Minutes
State Election Commission Meeting
January 9, 2022

The State Election Commission meeting was called to order by Chairman Kent Younce at 12:04 p.m., Central Daylight Time, January 9, 2023.

The following members and staff were present: Commissioners Barrett, Blackburn, Eldridge, McDonald, Wheeler and Younce; Coordinator of Elections Mark Goins, and Kathy Summers, Elections Specialist.

Commissioner Eldridge made a motion to adopt the October 10, 2022, minutes, seconded by Commissioner McDonald.
(Aye votes: Barrett, Blackburn, Eldridge, McDonald, Wheeler and Younce; No votes: None; Abstention: None.)

Commissioner McDonald made a motion to adopt the November 4, 2022, telephonic meeting minutes, seconded by Commissioner Wheeler.
(Aye votes: Barrett, Blackburn, Eldridge, McDonald, Wheeler and Younce; No votes: None; Abstention: None.)

Commissioner Blackburn made a motion to adopt the December 15, 2022, telephonic meeting minutes, seconded by Commissioner McDonald.
(Aye votes: Barrett, Blackburn, Eldridge, McDonald, Wheeler and Younce; No votes: None; Abstention: None.)

Commissioner Blackburn made a motion pursuant to TCA. § § 2-12-101 and 2-12-106 to approve any nomination(s) for county election commission appointments submitted, and to leave the nomination process open until 4:30 p.m. Central Daylight Time, Monday, January 9, 2023, seconded by Commissioner McDonald. (Aye votes: Barrett, Blackburn, Eldridge, McDonald, Wheeler and Younce; No votes: None; Abstention: None.) **(See attached county election commission appointments made.)**

Old Business

- None Given

New Business

- Unisyn – Demonstration and request for approval of OpenElect Voting System 2.2.2

Doug Beazer, Customer Service Manager for Unisyn and Dustin Vanderburg, Vice President of Henry M. Adkins and Sons gave their presentation to the commission. **(See attached presentation and information provided by Unisyn.)**

Commissioner Blackburn made a motion to approve Unisyn 2.2 hardware, and to defer approval of any ECO software changes due to EAC de minimis materials

missing from the packet provided by Unisyn, seconded by Commissioner Wheeler. (Aye votes: Barrett, Blackburn, Eldridge, McDonald, Wheeler and Younce; No votes: None; Abstention: None.)

- Hart InterCivic –Request for approval of de minimis changes to Verity Voting 2.5-ECO-01551

Elisabeth Spring, Certification Project Manager for Hart InterCivic gave the presentation before the commission. **(See attached presentation and information provided by Hart InterCivic.)**

Commissioner McDonald made a motion to approve the de minimis 2.5 ECO - 01551, seconded by Commissioner Eldridge. (Aye votes: Barrett, Blackburn, Eldridge, McDonald, Wheeler and Younce; No votes: None; Abstention: None.)

Coordinator Update

- Coordinator Goins advised Cannon County Election Commission posted summaries of the Constitutional Amendments on Election Day. When notified of this information on Election Day, Coordinator Goins advised the Administrator of Elections to take down the summaries immediately as the ballot speaks for itself.

- Davidson County Election Commission misassigned numerous voters which resulted in voters receiving the wrong ballot. After the county made some adjustments to their redistricting files, GIS offered to geo code and reverify their information and maps a second time. Davidson County chose not to reverify the information a second time. Another issue was created when an employee in error misassignment voters to the wrong precincts. Over three thousand (3,000) voters were affected, and the error was caught during early voting for the November General Election. Coordinator Goins believes the solution going forward would be to mandate counties to geo code their data with the Comptroller's office.

The meeting was adjourned at 1:54 p.m. Central Time.

The next scheduled meeting is set for April 3, 2023, at 12:00 Noon, Central Standard Time. Meeting location has not been set due to renovations in the William R, Snodgrass – TN Tower Conference Center.

Respectfully submitted,

Tom Wheeler – Acting - Secretary
State Election Commission

State of Tennessee

State Election Commission
312 Rosa L. Parks Avenue, 7th Floor
Nashville, Tennessee 37243-1102

Vacant Status

January 9, 2023

Dyer R Jimmy Eldridge / D Greg Duckett
D

Lawrence R Donna Barrett / D Greg Duckett
R

Putnam R Kent Younce / D Mike McDonald
R

Washington R Judy Blackburn / D Tom Wheeler
R

Total Vacancies: 4

State of Tennessee

State Election Commission
312 Rosa L. Parks Avenue, 7th Floor
Nashville, Tennessee 37243-1102

New Appointment Status

January 9, 2023

		Appointment
Putnam	R Kent Younce / D Mike McDonald	
	R Michael Clinton Detwiler , Jr.	1/9/2023
Washington	R Judy Blackburn / D Tom Wheeler	
	R Mary Lora Rosenoff	1/9/2023

Total New Commissioners: 2

COPY

Tennessee Secretary of State
Tre Hargett

Elections Division
312 Rosa L. Parks Avenue, 7th Floor
Nashville, Tennessee 37243-1102

Mark Goins
Coordinator of Elections

615-741-7956
Mark.Goins@tn.gov

February 23, 2023

Chris Ortiz, Certification Manager
Unisyn Voting Solutions
2310 Cousteau Court
Vista, CA 92081

Dear Mr. Ortiz,

This letter is to inform you of the certification of Unisyn OpenElect 2.2, an upgrade to the Unisyn OpenElect 2.0.A voting machine bearing the EAC Certification Number UNS10121966-2.2, by the State Election Commission (SEC) and Coordinator of Elections on January 9, 2023.

Your voting machine was presented to the SEC on January 9, 2023, for demonstration, and the SEC has received and reviewed the questionnaires completed by counties currently using the Unisyn OpenElect 2.2 voting system.

Thank you for your cooperation in the certification process.

Sincerely,

Mark Goins
Coordinator of Elections

Enclosure: EAC Certification Number UNS10121966-2.2

Unisyn Voting Solutions

2310 Cousteau Court
Vista, CA 92081, USA
Telephone: 1 (760) 734-3233
Fax: 1 (760) 598-0219

November 16, 2022

Mark Goins
Director of Elections
312 Rosa L. Parks Avenue, 7th Floor
William R. Snodgrass Tower
Nashville, Tennessee 37243

Please accept this letter as Unisyn Voting Solutions requests to formally begin the Tennessee State Certification process on the OpenElect Voting System 2.2.2. The system completed VSTL testing at Pro V&V on 8 September 2021, and EAC certification on 18 November 2021.

The system consists of the following components:

System Component	Software or Firmware Version	Hardware Version	Description
OVO	2.2.2		Precinct Ballot Scanner
FVS	2.2		Precinct Ballot Scanner
FVT – Tablet Voting Device	2.2		Ballot Marking Device Early voting station Accessible voting station
FVT-B – Tablet Voting Device	2.2		Ballot Marking Device Early voting station Accessible voting station Battery Backup Unit
OVI-VC – 15" Screen	2.2		Ballot Marking Device Early voting station Accessible voting station
OVCS mini	2.2		Central Scanner – M160
OVCS	2.2		Central Scanner- DRX10C Central Scanner – G2140
OVO Ballot Box 1	--	1.1	Plastic
OVO Ballot Box 2	--	1.2	Plastic Rolling
FVS Ballot Box	--	1.0	Collapsible Rolling
Ballot Layout Manager (BLM)	2.2	--	EMS
Election Manager (EM)	2.2	--	EMS

System Component	Software or Firmware Version	Hardware Version	Description
Tabulator Client (TC)	2.2	--	EMS
Tabulator (Tab)	2.2	--	EMS
Tabulator Reports (TR)	2.2	--	EMS
OVCS Application	2.2	--	EMS
Auditor	2.2	--	EMS
Validator	2.2	--	

This table depicts new ECO's approved with the voting system since the testing of the OpenElect 2.2 was approved by the EAC. The new version is OpenElect 2.2.2.

Change ID	Date	Component	Description
1025	2/24/2022	OVO	New USB Drive as other unit was End of Life (EOL)
1026	2/24/2022	FVS	New fan on Freedom Vote Scan (FVS) as prior model was End of Life (EOL)
17059	2/24/2022	FVS	Ballot Diverter
17050	5/17/22	OVO	Concurrent Close Process
1027	7/26/22	FVS	New USB Drive and Memory as other unit was End of Life (EOL)
3476	7/28/22	OVO (Software)	Scanner Enable / Disable

Thank you in advance for your assistance with this matter.

Sincerely,

Stephanie Walmsley
Project Manager

Attachments:

- 2.2 Release Notes
- 2.2.2 Release Notes
- TDP
- ECO Write-Ups
- Pro V&V Test Report
- EAC Documents

United States Election Assistance Commission

Certificate of Conformance

Unisyn OpenElect 2.2

VVSG 2005 VER. 1

EAC CERTIFIED

The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the *Voluntary Voting System Guidelines Version 1.0 (VVSG 1.0)*. 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: OpenElect

Model or Version: 2.2

Name of VSTL: Pro V&V

EAC Certification Number: UNS10121966-2.2

Date Issued: 11/18/2021

Mona Harrington

Executive Director

Scope of Certification Attached

Unisyn
Voting Solutions

OpenElect® Voting System

Release Notes

System 2.1 to 2.2

Document Number: 04-00594

Release 2.2

Version 1.5

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OpenElect® Voting System

OpenElect 2.2 Release Notes

UNISYN VOTING SOLUTIONS, INC.®
2310 Cousteau Court, Vista, CA 92018-8346 USA

(760) 598-1655 • FAX (760) 598-0219

Approvals and Acknowledgement

APPROVALS		
Chris Ortiz, Director, Business Development	Ben Bloom, Product Manager	Regina Roesch, Lead Software Engineer

Document Revision History

Date	Version	Release	Description
07/10/19	1.0	2.1	Initial Issue of 2.1 Release Notes
09/16/19	1.1	2.1	Clarification of Short Description (09/09/19) on four issues
08/05/2020	1.0	2.2	Initial Issue of 2.2 Release Notes
12/21/2020	1.1	2.2	Add the FVT-B to Section 1.4
02/11/2021	1.2	2.2	Remove Reference to Encrypted USB
06/08/2021	1.3	2.2	Updates for Release 2.2
07/16/2021	1.4	2.2	FCA updates for OVO, Write In and Alternate Language Text
07/29/2021	1.5	2.2	Updated BLM Section

For questions about this document please contact:
Chris Ortiz
Director, Business Development
Email: cortiz@unisynvoting.com
VotingInfo@ilts.com

Table of Contents

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Section One

An Overview of Release 2.2

The OpenElect® Release 2.2 contains updates to various components of the OpenElect® Voting System as well as the addition of the OpenElect® FreedomVote Scan (FVS) and two utilities. During the development of this release, we took into consideration past enhancement requests, how to improve the user's experience, and the laws and procedures set forth by the jurisdictions we serve throughout the country.

OpenElect Voting System's Software Versions

Application	Software Version
Auditor	2.2
Ballot Layout Manager	2.2
Election Manager	2.2
FVS	2.2
FVT/FVT-B	2.2
OCS Installer	2.2
OVCS – Canon DR-X10C OVCS – Canon DR-G2140 *mini*OVCS – Canon DR-M160II	2.2 2.2 2.2
OVI-VC	2.2
OVO	2.2
Tabulator	2.2
Tabulator Client	2.2
Tabulator Reports	2.2
Cast Vote Records Utility	2.2
Write-in Utility	2.2

Release 2.2 Items Pending Federal Certification

Below are the key added functionalities and enhancements that will benefit our OpenElect® Voting System users, followed by a short description of the change(s).

1.1 Auditor (A)

Reference Number	Short Description of the change(s)
2.2-1	Allow operator to swap left/right images.
2.2-12	Add support for (optional) strong election/maintenance passwords.

1.2 Ballot Layout Manager (BLM)

Reference Number	Short Description of the change(s)
2.2-2	Adjust BMD length calculation to accommodate voting options and font sizes.
2.2-3	Increase speed of backup/restore UDB process.
2.2-4	Enforce type limitation on precinct splits. (Normal precincts must have at least one normal split, absentee etc. precincts can only have splits of same type.)
2.2-5	Improvements to speed and balancing of proportional rotation function. Ignore absentee precincts in counts.
2.2-6	Add ability to move groups of contests in contest reorder interface.
2.2-7	Show dynamically generated IDs for contest/candidate in interface.
2.2-8	Export and import rotation point in precinct interface.
2.2-9	Add alignment option (left or center) to BLM interface.
2.2-50	Adjust font size calculations so that candidate name text is centered on target.
2.2-57	Update to default messages for Overvote and English Message for Display on Bilingual OVO/FVS screen. In support of 2.2-46 and 2.2-47.
2.2-58	FVT ballotstyles will have a minimum of 12 timing marks (up from 7.)
2.2-61	Measure Preview must show the alternate language translation
2.2-62	Updates to handling delete elements in header/graphics interface

1.3 Election Manager (EM)

Reference Number	Short Description of the change(s)
2.2-10	Add FVS machine type and specific FVS options.
2.2-11	Add option for type of write-in report (compressed or expanded) to be selected at EM, and not on close in OVO/FVS.
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-28	Allow operator to set default number of open / close reports to print.
2.2-42	Add (optional) count of ballots with write ins to tally.
2.2-49	All EM options are disabled after election export.

1.4 FreedomVote Scan (FVS)

Reference Number	Short Description of the change(s)
2.2-13	Add FreedomVote Scan.

1.5 FreedomVote Tablet (FVT)

Reference Number	Short Description of the change(s)
2.2-9	Add alignment option (left or center) to BLM interface.
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-14	Make training mode on FVT function more like election day for training purposes.
2.2-15	Remove user confirmation when USB is inserted in FVT.
2.2-16	Ensure the ballots look consistent (font, format, etc.) from ballot to screen.
2.2-17	Support multiple cross party endorsements for a single candidate.
2.2-19	Only one vote assigned to each write in in Test Deck generation, no longer part of the sequence.
2.2-20	When a contest does not have enough candidates to fulfill the vote for value, the second chance validation will not flag them as undervotes.
2.2-41	New FVT-B includes an internal battery backup unit to power the printer for two hours in the event of a power failure. In all other ways, the FVT-B functions the same as the FVT.

Reference Number	Short Description of the change(s)
2.2-45	Add Shutdown screen to Close process and allow tablet to be shut off from physical switch.

1.6 OCS Installer

Reference Number	Short Description of the change(s)
2.2-46	Update to a new FIPS cryptographic module.

1.7 OpenElect® Voting Central Scan (OVCS)

Reference Number	Short Description of the change(s)
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-20	When a contest does not have enough candidates to fulfill the vote for value, the second chance validation will not flag them as undervotes.
2.2-21	Add Canon G2140 scanner support.
2.2-22	Add Ballot Count to OVCS upload screen.
2.2-24	Write-in extraction algorithm improvement.
2.2-42	Add (optional) count of ballots with write ins to tally.
2.2-43	Only read Code 128 barcodes on FVT ballots.
2.2-44	Allow systems to accept multiple page ballots with retraction IDs.
2.2-47	Add overvote and undervote counts to tally.
2.2-59	Simplification to OCR for write in image extraction to remove chance for false positives on write in identification.

