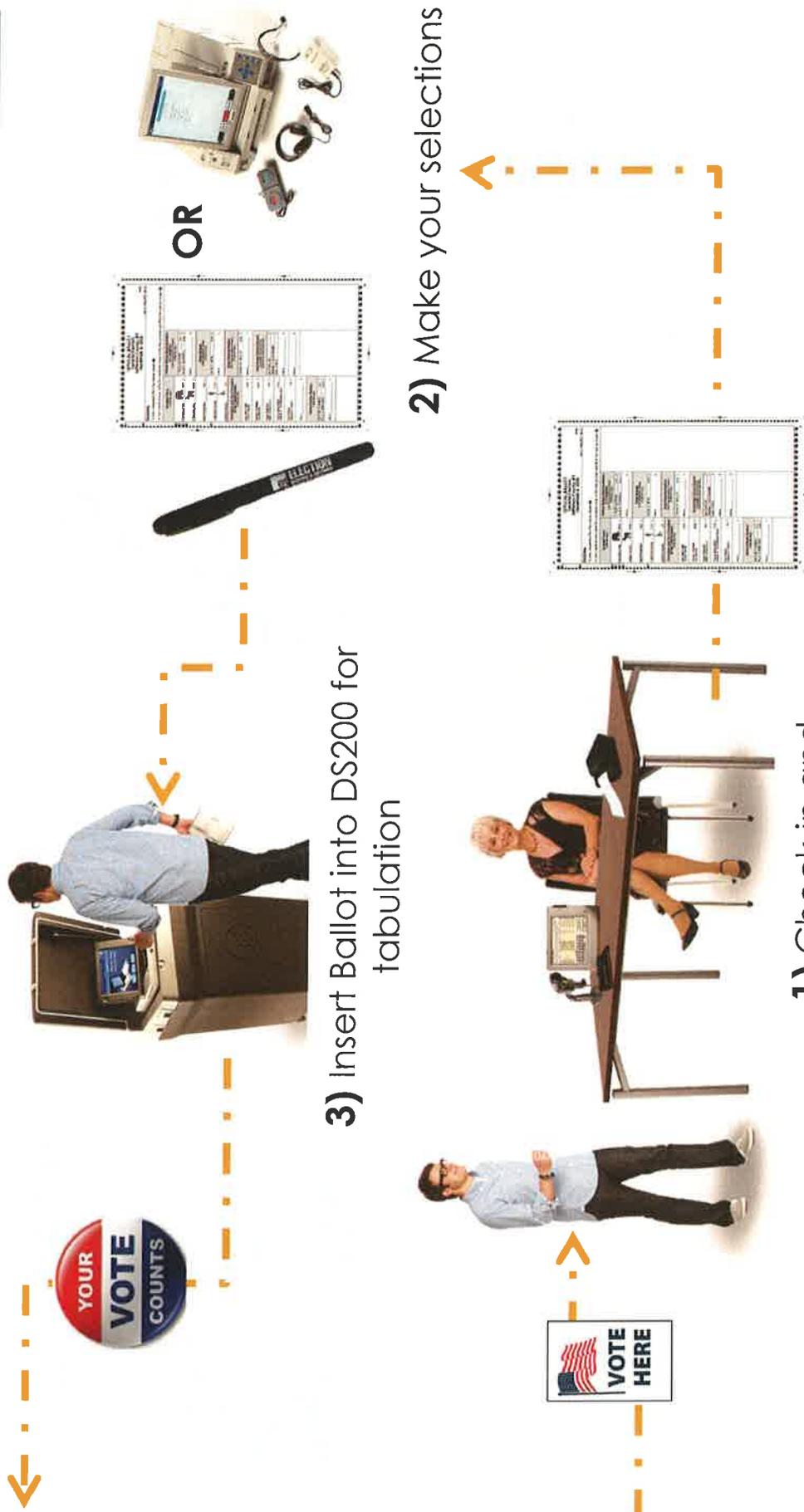
- Three configurable outstack bins for sorting of ballots containing write-ins, overvotes, undervotes, or blank ballots.