1.8 OpenElect® Voting Interface (OVI-VC)

Reference Number	Short Description of the change(s)
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-20	When a contest does not have enough candidates to fulfill the vote for value, the second chance validation will not flag them as undervotes.

1.9 OpenElect® Voting Optical scan (OVO)

Reference Number	Short Description of the change(s)
2.2-11	Add option for type of write report (compressed or expanded) to be selected at EM, and not on close in OVO/FVS.
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-23	Prevent ballot hang at back.
2.2-24	Write-in extraction improvement.
2.2-25	Speed up closing process (background thread to sign images and extract write ins) and efficiency improvements.
2.2-26	Updated jam after cast handling. If jammed after cast, a voter message will display telling them to request poll worker assistance. When the 'Continue' button is selected, the next screen requires the Election password screen input by the poll worker. Then the system will then attempt to eject to the ballot box again, if not successful, it will eject the ballot to the front with a screen messaging telling the poll worker that special handling is required.
2.2-27	On full review screen: Cast and Return buttons are always enabled.
2.2-28	Allow operator to set default number of open / close reports to print.
2.2-29	If write in report is cancelled, do not print signature lines, instead print that report was cancelled.
2.2-30	Add ability to support scaling of ballot image on paper down to 96%.
2.2-42	Add (optional) count of ballots with write ins to tally.
2.2-43	Only read Code 128 barcodes on FVT ballots.
2.2-44	Allow systems to accept multiple page ballots with retraction IDs.
2.2-51	Add Connect Scanner function.
2.2-52	OVO warns of consequences of overvote in all modes and on ballot alert print.
2.2-53	Bilingual message pages default text is correct and understandable in both languages.
2.2-55	Remove Accuracy Test function.
2.2-59	Simplification to OCR for write in image extraction to remove chance for false positives on write in identification.
2.2-60	Add translation of measure responses to full review display.

1.10 Tabulator (TAB)

Reference Number	Short Description of the change(s)
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-31	Allow VR totals by party to be input for all defined parties.
2.2-32	Aggregate party VR totals when validating ballot counts on upload.
2.2-33	Support for RCV Single Transferable Vote.
2.2-34	Add option to allow RCV tally to continue beyond minimum winning threshold.
2.2-35	Add show splits button on upload interface to make it easier to determine which splits have not reported.
2.2-36	Improve handling of write ins for RCV. See Tabulator User Guide, Section 5.3.2 (pg. 5-25) for details.
2.2-37	On export, RCV contests only export the first rank contests.
2.2-38	Add support for FVS devices.
2.2-42	Add (optional) count of ballots with write ins to tally.
2.2-56	Multi-seat RCV + elimination only option – allow candidates below threshold to accumulate votes after winner has been calculated.

1.11 Tabulator Client (TC)

Reference Number	Short Description of the change(s)
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-38	Add support for FVS devices.

1.12 Tabulator Report (TR)

Reference Number	Short Description of the change(s)
2.2-12	Add support for (optional) strong election/maintenance passwords.
2.2-39	Choose all precincts and contests by default when generating reports.
2.2-40	Filter SOVC report so that a contest only shows precincts assigned to it.
2.2-42	Add (optional) count of ballots with write ins to tally.

1.13 Cast Vote Records Utility (CVR)

Reference Number	Short Description of the change(s)
2.2-48	Add Cast Vote Records Utility.

1.14 Write-in Utility (WI)

Reference Number	Short Description of the change(s)
2.2-54	Add Write-in Utility.

Voting System Reference Questions

Reference Name and Contact Information:

Kurt Bahr, Director of Elections, kbahr@sccmo.org, 636-949-7551

Jurisdiction Name:

Saint Charles County Election Authority

Quantity, type and version of voting equipment and software installed:

130 Unisyn OpenElect OVO's, we have used OpenElect Version 1.2, 1.3, 2.1 and are currently on Version 2.2.

130 Unisyn OpenElect FVT's, we have used OpenElect Version 1.2, 1.3, 2.1 and are currently on Version 2.2.

How many voters are in your jurisdiction?

285,000

When did your jurisdiction purchase the system?

2013

How many elections have you used the system?

23 elections, 2014 to present

Have any upgrades been made to the system since you purchased it? Why?

Disabled voter hardware equipment was upgraded from OVI's to FVT's. This physical upgrade provided an improved voter experience and allowed for us to upgrade our existing OVO software to version 2.1, improving security and extending the life of the original OVO units for an additional 5-10 years.

Are you still using the same system?

Yes, original generation of OVO's and second generation of disabled touch screens (FVT)

Describe your overall impression of the system based on experiences in your jurisdiction.

Happy. The system works as advertised, easy to program and troubleshoot, easy for voters to use. It has proven itself to be safe, secure and accurate.

Are you satisfied with the training provided to your staff?

Yes

Are you satisfied with the training provided for poll officials?

NA – We have our own training staff and do not use assistance from the vendor.

Are you satisfied with the support the vendor has provided for early voting (if applicable), Election Day, and post-election activities?

Yes. Adkins is a trusted partner who works quickly to ensure we accomplish our mission.

Are you satisfied with the cost of support? Do you feel the cost of support is competitive or too expensive?

Satisfied, cost is competitive.

Describe any issues the vendor has had meeting your jurisdiction's requirements, if any.

None

Describe any issues your jurisdiction has had regarding equipment availability, if any.

None. Even now with supply issues they keep us appraised of issues so we can plan/purchase accordingly.

Describe any issues your jurisdiction has had regarding the accuracy of election results, if any.

None

Describe any other issues your jurisdiction has had with the system, if any.

None

Has the vendor been responsive in addressing issues?

Yes

Describe any feedback (positive or negative) received from poll officials about the system.

Our poll workers like the system and we received positive feedback about the set-up and use of the FVTs when we began using them in 2021. Negative comments are always about the judge's failure to remember training or consult their manuals. The operability of the machines has never been a problem.

Describe any feedback (positive or negative) received from voters about the system.

Voters like paper ballots and the ability to cast their ballots into the OVOs themselves. We received glowing comments from users who needed the FVTs and how much easier

they were to use. The only negative comments come from voters who are still focused on the 2020 election results. They question all machines and their concerns are not worth repeating.

Do you feel like you have gotten your money's worth for the system?

Yes

Would you recommend this system for use in other jurisdictions?

Yes, unequivocally.

Voting System Reference Questions

Reference Name and Contact Information: Jeannie Goff, Chief of Staff

Jurisdiction Name: Jefferson County Clerk/Election Authority, Missouri

Quantity, type and version of voting equipment and software installed: #76 Unisyn OpenElect Voting Optical Scanners; #63 Unisyn Freedom Vote Tablets; OpenElect Central Suite; Version 2.0

How many voters are in your jurisdiction? 157,711

When did your jurisdiction purchase the system? 2017

How many elections have you used the system? 17

Have any upgrades been made to the system since you purchased it? No Why?

Are you still using the same system? Yes

Describe your overall impression of the system based on experiences in your jurisdiction.

Are you satisfied with the training provided to your staff? Yes

Are you satisfied with the training provided for poll officials? Yes

Are you satisfied with the support the vendor has provided for early voting (if applicable), Election Day, and post-election activities? Yes

Are you satisfied with the cost of support? Do you feel the cost of support is competitive or too expensive? Yes, the cost was competitive.

Describe any issues the vendor has had meeting your jurisdiction's requirements, if any. None

Describe any issues your jurisdiction has had regarding equipment availability, if any. None

Describe any issues your jurisdiction has had regarding the accuracy of election results, if any. None

Describe any other issues your jurisdiction has had with the system, if any. None

Has the vendor been responsive in addressing issues? We have not had any issues but any questions that we have had, have been addressed immediately.

Describe any feedback (positive or negative) received from poll officials about the system. The poll workers love the ease of the new equipment. They are pleased with the accuracy of the tabulation.

Describe any feedback (positive or negative) received from voters about the system. The voters trust that it is a paper ballot being tabulated no matter if they are using the Optical Scanner or the Freedom Vote Tablet.

Do you feel like you have gotten your money's worth for the system? Yes

Would you recommend this system for use in other jurisdictions? Absolutely, we would.

Voting System Reference Questions

Reference Name and Contact Information:
Mary Baack-Garvey, County Clerk
MaryBaack-Garvey@co.buchanan.mo.us
(816) 271-1412

Jurisdiction Name: Buchanan County, MO

Quantity, type and version of voting equipment and software installed: 35-Unisyn 2.2

How many voters are in your jurisdiction? Roughly 53,000

When did your jurisdiction purchase the system? 2015

How many elections have you used the system? Roughly 30-35

Have any upgrades been made to the system since you purchased it? Why? Only the software updates that are installed by the vendor.

Are you still using the same system? Yes

Describe your overall impression of the system based on experiences in your jurisdiction. Very impressed and would recommend it highly

Are you satisfied with the training provided to your staff? Yes

Are you satisfied with the training provided for poll officials? Yes

Are you satisfied with the support the vendor has provided for early voting (if applicable), Election Day, and post-election activities? Yes!

Are you satisfied with the cost of support? Yes Do you feel the cost of support is competitive or too expensive? N/A

Describe any issues the vendor has had meeting your jurisdiction's requirements, if any. None.

Describe any issues your jurisdiction has had regarding equipment availability, if any. None.

Describe any issues your jurisdiction has had regarding the accuracy of election results, if any. None

Describe any other issues your jurisdiction has had with the system, if any. None

Has the vendor been responsive in addressing issues? If there were minor issues, yes

Describe any feedback (positive or negative) received from poll officials about the system. They adapted very quickly and easily to it and enjoy using it on Election Day.

Describe any feedback (positive or negative) received from voters about the system. Every election we will always have that ONE voter that isn't happy with something. We always explain the situation to them and make them feel at ease by the end of the phone call.

Do you feel like you have gotten your money's worth for the system? Absolutely.

Would you recommend this system for use in other jurisdictions? Absolutely.

Voting System Reference Questions

Reference Name and Contact Information:
Ronda Miller, County Clerk
rmiller@callawaycountyclerk.com
573.642.0730

Jurisdiction Name:
Callaway County

Quantity, type and version of voting equipment and software installed:
25 Freedom Vote Scanners v2.2

How many voters are in your jurisdiction?
29,000

When did your jurisdiction purchase the system?
March 2022

How many elections have you used the system?
1

Have any upgrades been made to the system since you purchased it? Why?
No

Are you still using the same system?
Yes

Describe your overall impression of the system based on experiences in your jurisdiction. **We are so very pleased with the Adkins and Unisyn companies. Adkins has been there since day 1 and responded to anything we have asked. They go above, and beyond to help the customer. They are very knowledgeable and so appreciated. Unisyn voting systems have a great product in the Freedom Vote Scanner. It is very user friendly as well as much easier to deliver to a polling location. The poll workers love how easy it was to open and then close at the end of the day. We are so happy to be with Adkins, we wish we would have changed a long time ago.**

Are you satisfied with the training provided to your staff?
Yes

Are you satisfied with the training provided for poll officials?
Yes

Are you satisfied with the support the vendor has provided for early voting (if applicable), Election Day, and post-election activities?
Absolutely.

Are you satisfied with the cost of support? Do you feel the cost of support is competitive or too expensive?
N/A

Describe any issues the vendor has had meeting your jurisdiction's requirements, if any.
N/A

Describe any issues your jurisdiction has had regarding equipment availability, if any.
N/A

Describe any issues your jurisdiction has had regarding the accuracy of election results, if any.
N/A

Describe any other issues your jurisdiction has had with the system, if any.
-I had to call and request help to log into the system as the admin password was not supplied.
-Instruction book not updated for the newest election night software.

Has the vendor been responsive in addressing issues?
Absolutely

Describe any feedback (positive or negative) received from poll officials about the system.
Our poll workers loved the system. They said it was easy to open in the morning. It was quick to scan ballots. And closing the polls was just as easy as opening them. They thought it was easy enough to retrieve the ballots and to remove the results flash drive. I guess that was the word of the day when it came to the responses of our poll workers; easy.

Negative feedback was in relation to the monitor screen. They would like the current time to show.

Describe any feedback (positive or negative) received from voters about the system.
Conversation throughout the day told us that voters thought it was quite short compared to the big machines previously in use.

Do you feel like you have gotten your money's worth for the system?
Yes, absolutely.

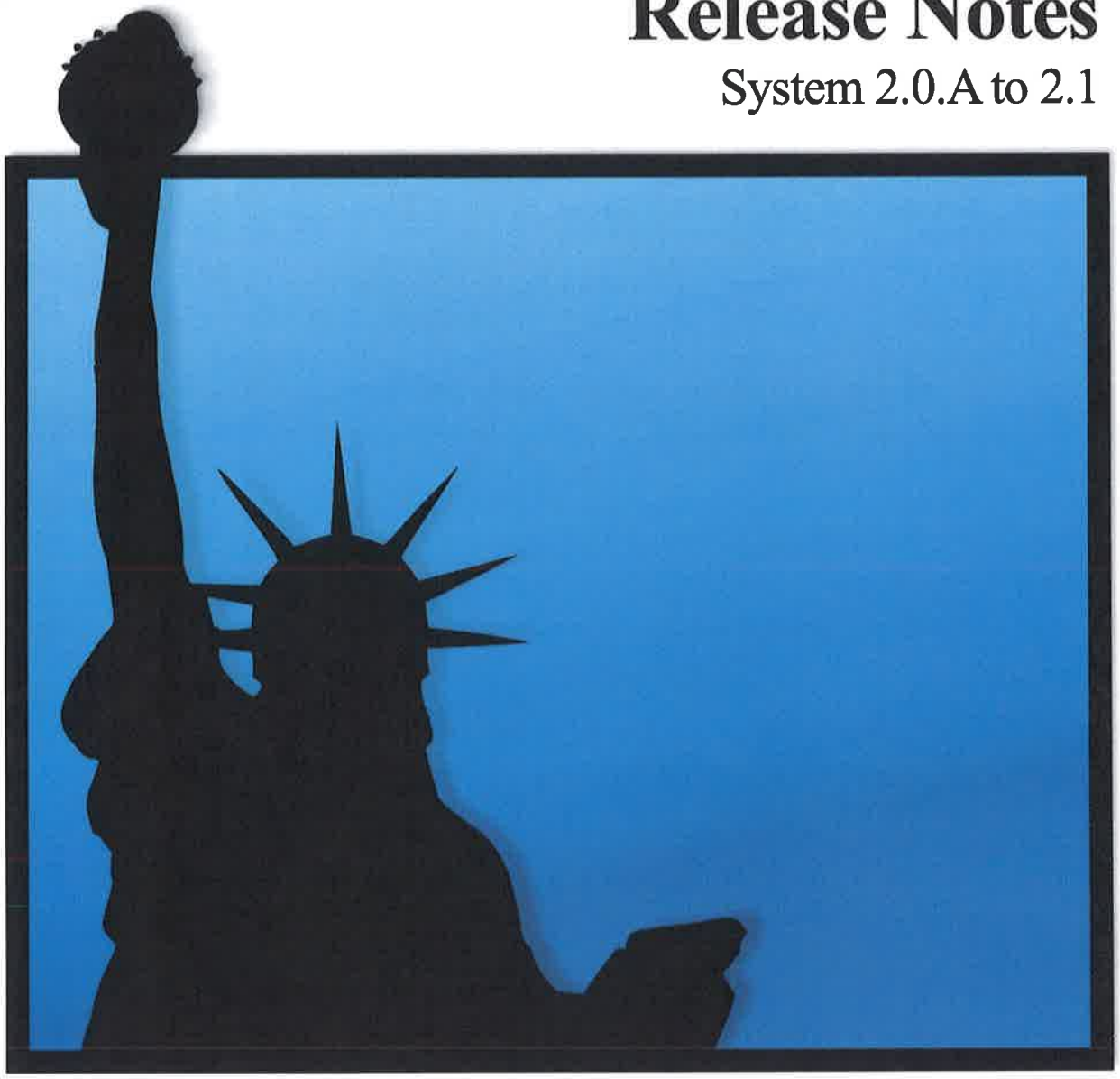
Would you recommend this system for use in other jurisdictions?
Yes!

Unisyn
Voting Solutions

OpenElect® Voting System

Release Notes

System 2.0.A to 2.1



Document Number: 04-00594

Release 2.1

Version 1.2

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OpenElect® Voting System

OpenElect 2.1 Release Notes

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Approvals and Acknowledgement

APPROVALS		
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Document Revision History

Date	Version	Release	Description
07/10/19	1.0	2.1	Initial Issue of 2.1 Release Notes
09/16/19	1.1	2.1	Clarification of Short Description09/09/19 on four issues

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Table of Contents

Section One

An Overview of Release 2.1

The 2.1 release contains updates to various components of the OpenElect® Voting System. The 2.1 release contains updates to various components of the OpenElect® Voting System. During the development of this release, we took into consideration the results from the Vulnerability and Penetration testing done by DHS at their Idaho test Lab, past enhancement requests, how to improve the user's experience, and the laws and procedures set forth by the jurisdictions we serve throughout the country.

Below are the key added functionalities and enhancements that will benefit our OpenElect® Voting System users throughout the US.

OpenElect Voting Devices Software Versions

Application	Software Version
Auditor	2.1
Ballot Layout Manager	2.1
Election Manager	2.1
OCS Installer	2.1
Tabulator	2.1
Tabulator Client	2.1
Tabulator Reports	2.1
FVT	2.1
OVCS/mini-OVCS	2.1
OVI-VC	2.1
OVO	2.1
Validator	2.1

Limitations:

- This 2.1 release is not applicable for software versions ending in M.

1.1 2.1 Items Pending EAC Certification

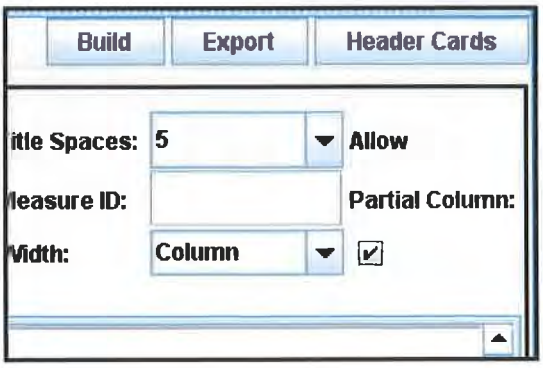
Below is a list of the key items included in the 2.1 release followed by a short description of the change(s).

1.2 Auditor (A)

Issue No.	Short Description of the change(s)
2149/2432	User can enter a write-in candidate's name in the Auditor application. Please refer to Appendix A

1.3 Ballot Layout Manager (BLM)

Issue No.	Short Description of the change(s)
1536	Allow color for the non-partisan party to be changed.
1645	A superuser user can load a new registration key at any time.
1801	Implemented rotation based on voter registration data, generate a precinct/contest report for all elections, regardless of rotation. Please refer to Appendix J
1828	Implemented Decline to State (DTS) function to allow non-partisan voters to selection from a list of DTS parties. Please refer to Appendix E
1889	Update ballot design to follow the EAC best practices.
1936	Move sound scripts to BLM Please refer to Appendix B
1986	Increase button text character limits for the OVO and FVT in order to accommodate translated text.
2058	Translate all voter facing messages for the FVT.
2143	Add the target color, Red or Black, to the Ballot's PDF name.
2147	Change target color in drop down from 'Grey' to 'Black'.
2234	Target example in Header Graphics made to match new ballot design.
2256	Increase accuracy of text measurement when comparing against allocated space on ballot for Measure and Instruction Block text.

Issue No.	Short Description of the change(s)
2259	Change Election Proof Report to correctly represent full page width instruction blocks and measures.
2278	On the Translation tab, create separate translations for the OVO and FVT for the final voting screen.
2341	Update Screen Reader introduction hint text to correctly describe method to show and hide the screen in Screen Reader mode.
2349	Option to combined PDF of all printable ballots. When the Merge Ballot PDF option is checked all ballots in the same party and language ballot style (i.e., REP/Eng, REP/SP, DEM/Eng, DEM/Sp) are merged into a single PDF. The PDF is titled "Merged [PartyID]_[LanguageID].pdf". Each merged PDF also has a .txt file of the same name. This file contains the names, in order, of the ballot PDFs that went into the merged PDF. If the checkbox is not checked, no merged ballot PDFs will be created. 
2352	Ballot Text needs to support inline size tags for varied font sizes. Please refer to Appendix C
2367	Allow dynamic flow across columns for measure text. At the top of the Ballot Measure form there is now a checkbox that will enable a measure to span across multiple lines dynamically if selected. This is controlled on a Measure by Measure basis. 
2379	Add the ability to have a variable data field in the header that describes the ballot, for example General Election Ballot or Measures Only Ballot. Please refer to Appendix K
2380	Adding option for split merging, to allow for splits to merge to highest split instead of to parent.

Issue No.	Short Description of the change(s)
2434	Merge Duplicate Splits offers two ways to roll-up splits by duplicate ballotstyle in the build process. If splits within a parent have the same ballotstyle, then depending on the option selected, the splits are merged by either: **1. To Parent** – This option will merge all duplicate splits into the parent precinct. **2. To Highest Split** – This option will merge all duplicate splits into the first split precinct in the list of split precincts (i.e., if A, C and D are split precinct with duplicate ballotstyles, C and D will be rolled into A.) **3. No** – Do not merge splits.
2393	Enable OVO checking of one-time use barcodes for better security. Please refer to Appendix M
2406	Allow Contest Headers to use up to 1000 characters and support all inline style tags.
2413	Add additional translations for OVO screens such as Ballot Page Not Cast or Ballot Jam. Previously, these screens were in English only.
2419	In the BLM Translation table added the ability to create a blank field or to add the text "No Translation."

1.4 Election Manager (EM)

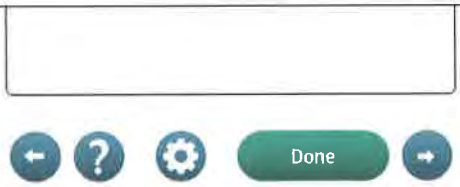
Issue No.	Short Description of the change(s)
1752/ 1817/ 1859	Add readme file to election export to allow identification of election without having to decrypt files.

Issue No.	Short Description of the change(s)
	Election ID: 130 Election Title: General Election|Anywhere County, Ohio|Tuesday, November 6, 2018 Election Type: General Election Date: 2018-11-06 Election Version: 34.3.0 Sound Files: false Card Type: FULLTHREE_D (Three Column Double Sided Ballot) Ballot Length: 11 Inch Training Election: false Retraction ID: 0 Stub ID: 0 Stub Type: NONE FVT Barcode Verification: true Target Color: 0(Red) Software Version: 2.1 Customer Code: VST Machines: FVT UVS120002 UVS120012 OVI UVS201204 UVS201224 OVO UVS000008
1901/ 2107	Add an option to the Election Manager's Common Options screen to print the candidate with the most votes in a contest in bold on the OVO and OVCS tally report. Please refer to Appendix O
1937	Increment the EM portion of the election parameter version number when EM party icon is changed.
1946	Move sound script management interface to the BLM to avoid moving between to application to correct/test sound files. Please refer to Appendix B
1958	Include ballot style listed on QR barcode when election is exported by ballot style.
1965	Adjust election version number when machines list in election are changed to allow better detection
1969	Allow user to select font size layout for the text on the Precinct Barcode Report.
1984	Enable sound script editing.
1996	Enable Audio Script report button regardless of "Require Sound Files" option.
2105	Allow custom image on Thank you screen. Please refer to Appendix D

Issue No.	Short Description of the change(s)
2151/ 2202/ 2296	DHS Security Suggestion: Implement new TM USB handling with secure delete of files and signed unisyn_tm.vol file. Clear previous error messages. Please refer to Appendix N
2174/ 2198/ 2343	Create election_info.txt file to contain election settings for reference without decryption.
2382	Remove ambiguous letters and numbers, such as I and O, from auto-generated passwords. However, the Election Password entered by a user is not required to follow this rule.
2420	Remove 'Enter Alert Report Header Title' form OVO options screen, this text can be customized in the BLM Translations screen.

1.5 FreedomVote Tablet (FVT)

Issue No.	Short Description of the change(s)
1357	Handle formatting tags in the Instruction blocks. Please refer to Appendix C
1703/ 1916/ 1976	Add the ability to perform a diagnostic test on the Text-to-Speech function.
1705/ 1914/ 2199	DHS Security Suggestion: Add system application API to allow the date and time to be changed from within the FVT application. Please refer to Appendix F
1779/ 2047	Add Election Type, Straight Ticket type, Retraction ID (if Set), Stub ID (if Set), and Android Build Number to the Machine Info Report.
1781	Allow Custom image on Thank you screen. Please refer to Appendix D
1822	What we are supporting is the use of Mixed case (first letter capitalized, rest lower case) in accordance with best practices. This can generally be changed in BLM translation to whatever the customer prefers.
1832	Change Write-in entry screen's BACK button action to a cancel function.
1849	Decline to State (DTS) functionality. Please refer to Appendix E
1871	Skip invalid machine key files during setup.
1866	Translate All Voter Facing Messages.
1893/ 2112	Update FVT Star printer driver.
1896	Update "Machine Type" from BMT to FVT on Machine Info screen.
1912	Update sound play handling to be more extensible. If a secondary language sound file does not exist it will default to the English sound file.
1953	Change 'Done' and 'Print' buttons on the screen to green color.
1961	Remove picture of phone with barcode on Main and Start screens.
1976	In Diagnostics Auto Test, when Cancel button pressed, show a confirmation message (yes/no) to exit.

<table>
<tr><th>Issue No.</th><th>Short Description of the change(s)</th></tr>
<tr><td>1978</td><td colspan="2">Update the keypad layout to swap the right arrow and the Enter keys.</td></tr>
<tr><td>2047</td><td>Display Android build version on the Machine Info Screen and Machine Info Report.</td><td>Software Version: FVT_QA-78
Support App Version: FVT_Support_QA-7
Android Version: 4.4.4
Build Number: Gvision-1.1
Machine Name: UVS134161</td></tr>
<tr><td>2060</td><td colspan="2">Add FVT application validation/verification handling.</td></tr>
<tr><td>2062</td><td colspan="2">Adjust color contrast on FVT as suggested by accessibility group. For example, on the Summary screen undervoted contests background color was changed from red to yellow, and on the Ballot screen the selected candidates background color was changed from yellow to green.</td></tr>
<tr><td>2063</td><td colspan="2">To avoid confusion on the FVT ballot screen the Done and Print buttons are not available until the voter is required to use them.</td></tr>
<tr><td colspan="2"> 
Ballot Screen with Voting in Process</td><td> 

Ballot Screen with voting complete</td></tr>
<tr><td>2073</td><td colspan="2">In the event that the FVT was stored with an election still loaded and the password has been misplaced, there is now a process to delete the previous election. The user will contact Customer Service. Customer Service will provide them with a TM with a unisyn.sys file, a unisyn.sig file and a password. The user will then:
1. Press the "Manual Entry" button on the FVT main screen
2. Enter the password provided by Customer Service and press "Enter" button
- The password will work only if TM has "unisyn.sys" sign file.
- If the file doesn't exist on the TM or its signature doesn't verify, the standard 'invalid password' message will display.
- If it is election day this special password will be ignored even if the Unisyn files are on the TM
3. On next "Clear Election" confirm screen there are "Yes" and "No" buttons. If press "Yes" button election and session files will be deleted and the FVT will show the Maintenance screen.</td></tr>
<tr><td>2089</td><td colspan="2">Header border not drawing correctly in screen group.</td></tr>
</table>

Issue No.	Short Description of the change(s)
2098	Improve spacing on Initialization barcode ticket and add formatting options that have been set.
2110	Use PNG images for buttons on the bottom of the voting screen.
2158	Change alert indicator color for undervotes and no selection on summary screen from RED to YELLOW.
2184	DHS Security Suggestion: FVT locks out all desktop access. The only user with access is a Superuser who has access to the special file in place on a Unisyn provided TM, in addition to requiring password.
2195	DHS Security Suggestion: Update FVT to enable system power off feature. Please refer to Appendix G
2201	DHS Security Suggestion: Machine keystore password should be updated on install to be devices specific.
2209	DHS Security Suggestion: Update TM file cleaning process to a secure delete. Please refer to Appendix N
2245	Text associated with BLANK candidate entry is displaying twice with Formatted Description only layout.
2284	Remove ability to change Machine Name on setup screen.
2353	Ballot Text needs to support inline size tags for varied sizes in a single block. Please refer to Appendix C
2368	Allow Provisional Ballots to be printed on the FVT. Please refer to Appendix L
2395	Enable OVO checking of one-time use barcodes for better security. Please refer to Appendix M
2402	Allow the 'Done' button text on the FVT final voting screen to be changed in the BLM Translations, for example the text could be 'Review'.
2405	Headers are increased (reference BLM).
2416	Redesign the layout of the Settings screen to improve its usability. The more often used font size options were moved to the top of the screen.

1.6 OpenElect® Voting Interface (OVI-VC)

Issue No.	Short Description of the change(s)
1848	Implement 'Decline to State' function - allow Non-partisan voter to select from valid list of DTS parties. Please refer to Appendix E
1851	The sound played after the ballot has printed is not in the language selected but in English.
1873	Handle formatting tags in Instruction Blocks. Please refer to Appendix C
2330	Allow translation for Multiple Screen Header Text, such as Ballot Title, Summary Title, and Instruction Title.