Key EVS 5.2.1.0 Enhancements:

- None for Tennessee customers. The only modification was to support Virgin Island specific Straight Party logic.

Precinct Voting Method – Option 1

At the Polling Location (Traditional Paper Method)

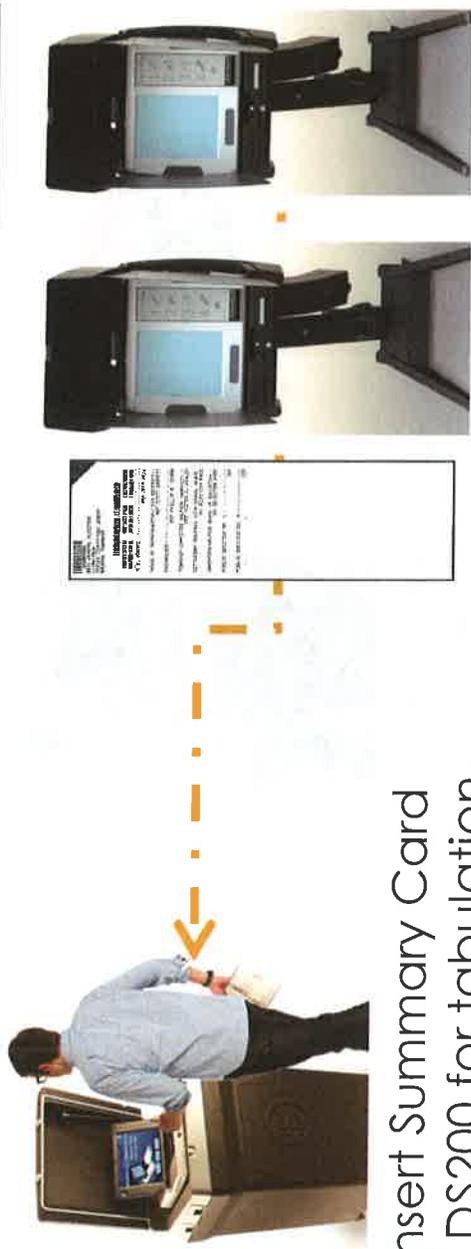


1) Check-in and receive your Ballot

2) Make your selections

Precinct Voting Method – Option 2.1

At the Polling Location (ExpressVote as a Universal Voting Device)



3) Insert Summary Card into DS200 for tabulation

2) Make your selections



1) Check-in and receive your ExpressVote Activation Card

Optional Products/Features



ExpressVote Activation Card Printer

✓ The ExpressVote Voter Activation Card printer connects to an existing pollbook solution (ie: ExpressPoll and EP5000) or the ExpressLink software to print ExpressVote activation cards

Precinct Voting Method – Option 2.2

At the Polling Location (ExpressVote as a Universal Voting Device + ExpressLink)



3) Insert Summary Card into DS200 for tabulation

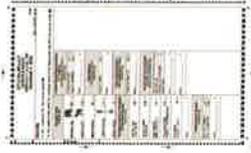
2) Make your selections



1) Check-in and receive your ExpressVote Activation Card

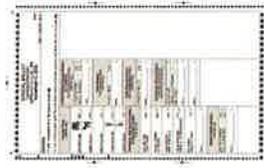
Precinct Voting Method – Option 3

At the Polling Location (Provide the Voter the option)



3) Insert your Ballot or Summary Card into DS200 for tabulation at the polls or a ballot bin for later scanning on the DS850

2) Make your selections



OR



1) Check-in and receive your Ballot or ExpressVote Activation Card

Presentation Overview (Revisited)

- ✓ Introductions
- ✓ Federal and State Certification
- ✓ Product Overview
- ✓ Voting Method and Equipment Demonstration
- ✓ Product Enhancements
- Final Remarks on EVS 5.2.1.0



Thank you

Tennessee State Certification