1.7 OpenElect® Voting Central Scan (OVCS)

Issue No.	Short Description of the change(s)
547	Add ability to enter custom names for OVCS sessions.
1780	Allow export of OVCS session data to a TM for upload with the TC.
1920	Adjust the definition of a mark and implement changes to support.
2030	Add option to print in bold the candidate with the most votes in a contest on the tally report. Please refer to Appendix O
2102	Process two column ballots with and without RCV with separate definition to improve performance.
2115	Rotate the BMD full ballot image display in the write-in report to make it more readable.
2181	DHS Security Suggestion: Update TM file cleaning process to a secure delete.
2370	Will recognize FVT Provisional ballots as provisional "P" ballots and not as BMD "D" ballots and handle accordingly. Please refer to Appendix L
2376	Upload button is disabled after sorting any column in descending order in session list.

1.8 OpenElect® Voting Optical scan (OVO)

Issue No.	Short Description of the change(s)
1442	Add option to print in bold the candidate with the most votes in a contest on the tally report.
1530	Create report which shows precinct count totals while the voting session is open. The precinct count totals can be retrieved throughout election day on the OVO Machine Info printed report. Before any ballots are cast in the session the Machine Info report will print 'Precinct Counts: 0'. After ballots have been cast a table will print which lists all precincts which have had ballots cast. If they are split precincts it will show the division of votes for each child precinct and the total for the parent precinct. If it is a Primary Election it will display the count by precinct/party combinations. The ballot page number in shown between the ( ).
	If no ballots have been cast against a precinct, it will not show in the table. Here is an example of the precinct count information on the Machine Info printed report. Precinct Count: 01000-NP (1): 1 02100-NP (1): 4 >02101-DEM (1): 1 >02102-REP (1): 2 >02103-GRN (1): 1 02200-NP (1): 1 03000-NP (1): 1
1900	The 'Done', 'Print', 'Up' and 'Down' button text is translated in the BLM translations instead of hard coded.
1919	Adjust the definition of a mark and implement changes to support.
2055	Upgraded the OVO Printer Drivers to fix the "Printer is not connected" message after the printer paper has been changed.
2159	DHS Security Suggestion: Improved file cleaning process for TMs to ensure that all files are securely deleted. Please refer to Appendix N
2369	Will recognize FVT Provisional ballots as provisional "P" ballots and not as BMD "D" ballots and handle accordingly. Please refer to Appendix L
2396	Will recognize the FVT's Ballot Verification Number (BVN) in the second barcode on an FVT ballot to prevent ballots from being cast a second time. Please refer to Appendix M

1.9 Tabulator (TAB)

Issue No.	Short Description of the change(s)
1913	Implement Single Transferable Vote handling. Please refer to Appendix P
1930	Allow automatic blanking of "0" in Voter Registration field.
1938	Add "Elimination Only" option for RCV multiple seats method. Please refer to Appendix P
1939	Append number of votes required to win (vote threshold) value to end of contest title in RCV tally report.
1942	Informational - Add clarity to how RCV results are calculated for the exhausted ballots.
1971	When "Multiple Deletions" is selected for tie breaking, if multiple deletion during tally process leads to continuing candidates less than seat number, we shall automatically switch to manual elimination (eliminate one at a time.)
2345	Voter Registration totals entered by party. Please refer to Appendix H
2346	Voter Reg Totals Entered by Parent or Child. Please refer to Appendix H
2347	Increase Manual Entry from 5,000 to 10,000.

1.10 Tabulator Reports (TR)

Issue No.	Short Description of the change(s)
1443	Add option to print in bold the candidate with the most votes in a contest on the tally report.
2050	Ensure that long contest titles are displayed on report.
2360	Handle Voter registration totals entered by party.
2441	When saving a report, the selected file format's extension (PDF or HTML) is automatically added to the end of the file name.

1.11 Tabulator Client

Issue No.	Short Description of the change(s)
2124	Handle OVCS session data to be uploaded from TM.
2180	DHS Security Suggestion: Improved file cleaning process for TMs to ensure that all files are securely deleted.

1.12 All OCS Applications

Issue No.	Short Description of the change(s)
1481	Change 'X' icon on dialog box to perform Cancel function instead of 'OK' function.
1872	Handle formatting tags in the Instruction blocks.
1902/1908	Update Window Favicon to display the correct application logo instead of the default Java logo.
2190	Display more specific error message when an expired registration key is selected.
2355	When the Print button is selected for reports, it will first save the report to a file and then print the report.
2381	Allow special characters for all OCS application passwords.

1.13 OCS Installer

Issue No.	Short Description of the change(s)
2176	Prevent the 2.1 OCS application release from being installed on EOS 1.1 (CentOS 5.7) systems.

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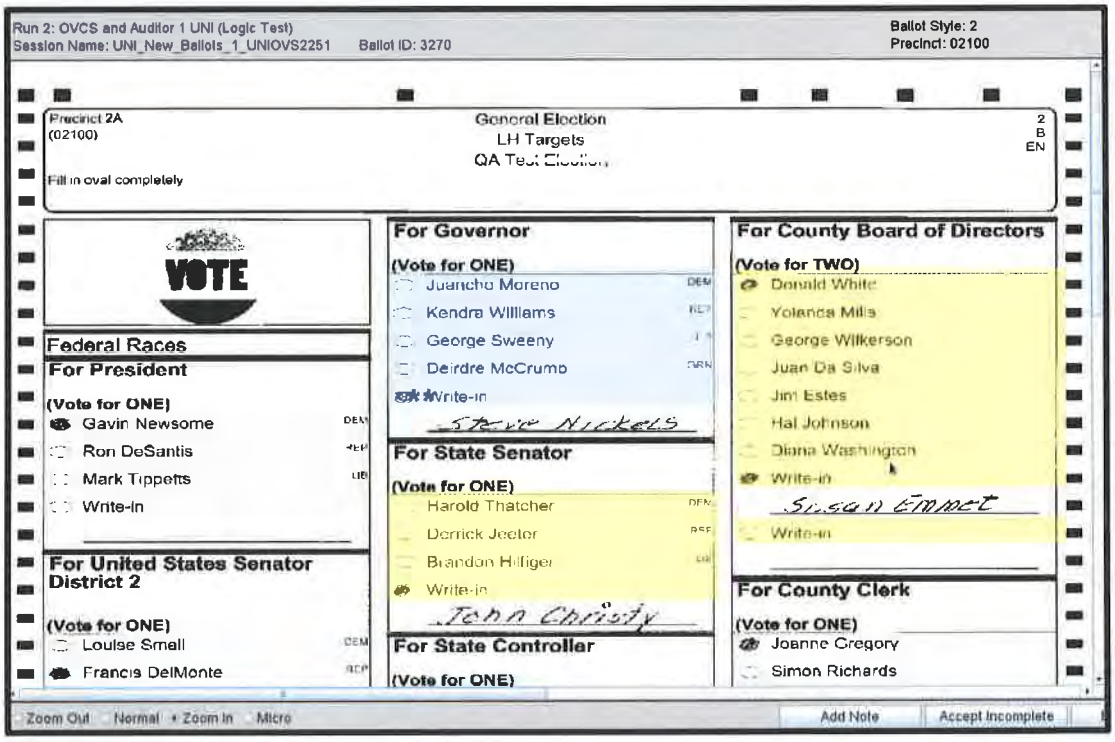
Appendix A

Reference to 2.1 Issues 2149/2432/1832/2115
Ability to Add Write-In Candidates in Auditor

In the Auditor application the Adjudicator user can enter the write-in name by selecting a name from the list of known candidates or now if the jurisdiction permits adding the name of all write-in candidates, entering the write-in candidate name found on the ballot.

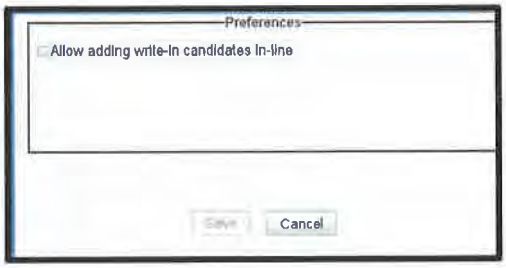


Ballot with Write-in Votes

This is done by the Superuser in the Preference function found under the Auditor/Tools menu. If the jurisdiction permit in-line write-in votes, then the user can add any and all write-in candidate names found on a ballot when the write-in target is selected.

Auditor Preferences

The Preference function allows a Superuser to add write-in candidates to the ballot



Appendix B
Reference to 2.1 Issues 1936/1946
Moving Audio Script from EM to BLM

The ballot audio script provides a written narrative of the election and the mp3 sound file names for all files required for the Audio Script component of the OVI-VC and FVT. Sound files include election title, and all contests and candidates in all languages. Previously, the sound script files were created in the Election Manager application. Scripts are now generated earlier in the election creation process. This was done in order to make it easier to read and verify the sound scripts immediately instead of needing to go back and forth between the BLM and EM.

Appendix C
Reference to 2.1 Issues 2352/2406/2353/1357/1872/1873
Improved Formatting for Ballot Text

Release 2.1 offers the user great flexibility in formatting text on both the printed and electronic ballot.

For Headers and Measures

Valid formatting codes for are:

Bold <B></B>

Italic <I></I>

Bold Italic <BI></BI>

Font Size It is recommended that the largest font size used is 24pt., this will produce 48pt. text as "N". (This tag is used on full-page ballots and the FVT screen only, it is not supported on the OVI-VC and electronic ballots.)

Font Color

Have header color extend into contest area <FILL/> this tag is used on full-page ballots only; it is not supported on electronic ballots.

Line Break

\u2022 = • //BULLET (Cannot be inside another formatting tag).

Contest Titles

Contest titles can use the same tag formats listed above. Header text can be up to 1000 characters and may include font formatting codes.

Instruction Blocks

Instruction Blocks use the same formatting tags that are listed about but also support the following:

<IMAGE></IMAGE> You can put the name of an image of supported type (.png, .bmp, .jpg, .gif) in between image tags in an instruction block. The image will be displayed in the instruction block oriented top center. The application will automatically scale the image to fill the full width of the instruction block, depending on layout, so any desired margins should be added to the image (left, right, top, bottom.)

NOTE: This tag is used on printed ballots only, it is not supported on electronic ballots.

Any additional text will be placed at the bottom of the instruction block. Text will be placed over the image if there is overlap. If text is required, whitespace at bottom of image should be provided to prevent overlap.

<NOBORDER/> Adding the "<NOBORDER/>" tag to the Instruction text will put the text, or image, on the ballot without a surrounding border. Tag is case sensitive.

NOTE: This tag is used on printed ballots only, it is not supported on electronic ballots.

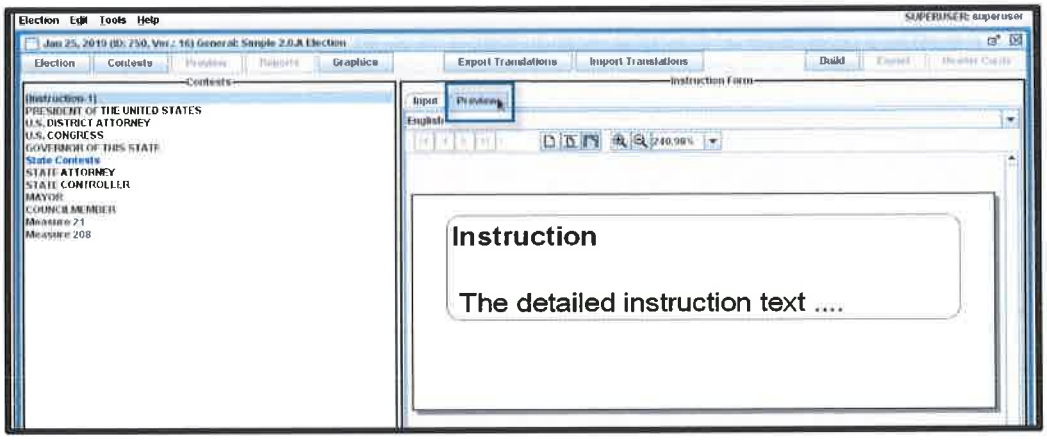
<CENTER/> Adding the "<CENTER/>" tag to the Instruction text will put the center the full text of the Instruction block in the column, works with text added to an image as well. Tag is case sensitive. Text is by default left justified. This tag is not supported by the OVI-VC, all text is left justified.

NOTE: The Ballot Layout Manager does not support bold or italic formatting of character-based languages (Chinese, Thai, etc.). These tags will be removed by the application if encountered.

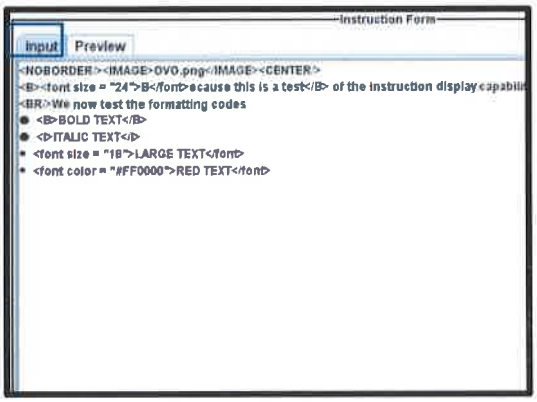
When the text is added or updated, the system previews the text in the format that it will be displayed on the ballot. Keep in mind that the amount of horizontal spaces is determined by the ballot layout type (2 or 3 columns.) If the text extends outside the designated box, the system warns of an invalid format. Until you either decrease the amount of text or increase the amount of space until the text fits in the box, you will get the error.

You could also decrease the font of the text or reduce line breaks to decrease the amount of displayed text and meet the formatting rules.

Election/Add Instruction/Preview



The following examples show a complex Instruction entry with all format codes utilized on the **Input** tab and the resulting instruction on the **Preview** tab.



Instruction Input

Instruction Input Result

Appendix D
Reference to 2.1 Issues 2105/1781
Thank You Screen Image and Text

The final screen on the FVT can be customized by the jurisdiction. They can add text and an image to the final screen to thank the voter for voting, add a state seal or to contain instructions for cast the ballot. This done in the Election Manager application.

Thank You Image

The Thank You Image function adds an image to the final screen on the FVT, the Thank You screen. The jurisdiction will create a .png file of the image to be placed on the Thank You screen and name it **Thank_You_Logo.png** and include it in the Election.zip folder.

To load an image on the "Thank You" screen open the Election Manage application and go to FVT Options on the BMD Option Tab:

1. Click the **Update** button.

2. In the **Select thank you image file** window, locate the Election.zip folder and select the **Thank_You_Logo.png** file.
3. Click the **Open** button.

4. A thumbnail of the image will appear to the left, in the image box.

Click the **Remove** button to remove the image. Click the **Save** button at the bottom of the BMD Options window to save the settings or the **Save as Default** button to apply the settings as the new defaults.

A word about graphics; all graphic files should be either a .jpg or .png format. The resolution can be as low 72 dpi. The image should look good on screen, but does not have to be a high quality or high-resolution image.

Appendix E
Reference to 2.1 Issues 1828/1848/1849
Decline to State Functionality

In the BLM the user can select the "Allow Decline to State" option for a Modified Open Primary election.

Edit / Setup / Party form

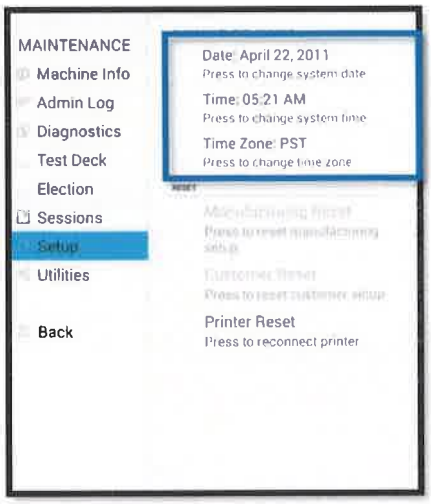
Allow Decline to State - Check this option to allow registered Non-Partisan voters to participate in a Modified Open Primary election by selecting their preferred ballot from a list of partisan ballots that are designated "Allow Decline to State," if ballot styles exit in the election for those parties. The "Allow Decline to State" checkbox can be marked for any party except Non-Partisan.

NOTE: To have a Decline to State (DTS) election, one or more parties must allow Decline to State and at least one of the parties must have a ballotstyle in the election.

Appendix F
Reference to 2.1 Issues 1705/1914/2199
Set Date/Time in FVT Setup Screen

Allow the user to set the Date/Time for the FVT in the Maintenance Setup Screen.

After the election has successfully loaded, check that the date, time and time zone are correct by reviewing the Setup screen. The date, time and time zone are displayed by clicking the **Setup** function on the Maintenance menu.



To Update Set Up

Log on to the FVT as a Supervisor user.

On the Maintenance screen select the **Setup** function. The Date, Time and Time Zone functions are display in the panel on the right side of the screen.

To set the System Date

Select the **Date** function on the Setup screen.

On the System Date screen, set the correct date.

Press the **Set** button. The System date has been set and the Setup screen is displayed.

To set the System Time

Select the **Time** function on the Setup screen.

On the System Time screen, select the correct Time.

Press the **Set** button. The System Time has been set and the Setup screen is displayed.

To set the Time Zone

Select the Time Zone function on the Setup screen.

Select the Time Zone and press the **Set** button.

NOTE: The Back button returns you to the Setup screen and no change is made on the current screen.

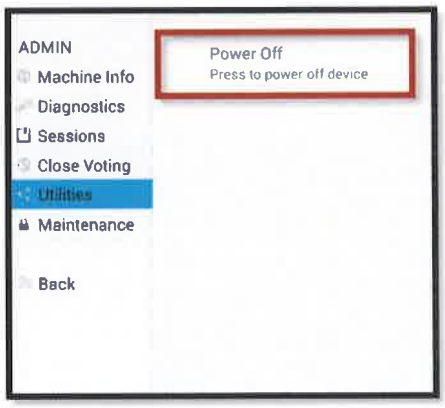
Appendix G

Reference to 2.1 Issues 2195
Poll Worker Can Now Power Off FVT

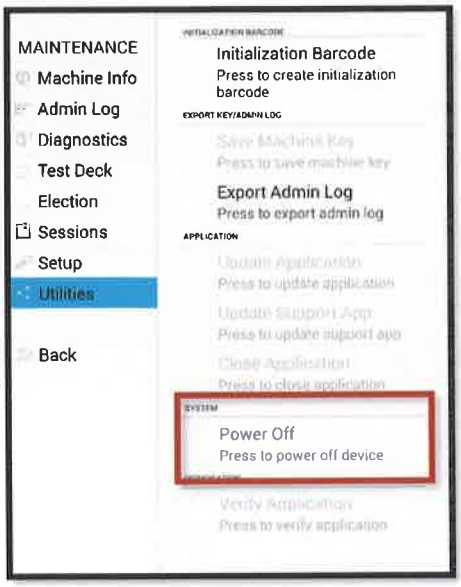
Changed the Power Off function of the FVT to a simple power down/power off process.

The FVT can be powered off from both the Maintenance and Admin Utilities function.

1. Select the Utilities function from the panel on the left. Press the **Power Off** function on the right, outlined in blue.



Admin Menu



Maintenance Menu

2. Follow the instructions on the Power Off screen.

3. Turn off the unit by pressing the power switch on the back of the FVT case to the 'Off' position.

4. When the green LED light on the front of the FVT's case turns off, the unit has powered off. Press the Continue button on the Power Off screen. The screen will dim to black, the FVT is now powered off.

Appendix H
Reference to 2.1 Issues 2345/2346
Voter Registration Changes

The OpenElect 2.1 release includes enhanced functionality surrounding Voter Registration data entry. The legacy import format, pipe delimited text, remains in an unchanged fashion for existing users that prefer it; however, it does not include any of the new functions as detailed below:

New CSV Format with Party Details

The precinct in each line should be a precinct that has a specific ballot style defined.

The following is a sample registered voter count file in .csv format:

```
#Precinct Name,Precinct ID,Party ID or Abbreviation,Count
Precinct 100,00100,0,400
Precinct 100,00100,1,600
Precinct 200,00200,0,400
Precinct 200,00200,1,600
```

In the first line, the **Precinct Name** is Precinct 100, **Precinct ID** is 00100, **Party ID** is 0 (Non-partisan), and the **Count** is 400.

When the external file is read for importing, each line is validated. For the precinct line to be considered valid, it must have the correct Precinct ID and Party ID recorded.

Precinct Name - The system does not have to validate the Precinct Name from the external data with the Precinct Name in database.

Precinct ID - must have five numbers to be considered valid. If it does not, add 0s (zeros) to the front of the number to create the 5-digit ID.

Party ID - The ID can be 1 or 2 numerical digits. (0 is reserved for Non-Partisan)

If the precinct line data is valid, it is imported. If any precinct line data in the file is invalid, an error is logged and an error message is displayed once the file is processed. Users can view the logs to see a more detailed error description.

After importing, the new imported registered voter count is displayed in the precinct table. However, the data is not yet saved into the database. Click the **Save** button to save the imported registered voter count data to the database.

Totals by Child or Parent

For a Primary election the Party ID is reflected in the Voter Registration Table. In the example below, the Party IDs are 0 for Non-partisan and 1 for Democrat. The table contains two main precincts and Precinct 200 is split. The import data looks like this:

```
#precinctname,precinctid,partyidorabbreviation,count
Precinct 100,00100,0,400
Precinct 100,00100,1,600
Precinct 200,00200,0,400
Precinct 200,00200,1,600
```

The Voter Registration Table looks like this:

Precinct	Count
Precinct 100	**1000**
Non-partisan	400
Democrat	600
Precinct 200	**1000**
Non-partisan	400
Democrat	600
Split_200_1	**0**
Non-partisan	**0**
Democrat	**0**
Split_200_2	**0**
Non-partisan	**0**
TOTAL	**2000**

The parent precinct contains all the parties listed in the split precinct ballot style. For example, if Precinct 200 and Democrat don't have a ballot style directly associated, Democrat is still listed because one of the splits in Precinct 200 has ballot style for Democrat.

In the table above, only the counts for the lines with party names can be modified. The shaded lines, such as Precinct 100, Precinct 200, Split_200_1, Split_200_2, and TOTAL, cannot be modified manually.

If the count value for a party in a split precinct and/or party is modified, the parent precinct count is removed to reflect the new count. For example, count value for Split_200_1/Democrat is changed to 100, the Precinct 200 counts for both parties are affected. The count value for Precinct 200 Non-partisan is now zero and the count value for the Democrat is 100.

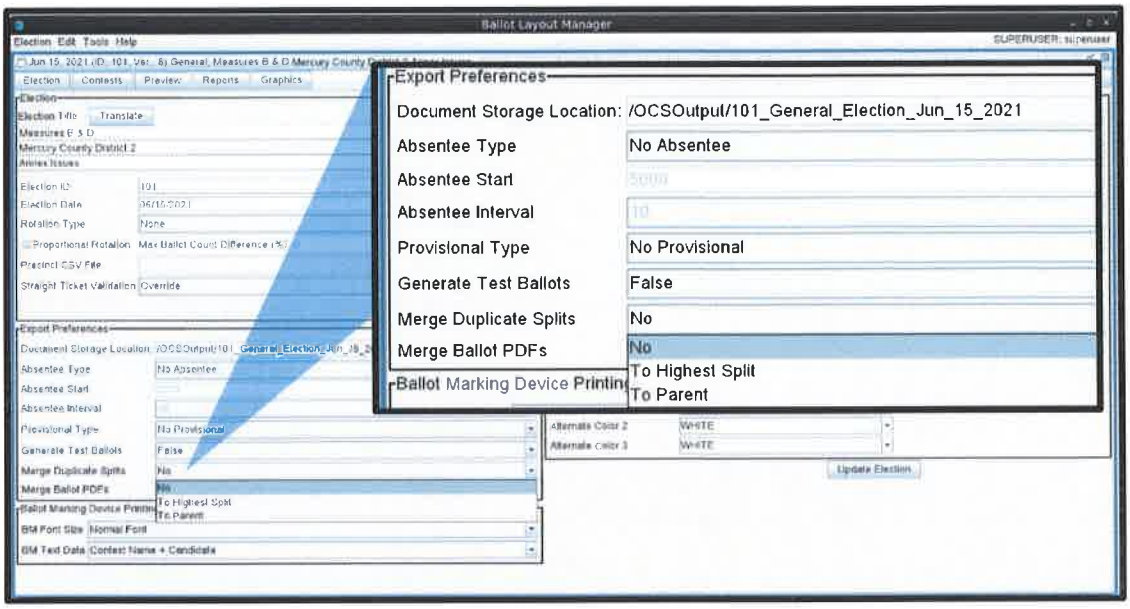
The Voter Registration Table looks like this:

Precinct	Count
Precinct 100	**1000**
Non-partisan	400
Democrat	600
Precinct 200	**100**
Non-partisan	**0**
Democrat	100
Split_200_1	**100**
Non-partisan	**0**
Democrat	100
Split_200_2	**0**
Non-partisan	**0**
TOTAL	**1100**

NOTE: The Precinct 200/Democrat line has 100 because Split_200_1/Democrat has 100 and the Precinct count is now 100.

If the count value for the Parent/Party is modified, the count value for the splits is removed.

Appendix I
Reference to 2.1 Issues 2380/2434
Partial Split Merge



Merge Duplicate Splits

This option indicates if splits within a precinct with the same ballotstyle should be merged. The options on the drop-down menu are:

- **No**
- **To Highest Split**
- **To Parent**

Merge Duplicate Splits offers two ways to roll-up splits by duplicate ballotstyle in the build process. If splits within a parent have the same ballotstyle, then depending on the option selected, the splits are merged by either:

1. **To Parent** – This option will merge all duplicate splits into the parent precinct.
2. **To Highest Split** – This option will merge all duplicate splits into the first split precinct in the list of split precincts (i.e., if A, C and D are split precinct with duplicate ballotstyles, C and D will be rolled into A.)

If duplicate splits are merged and they list of merged precincts is to be displayed in the ballot header.

For a primary election, if the ballotstyle for a party within a split matches the party ballotstyle in a previous split, the splits will be merged for that party only. If all ballotstyles for a given party are the same across all splits, that party's ballotstyle is merged into the parent. So, the system can produce a

definition where, for example: All Non-Partisan ballotstyles are the same, there for the parent has the NP ballotstyle, but each split can have their own ballotstyles for each of the other parties. The rule is that no two splits can have a ballotstyle with the same ID, they must be unique.

Appendix J
Reference to 2.1 Issues 1801
Proportional Rotation

In order to use the Proportional Rotation function, a contest input file must be created using NotePad++ or any text editor application. The file must contain the Precinct Name, Precinct ID*, Party Code/Abbreviation* and the Ballot Count, in that order. There can be no spaces after the commas and it must be saved as a comma-separated values (.csv) file. You must also include the header row preceded by a hashtag (#). The hashtag designates the line as a comment.

An example of the file is shown below:

#Precinct Name,Precinct ID,Party Code/Party Abbreviation,Precinct Count
001 - ASHLEY,00100,NP,10
001 - ASHLEY Split 1,00101,NP,20
002 - BERKSHIRE A,00200,NP,30
002 - BERKSHIRE A Split 1,201,NP,40
003 - BERKSHIRE B,00300,0,50
003 - BERKSHIRE B Split 1,301,NP,10
004 - BERKSHIRE C,00400,NP,20
004 - BERKSHIRE C Split 01,401,NP,30
005 - BERKSHIRE D,500,NP,40
005 - BERKSHIRE D Split 1,501,NP,50
006 - BERKSHIRE E,600,NP,10
006 - BERKSHIRE E Split 1,601,NP,20
007 - BERLIN A,700,NP,30
007 - BERLIN A Split 1,701,NP,40
008 - BERLIN B,800,NP,50
008 - BERLIN B Split 1,801,NP,10

* These values are assigned by the user when creating the ballot in the BLM. (See section 4.1 to assign a precinct ID and section 3.3 to assign a party code.)

Remember where the file is saved on your system or USB drive because it is required by the BLM to set up Proportional Rotation. (See section 7.9.3.3, *Upload the CSV File*)

Formatting Hints:

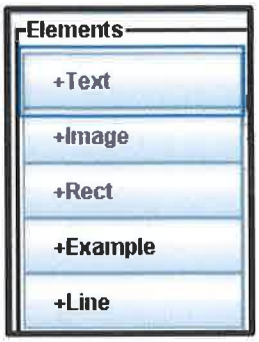
- **To use a comma in a name**, the name needs to be placed in quotes. For example, to create the name Berkshire A, NE it would be entered as "Berkshire A, NE".
- **To add a comment line**, place a # in front of the comment, such as:
  #Is restricted to only members of School District 1515

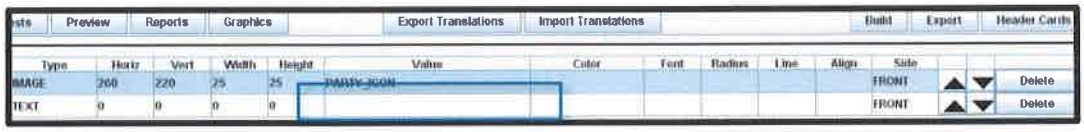
Appendix K
Reference to 2.1 Issues 2379
Ballot Variable Header Text

Merged List

This will place a list of the merged split precincts that are in the current ballot style.

1. Select **Text** from the Elements menu. A TEXT row will be added to the Elements field.



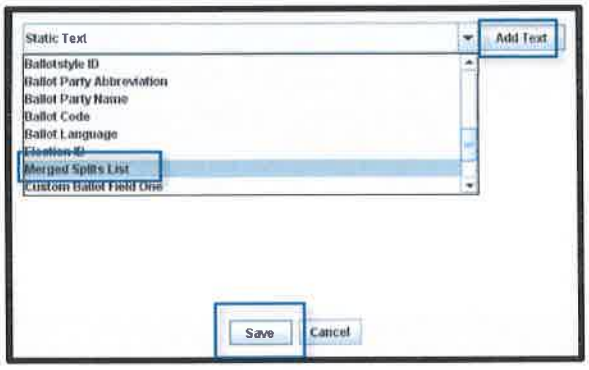


2. Click in the **Value** field to get the Text popup window to display.

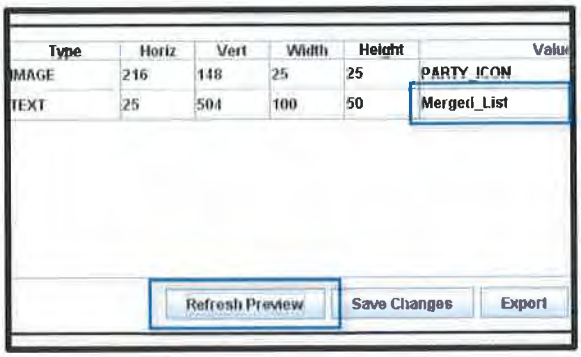
3. Select **Merged Splits List** from the drop-down menu.

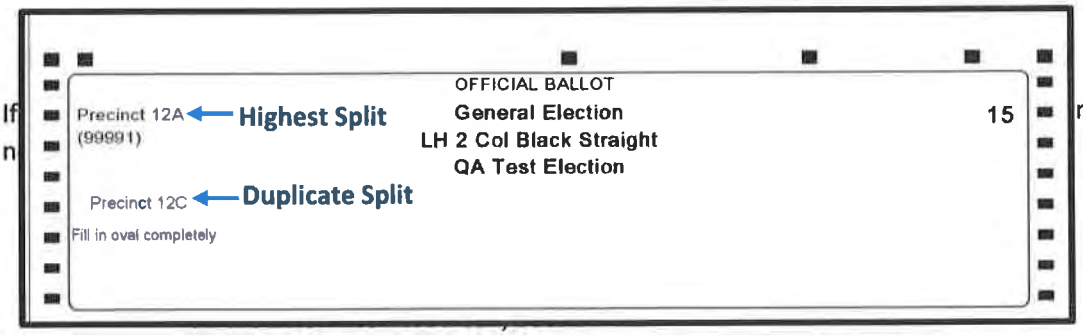
4. Click **Add Text**.
   MERGED_LIST will appear in the Text window.

5. Click **Save**.



6. The text **Merged_List** will display in the Value field.
7. Set the location for the text in the ballot header using the Horizontal, Vertical, Width and Height values.
8. Click **Refresh Preview** to see the changes in the ballot header.





If merge, n

Measure Only Translation

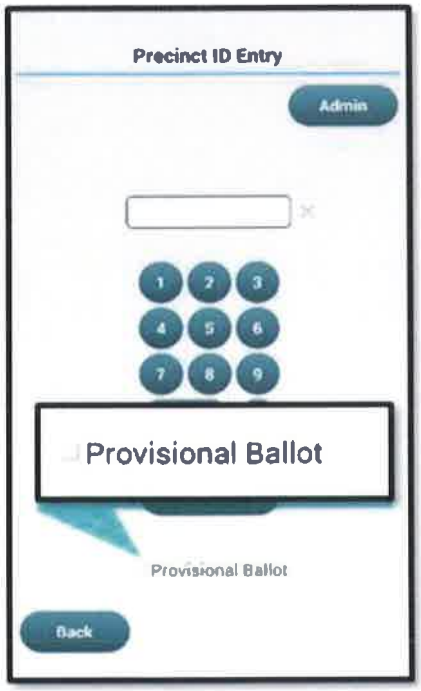
Field	Description
Ballot Description General	General Election Ballot
Ballot Description Measure Only	Measure Only Ballot
Ballot Description:Non-Partisan	User Defined
Ballot Description:Democrat	User Defined
Ballot Description:Republican	User Defined
Ballot Description:Libertarian	User Defined
Ballot Description:Green	User Defined
Ballot Description:American Independent	User Defined
Ballot Description:Communist	User Defined
Ballot Description:Constitution	User Defined
Ballot Description:Free	User Defined

Field	Description
Ballot Description:Natural Law	User Defined
Ballot Description:Reform	User Defined
Ballot Description:Socialist	User Defined

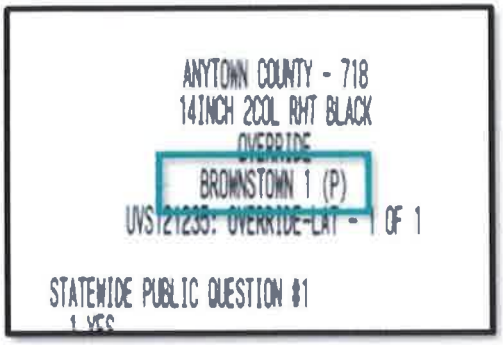
Appendix L
Reference to 2.1 Issues 2368/2369/2370
Provisional Ballot from the FVT

The FVT can now produce Provisional type ballots. The barcode at the bottom of the FVT Provisional ballot will contain the 'P' ballot type. When this ballot is inserted into the OVO, depending on the jurisdiction's requirements, this ballot can be rejected out of the OVO so that the provisional ballot is not cast in the session. A poll worker will then be required to handle this FVT Provisional ballot procedurally according jurisdiction requirements.

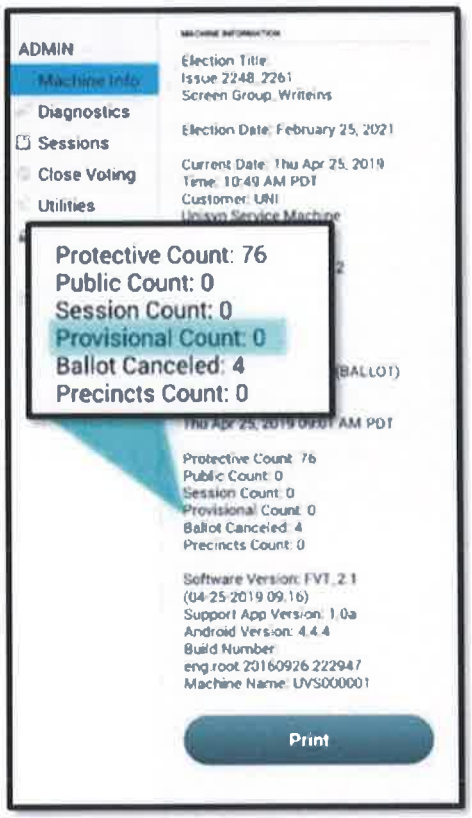
The FVT Precinct Entry screen displays a 'Provisional Ballot' checkbox which the Poll Worker can select to designate this voter's session as provisional and will print the FVT Provisional ballot. When the Enter button is pressed after the precinct ID is entered and the checkbox selected, a confirmation screen will display to verify this is a provisional voter. If the Poll Worker selects 'Yes' then the provisional voting session will continue; if the Poll Worker selects 'No' then a regular voting session will start. On the 'Ballot Start' screen, if the 'Provisional Ballot' checkbox was selected the text 'Provisional Ballot' will display under the Precinct name.



When the Provisional voter's ballot prints, the Precinct line is marked with a (P) to indicate it is a Provisional ballot.



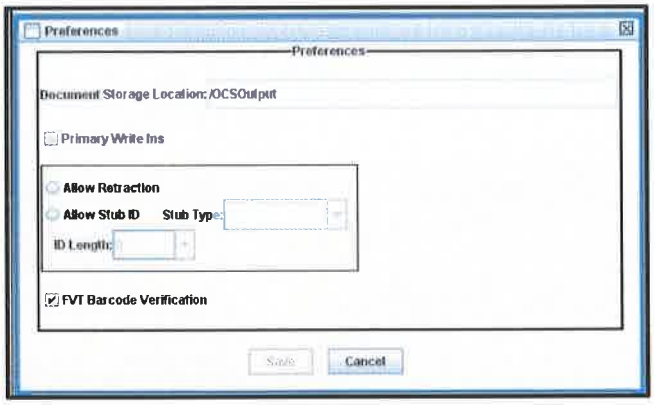
The Machine Info Report and Close Session Report all record the Provisional Count for the voting session.



Appendix M
Reference to 2.1 Issues 2393/2395/2396
FVT Single Use Barcodes

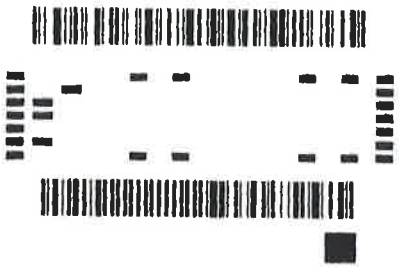
The FVT's ballot has a security feature that, when enabled for an election, will have FVT ballots verified as single use at the OVO. This is a default feature in the BLM and it creates a unique Ballot Verification Number (BVN) that is included on the FVT ballot as a second barcode, similar to the Retraction ID; however, if a Retraction ID is present the BVN will not be printed, the Retraction ID will act as the security feature.

In the BLM on the 'Edit->Preferences' menu is the FVT Ballot Verification Number option, by default it is selected.



When the election has the Ballot Verification Number option set in the BLM and an Initialize Barcode ticket is scanned in the FVT to start a voter's session, the voter's FVT ballot will contain a Ballot Verification number in the second barcode.

When this FVT ballot is inserted in the OVO the Ballot Verification number is validated to ensure the FVT's Initialize Barcode ticket has only been used once. If a ballot with the same Ballot Verification number is inserted into the OVO, the ballot will be rejected with the message 'Verification number already used' and will require the Poll Worker to procedurally handle the ballot according to jurisdiction requirements.



Appendix N
Reference to 2.1 Issues 2159/2197/2209/2151
TM Secure Clean

The TM secure clean handling will securely format and sign the TMs 'unisyn_tm.vol' file. The new format of the .vol file allows other Unisyn applications to verify the authenticity of the TM.

The TM is cleaned in the Election Manager in the Tools->TM Maintenance->Clean function.

There are two cleaning processes available.

- **Secure Clean** - the recommended process, takes a few minutes to completely wipe the TM and then rebuild a FAT16 filesystem across the entire USB. By default, the **Use secure clean** checkbox is checked.
- **Simple Clean** - will delete the files on the TM without reformatting the USB. This process maybe faster, but does not reformat the TM and is not the recommended process. Deselect the **Use Secure Clean** checkbox to perform a Simple Clean.

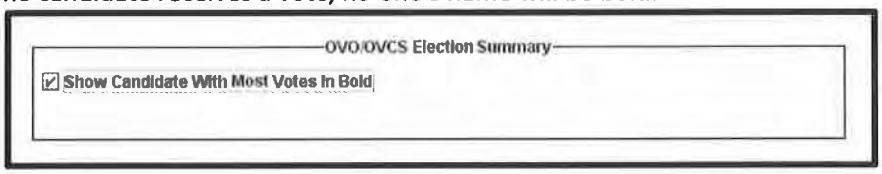
After either of the two above clean methods, the 'Data' folder and 'unisyn_tm.vol' file is recreated. The serial number from the TM is signed with the Customer Key and the signature is written into the 'unisyn_tm.vol' file. This makes the TM signature unique from all other TM.

All Unisyn applications will verify the TM authenticity before reading any files from the TM.

Appendix O
Reference to 2.1 Issues 1901/2107/2030
Optional Bolding of Top Vote Recipient on Tally Report

OVO/OVCS Election Summary

If checked, the OVO and OVCS Election Summary Reports will show the candidate with the most votes in bold text. If not checked, the OVO and OVCS will default to all candidates listed in regular text. Regardless of the settings, write-in votes will never be in bold and if no candidate receives a vote, no one's name will be bold.



Appendix P

Reference to 2.1 Issues 1913/1938
Ranked Choice Voting: Single Transferable Vote

The Tabulator provides a means to tally RCV contests and generate reports for both single-seat and multi-seat contests.

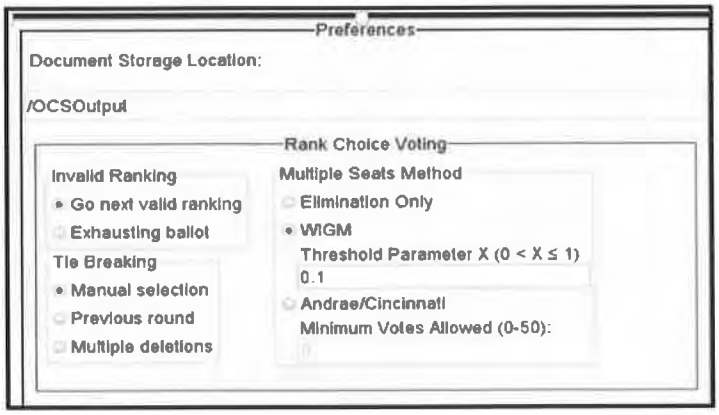
In single-seat contests, sometimes called IRV – Instant-Runoff Voting, the voter's first choice is counted.

In Single Transferable Vote (STV) or multi-seat contests, the Tabulator defaults to the Elimination Method to determine who has the most votes in a vote for 2 or more candidate contest.

The Tabulator also offers two additional STV methods; the Andrae/Cincinnati Method and the Weighted Inclusive Gregory Method (WIGM).

The RCV parameters are setup initially by the jurisdiction via the Tabulator Election->Preferences interface. However, each time the user activates the RCV Tally screen, they will be given the option to change the RCV parameters.

The parameters screen is used to handle different situations that can be encounter during an RCV tally process, such as how to handle invalid ranking, multiple seat contests and how to break a tie situation.



RCV Tally

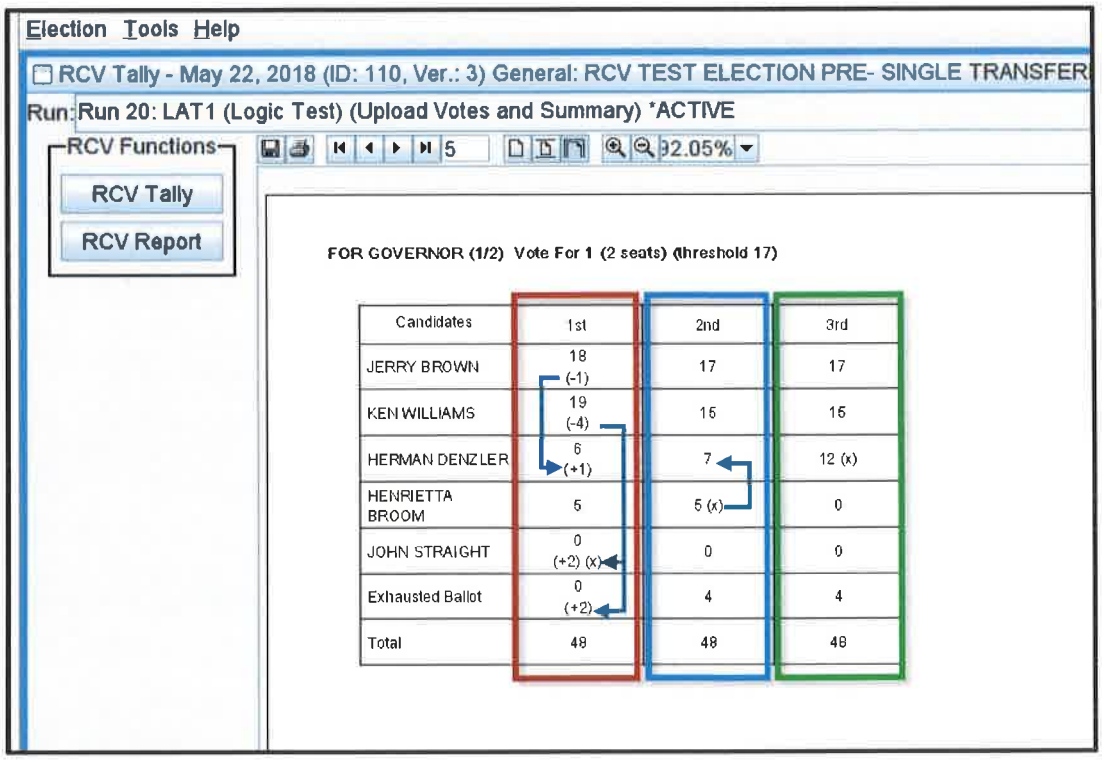
When the RCV tally process is started, it allows the user to select the contests to include in the tally. Qualified write-in candidates will be included in the RCV tally. For a ballot to be counted as a valid ballot for the RCV contest there needs to be at least one valid ranking that can be counted as a vote. Retracted ballots will not be included in RCV tally process.

During the tally process there can be a situation where two or more candidates have the fewest votes at the end of a round. The system will use the 'Tie Breaking' parameter setting that was selected in the RCV parameter window during setup. The selected 'Multiple Seats Method' parameter determines how the system will rank winners in a contest that has multiple seats.

RCV Report

The user has the option to generate the RCV tally report for each individual RCV contest or multiple RCV contests. Each 'Multiple Seats Method' type produces a different report. The report shows the elimination and distribution process. Note that the total number of votes does not change; they are just redistributed among the candidates.

An Example of an Andrae/Cincinnati RCV tally report is illustrated below.



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Appendix Q

OpenElect Hardware Changes for Release 2.1

Component Description	Part Number	Component	Action	Comment
12V, AC-DC Tablet Power Supply	Comes With 2000-60503	FVT Tablet	Delete from Tablet P.L	
12V, AC-DC Tablet Power Supply	4000-00190	FVT Tablet	Add to 8033-93200-01 and 8033-93200-02	We want better control over the power supply source and quality
Ballot Printer	2000-60450-06	FVT Star Printer	New Control Board and Firmware	New printer revision "B"
24V, AC-DC Tablet Power Supply	4000-00158-01	FVT Star Printer	Delete	Level VI Efficiency Universal Power Supply
24V, AC-DC Tablet Power Supply	4000-00158-02	FVT Star Printer	Add	Meets additional, ErP Stardarts
USB Extension Cable, 1 Foot	6050-10780	FVT	Added Supplier	Was: TRIPPLITE UR024-001 Added: COMPTOP 10U2-02101-E-BK
UPS		System	Added	We are testing a UPS called CyberPower

Test Report

Unisyn OpenElect Voting System (OVS) Components State of Ohio Wireless Requirements Testing

Approved by: Michael L. Walker

Michael Walker, VSTL Project Manager

Approved by: Wendy Owens

Wendy Owens, VSTL Program Manager

November 8, 2021

Disclaimer: This campaign was tested by an EAC accredited VSTL to applicable standards of the VVSG. All testing and references were performed outside of the EAC Test and Certification Program.

v. TR-01-02-UNI-06-01.00

1.0 INTRODUCTION

The purpose of this Test Report is to document the procedures that Pro V&V, Inc. followed to evaluate the Unisyn OpenElect Voting System (OVS) Components to the specific wireless requirements requested by the State of Ohio.

1.1 References

The documents listed below were utilized in the development of this Test Report:

- Ohio Voting Systems Requirements Matrix
- Ohio Secretary of State VSTL Test Lab Wireless Testing Requirements
- National Voluntary Laboratory Accreditation Program NIST Handbook 150-2020, "NVLAP Procedures and General Requirements (NIST Handbook 150-2020)"
- National Voluntary Laboratory Accreditation Program NIST Handbook 150-22, 2017 Edition, "Voting System Testing (NIST Handbook 150-22-2017)"
- Pro V&V, Inc. Quality Assurance Manual, Revision 7.0
- Unisyn Document *How to Disable the Wi-Fi on a Brothers Printer (Model HL-L6200DW)*

1.2 Terms and Abbreviations

The terms and abbreviations applicable to the development of this Test Report are listed below:

"BMD" – Ballot Marking Device

"FVS" – Freedom Vote Scan

"FVT" – Freedom Vote Tablet

"FVT-B" – Freedom Vote Tablet with battery backup

"OVCS" – OpenElect Voting Central Scan

"OVO" – OpenElect Voting Optical

"OVS" – OpenElect Voting System

"PC" – Personal Computer

"UPS" – Uninterruptible Power Supply

"VSTL" – Voting System Test Laboratory

1.3 Scope of Testing

The scope of this testing included evaluation of voting system components used in the State of Ohio, both currently in use and versions that are pending certification in Ohio, to a hardware inspection and an emissions test with requirements identified by the Ohio Secretary of State.

Specifically, the testing event focused on the following requirements:

- Physical Inspection: All hardware used as part of a voting system used in the State of Ohio, both currently in use and versions that are pending certification in Ohio, must be physically inspected to determine if any wireless hardware components exist within the system.

- Emissions Test: An emissions test to ensure that, regardless of whether or not wireless technologies exist, the hardware and software used is neither connecting nor capable of transmitting/receiving any wireless frequency. This actual emission testing must test for all electronic radiation that is used for intended or unintended communications, including but not limited to, 120-140 KHz, 2-90 MHz, and 300 MHz - 6GHz.

2.0 TESTING OVERVIEW

The evaluation of the OVS components was designed to evaluate the components to the VSTL Test Lab Wireless Testing Requirements set forth by the State of Ohio.

The evaluation addressed each of the test goals in the following manner:

Table 1-1: Testing Overview

Test Goal	Test Summary
All hardware used as part of a voting system used in the state of Ohio, both currently in use and versions that are pending certification in Ohio, must be physically inspected to determine if any wireless hardware components exist within the system.	This was tested by performing a physical examination of the hardware to determine if any component of the voting system contains any wireless technologies. When required for inspection, this test requirement included taking off covers and disassembling devices, if applicable. This test requirement also included a review of all relevant documentation associated with the voting system and a review of both the hardware and software systems to determine if any wireless technologies exist.

Table 1-1: Testing Overview *(continued)*

Test Goal	Test Summary
An emissions test to ensure that, regardless of whether or not wireless technologies exist, the hardware and software used is neither connecting nor capable of transmitting/receiving any wireless frequency.	This actual emission testing tested for all electronic radiation that is used for intended or unintended communications, including but not limited to, 120-140 KHz, 2-90Mhz, and 300MHz - 6GHz. Each device was tested as a Class B compliant "Unintentional Radiator" per Electronic Code of Federal Regulation Title 47 Chapter I Subchapter A Part 15. Pro V&V utilized third party testing during the performance of the Emissions Tests.

2.1 Test Candidate

The OVS components evaluated consisted of all OVS hardware used as part of a voting system in the state of Ohio (both currently in use and versions that are pending certification in Ohio). Components and associated identification information are contained in the table below.

Table 2-1: OVS Components

Component	Serial Number Tested
OpenElect Voting Optical (OVO) Optical Scanner	UVS024092
Freedom Vote Scan (FVS) Precinct Scanner	VST100123
Freedom Vote Tablet Battery Back-up (FVT-B) ADA Ballot Marking Device	---
Freedom Vote Tablet (FVT) ADA Ballot Marking Device	UVS141120
OpenElect Voting Central Scan (OVCS) Central Count Scanner - Canon DR-X10C	ED300224
OpenElect Voting Central Scan (OVCS) Central Count Scanner - Canon DR-M160II	GXY09613
OpenElect Voting Central Scan (OVCS) Central Count Scanner - Canon G2140	JS300069
Dell Laptop 5540	6HMXQ32
Dell Laptop 5570	HB8PPN2
Dell Laptop 5520	2V0R2B3
Dell PC 5810	860MXK2
Dell PC 3420	FJJ1T2

Table 2-1: OVS Components *(continued)*

Component	Serial Number Tested
Minuteman Intrepid UPS	AK12191090026
GS108 Switch	3TX2077MA31C1
Brother HL-6200DW Printer	U64180K8N314295
ASUS Monitor	H7LMRS022982

3.0 TEST PROCESS AND RESULTS

The process for conducting the hardware inspection and the emissions test and the associated results are presented in the following sections.

3.1 Physical Inspection

The Physical Inspection required a physical examination of the hardware to determine if any component of the voting system contains any wireless technologies, including but not limited to Wi-Fi, Bluetooth, NFC (near field communications), RFID (Radio Frequency ID), Powerline, and infrared emitters or sensors. When applicable, the inspection included taking off covers and disassembling devices. This test requirement also included a review of all relevant documentation associated with the voting system and a review of both the hardware and software systems to determine if any wireless technologies exist.

Summary Findings:

During performance of the Physical Inspection, the voting system components were inspected for any wireless technologies per the previously identified requirements. The Brother Printer was found to have Wi-Fi hardware and software capabilities; however, Unisyn developed technical documentation that will be provided to the end user on how to disable these capabilities (Reference Unisyn Document *How to Disable the Wi-Fi on a Brothers Printer Model HL-L6200DW,* presented in Appendix C). The three Dell Laptops were all found to have Wi-Fi hardware capabilities that were disabled/turned off during the hardening process. Dell Laptop Models 5540 and 5570 were found to also have Wi-Fi software capabilities that were disabled/turned off during the hardening process.

Tables A-1 and A-2, presented in Appendix A, detail the components tested and the results obtained for both the hardware and the software of each component evaluated.

3.2 Emissions Testing

Emissions Tests were performed to ensure that, regardless of whether or not wireless technologies exist, the hardware and software used is neither connecting nor capable of transmitting/receiving any wireless frequency. This testing tested for all electronic radiation that is used for intended or unintended communications, including but not limited to, 120-140 KHz, 2-90 MHz, and 300 MHz - 6GHz.

Per the direction of the State of Ohio, each device was tested as a Class B compliant "Unintentional Radiator" per Electronic Code of Federal Regulation Title 47 Chapter I Subchapter A Part 15. An unintentional radiator is a device that by design uses digital logic, or electrical signals operating at radio frequencies for use within the product, or sends radio frequency signals by conduction to associated equipment via connecting wiring, but is not intended to emit radio frequency energy wirelessly by radiation or induction.

Pro V&V utilized third party testing during the performance of the Emissions Tests. All testing was performed at the NTS Longmont facility located in Longmont, Colorado and was witnessed on-site by Pro V&V personnel.

To perform the test, the OVS Components were separated into test groups, as identified below:

Group 1:

OpenElect Optical (OVO)

UPS Minuteman Intrepid

Group 2:

Freedom Vote Scan (FVS)

Group 3:

Freedom Vote Tablet Battery Back-up (FVT-B)

Group 4:

Freedom Vote Tablet (FVT)

Group 5:

Canon DRX10C

Group 6:

Canon M160

Brother Printer HL-6200DW

Group 7:

Canon G2140

Group 8:

Dell Laptop 5540

Group 9:

Dell Laptop 5570

Group 10:

Dell Laptop 5520

Switch GS108

Group 11:

Dell PC 5810

ASUS Monitor

Group 12:

Dell PC 3420

Summary Findings:

The results of the Emissions Tests are presented for review by the State of Ohio in NTS Test Report TR-PR143637 Revision 0, contained in Appendix B.

4.0 CONCLUSION

Based on the findings and data provided from the Radiated Emissions Testing within the specified ranges, Pro V&V, to the best of its knowledge, did not note any evidence of transmission for either intended or unintended communication during the test event. This was found to be consistent for all components under test, which were tested in their certified and hardened configuration. It is recommended that all fielded and future components be physically examined to ensure they are configured in the certified and hardened state prior to operating within an election event.

APPENDIX A

Physical Inspection Results

Table A-1: Physical Inspection Results - Hardware

Component	Model/Serial Number	Wi-Fi	Bluetooth	Infrared	NFC	RFID	Powerline
OpenElect Voting Optical (OVO)	UVS024092	No	No	No	No	No	No
Freedom Vote Scan (FVS)	VST100123	No	No	No	No	No	No
Freedom Vote Tablet Battery Back-up (FVT-B)	---	No	No	No	No	No	No
Freedom Vote Tablet (FVT)	UVS141120	No	No	No	No	No	No
OpenElect Voting Central Scan (OVCS) - Canon DR-X10C	ED300224	No	No	No	No	No	No
OpenElect Voting Central Scan (OVCS - Canon DR-M160II	GXY09613	No	No	No	No	No	No
OpenElect Voting Central Scan (OVCS) - Canon G2140	JS300069	No	No	No	No	No	No
Dell Laptop 5540	6HMXQ32	Yes[1]	No	No	No	No	No
Dell Laptop 5570	HB8PPN2	Yes[1]	No	No	No	No	No
Dell Laptop 5520	2V0R2B3	Yes[1]	No	No	No	No	No
Dell PC 5810	860MXK2	No	No	No	No	No	No
Dell PC 3420	FJJ1T2	No	No	No	No	No	No
Minuteman Intrepid UPS	AK12191090026	No	No	No	No	No	No
GS108 Switch	3TX2077MA31C1	No	No	No	No	No	No
Brother HL-6200DW Printer	U64180K8N314295	Yes[2]	No	No	No	No	No
ASUS Monitor	H7LMRS022982	No	No	No	No	No	No

Note 1 – Configured to be disabled/turned off during the hardening process

Note 2 – Unisyn developed technical documentation that will be provided to the end user on how to disable these capabilities (Reference Unisyn Document How to Disable the Wi-Fi on a Brothers Printer Model HL-L6200DW)

Table A-2: Physical Inspection Results - Software

Component	Model/Serial Number	Wi-Fi	Bluetooth	Infrared	NFC	RFID	Powerline
OpenElect Voting Optical (OVO)	UVS024092	No	No	No	No	No	No
Freedom Vote Scan (FVS)	VST100123	No	No	No	No	No	No
Freedom Vote Tablet Battery Back-up (FVT-B)	---	No	No	No	No	No	No
Freedom Vote Tablet (FVT)	UVS141120	No	No	No	No	No	No
OpenElect Voting Central Scan (OVCS) - Canon DR-X10C	ED300224	No	No	No	No	No	No
OpenElect Voting Central Scan (OVCS - Canon DR-M160II	GXY09613	No	No	No	No	No	No
OpenElect Voting Central Scan (OVCS) - Canon G2140	JS300069	No	No	No	No	No	No
Dell Laptop 5540	6HMXQ32	Yes[1]	No	No	No	No	No
Dell Laptop 5570	HB8PPN2	Yes[1]	No	No	No	No	No
Dell Laptop 5520	2V0R2B3	No	No	No	No	No	No
Dell PC 5810	860MXK2	No	No	No	No	No	No
Dell PC 3420	FJJ1T2	No	No	No	No	No	No
Minuteman Intrepid UPS	AK12191090026	No	No	No	No	No	No
GS108 Switch	3TX2077MA31C1	No	No	No	No	No	No
Brother HL-6200DW Printer	U64180K8N314295	Yes[2]	No	No	No	No	No
ASUS Monitor	H7LMRS022982	No	No	No	No	No	No

Note 1 – Configured to be disabled/turned off during the hardening process

Note 2 – Unisyn developed technical documentation that will be provided to the end user on how to disable these capabilities (Reference Unisyn Document How to Disable the Wi-Fi on a Brothers Printer Model HL-L6200DW)

APPENDIX B

Hardware Test Report

Provided as separate document

APPENDIX C

Unisyn Technical Document

How to Disconnect the Wi-Fi on a Brothers Printer

Model HL-L6200DW

To disable the Wireless network card in the Brother printer:

> **NOTE**: When the wireless network card is enabled, the wired network card will be disabled.

1. Press the **UP OR DOWN ARROW** key to select **Network**. Press **OK**.
2. Press the **UP OR DOWN ARROW** key to select **WLAN**. Press **OK**.
3. Press the **UP OR DOWN ARROW** key to select **WLAN Enable**. Press **OK**.
4. To **disable** wireless, press the **UP OR DOWN ARROW** key to select **Off**. Press **OK**.
   To **enable** wireless, press the **UP OR DOWN ARROW** key to select **On**. Press **OK**.
5. Press the **CANCEL** key to exit the menu.

United States Election Assistance Commission

Certificate of Conformance

Unisyn OpenElect 2.2

VVSG 2005 VER. 1

EAC CERTIFIED

The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the *Voluntary Voting System Guidelines Version 1.0 (VVSG 1.0)*. 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: OpenElect

Model or Version: 2.2

Name of VSTL: Pro V&V

EAC Certification Number: UNS10121966-2.2

Date Issued: 11/18/2021

Mona Harrington

Executive Director

Scope of Certification Attached

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

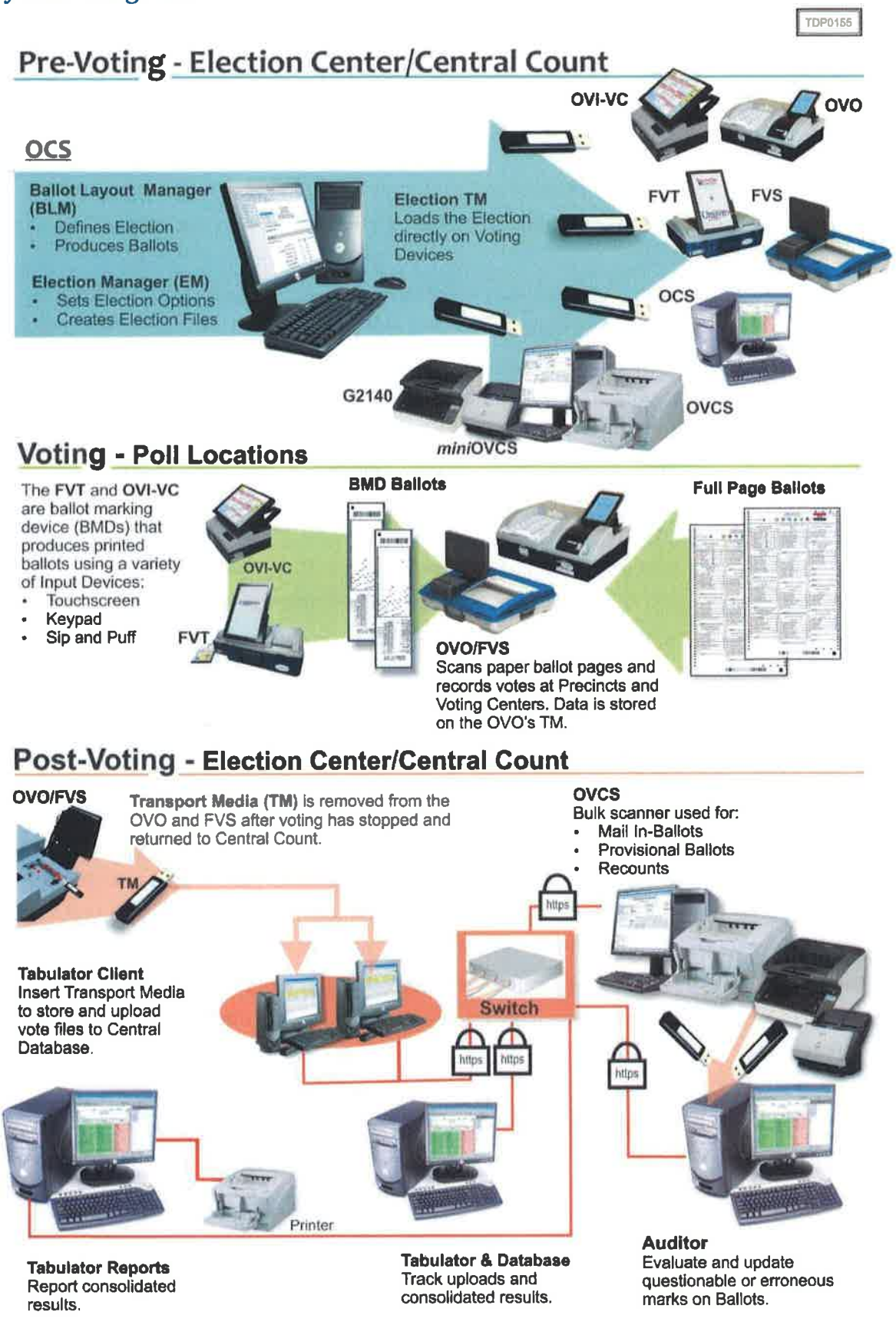
Manufacturers may not represent or imply that a voting system is certified unless it has received a Certificate of Conformance for that system. Statements regarding EAC certification in brochures, on Web sites, on displays, and in advertising/sales literature must be made solely in reference to specific 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:

The Unisyn OpenElect Voting System 2.2, herein referred to as OVS 2.2, is a modified system based on the earlier certified OVS releases. The OVS 2.2 Voting System is a paper-ballot based optical scan voting system consisting of five major components:

1. OpenElect Central Suite (OCS)
2. OpenElect Voting Optical (OVO)
3. OpenElect Voting Interface (OVI-VC)
4. OpenElect Voting Central Scan (OVCS)
5. Freedom Vote Tablet (FVT)
6. Freedom Vote Scanner (FVS)

System Diagram:



OpenElect Central Suite (OCS)

The OCS consists of the six components running as either a front-end/client application or as a back-end/server application: Ballot Layout Manager (BLM), Election Manager (EM), Tabulator Client (TC), Tabulator, Auditor and Tabulator Reports (TR).

OpenElect Voting Optical (OVO)

The OVO device is a precinct-level optical scan ballot counter (tabulator) designed to perform the following major functions: ballot scanning, tabulation, and second chance voting.

The OVO is a full-page, dual-sided optical scan ballot system which scans and validates voter ballots and provides a summary of all ballots cast. The election is loaded via a USB thumb drive. On Election Day, an OVO at each polling location scans and validates voters' ballots and provides precinct tabulation and reporting. The OVO unit is also paired with the OVI-VC and/or the FVT for early voting to scan and tabulate early voting ballots. OVO units can also be used at election headquarters to read absentee, provisional, or recount ballots in smaller jurisdictions.

OpenElect Voting Interface (OVI-VC)

The OVI-VC supports both ADA and Early Voting requirements. The OVI-VC enables voters during early voting to cast regional ballots and voters with special needs to prepare their ballots independently and privately on Election Day. The OVI-VC unit features a 15-inch full-color touch-screen display. The OVI-VC will present each contest on the correct ballot to the voter in visual and (optionally) audio formats. The voter with limited vision navigates through the ballot using the audio ballot and the ADA keypad or touchscreen input to make their selections. The voter validates his or her selections by listening to the audio summary, printing the ballot, and inserting it into the OVO or FVS.

The OVI-VC facilitates special needs voters through a variety of methods including wheelchair access, sip & puff, zoom-in ballot function, and audio assistance for the visually impaired. The OVI-VC provides for write-in candidates when authorized by the jurisdiction. Voters input candidates' names via the ADA keypad, touchscreen or sip & puff device. Each OVI-VC can support multiple languages for both visual and audio ballots, allowing the voter to choose their preferred language.

OpenElect Voting Central Scanner (OVCS)

The OVCS resides at election headquarters designated to read absentee, provisional, or recount ballots in large jurisdictions, or read the entire election's ballots at a central count location in smaller jurisdictions. The OVCS also captures write-in data images and produces a write-in image report for manual processing upon request. The OVCS system consists of the following components: OVCS Workstation and either a Canon DR-X10C Scanner, Canon DR-G2140 or a Canon M-160II Scanner.

FreedomVote Tablet (FVT)

The FVT is a tablet ballot marking device that enables voters make their vote selections and to print their voted ballot. It can be used on Election Day or during an early voting period. Like the OVI-VC, the FVT is ADA compliant. It assists voters, with varying levels of ability, through the voting process, ballot review, and printing functions. The FVT presents each contest on the ballot style to the voter in visual and/or audio formats. It facilitates special needs voters through a variety of methods including wheelchair access, sip and puff, zoom-in ballot function and audio assistance for the visually impaired. The voter with limited vision can navigate through the ballot using an audio ballot and the ADA keypad or touchscreen to input their selections. Once the ballot is printed, it is taken to the OVO or FVS to be cast. Each FVT can support multiple languages for both visual and audio ballots, allowing the voter to choose their preferred language.

FreedomVote Scanner (FVS)

The FVS is a full-page dual-sided optical scan precinct scanner that scans and validates voter ballot pages and provides a summary of all ballot pages cast. The election is loaded from an Election TM. On Election Day, an FVS at each poll location scans and validates voters' ballots and provides precinct tabulation and reporting. The FVS runs Logic Tests and Training Elections in addition to General and Primary Elections. The FVS unit can also be paired with FVT and/or OVI-VC units for early voting to scan and tabulate early voting ballots and election support at voting centers. Additionally, FVS units can be used at election headquarters to read absentee, provisional, or recount ballots in smaller jurisdictions.

Certified System before Modification:

OpenElect 2.1

Anomalies and/or Additions addressed in OpenElect 2.2:

Auditor (A)

- Add ability for operator to swap left/right images.
- Add support for (optional) strong election/maintenance passwords.

Ballot Layout Manager (BLM)

- Adjust BMD length calculation to accommodate voting options and font sizes.
- Increase speed of backup/restore UDB process.
- Enforce type limitation on precinct splits. (Normal precincts must have at least one normal split, absentee etc. precincts can only have splits of same type.)
- Improvements to speed and balancing of proportional rotation function. Ignore absentee precincts in counts.
- Add ability to move groups of contests in contest reorder interface.

- Show dynamically generated IDs for contest/candidate in interface.
- Export and import rotation point in precinct interface.
- Add alignment option (left or center) to BLM interface.
- Adjust font size calculations so that candidate name text is centered on target.
- Update to default messages for Overvote and English Message for Display on Bilingual OVO/FVS screen.
- FVT ballot styles will have a minimum of 12 timing marks (up from 7).
- Measure Preview must show the alternate language translation.
- Updates to handling deleted elements in header/graphics interface.

Election Manager (EM)

- Add FVS machine type and specific FVS options.
- Add option for type of write-in report (compressed or expanded) to be selected at EM, and not on close in OVO/FVS.
- Add support for (optional) strong election/maintenance passwords.
- Allow operator to set default number of open / close reports to print.
- Add (optional) count of ballots with write-ins to tally.
- All EM options are disabled after election export.

FreedomVote Tablet (FVT)

- Handle BLM defined left/center alignment option on the ballot display.
- Add support for (optional) strong election/maintenance passwords.
- Make training mode on FVT function more like election-day for training purposes.
- Remove user confirmation when USB is inserted in FVT.
- Ensure the ballots look consistent (font, format, etc.) from ballot to screen.
- Support multiple cross-party endorsements for a single candidate.
- Only one vote assigned to each write-in in Test Deck generation, no longer part of the sequence.
- When a contest does not have enough candidates to fulfill the vote for value, the second chance validation will not flag them as undervotes.
- New FVT-B includes an internal battery backup unit to power the printer for two hours in the event of a power failure. In all other ways, the FVT-B functions the same as the FVT.
- Add Shutdown screen to Close process and allow tablet to be shut off from physical switch. Added process to delete the previous election in the event that the FVT was stored with an election still loaded and the password has been misplaced

OpenElect Voting Interface (OVI-VC)

- Add support for encrypted USB.
- When a contest does not have enough candidates to fulfill the vote for value, the second chance validation will not flag them as undervotes.

OpenElect Voting Central Scan (OVCS)

- Add support for (optional) strong election/maintenance passwords.

- When a contest does not have enough candidates to fulfill the vote for value, the second chance validation will not flag them as undervotes.
- Add Canon G2140 to OVCS.
- Add Ballot Count to OVCS upload screen.
- Write-in extraction algorithm improvement.
- Add (optional) count of ballots with write ins to tally.
- Only read Code 128 barcodes on FVT ballots.
- Allow systems to accept multiple page ballots with retraction IDs.
- Add overvote and undervote counts to tally.
- Simplification to OCR for write in image extraction to remove chance for false positives on write in identification.

OpenElect Voting Optical Scan (OVO)

- Add option for type of write-in report (compressed or expanded) to be selected at EM, and not on close in OVO/FVS.
- Add support for (optional) strong election/maintenance passwords.
- Prevent ballot hang at back.
- Write-in extraction improvement.
- Speed up closing process (background thread to sign images and extract write ins) and efficiency improvements.
- Updated jam after cast handling. If jammed after cast, a voter message will display telling them to request poll worker assistance. When the 'Continue' button is selected, the next screen requires the Election password screen input by the poll worker. Then the system will then attempt to eject to the ballot box again, if not successful, it will eject the ballot to the front with a screen messaging telling the poll worker that special handling is required.
- On full review screen: Cast and Return buttons are always enabled.
- Allow operator to set default number of open / close reports to print.
- If write in report is cancelled, do not print signature lines, instead print that report was cancelled.
- Add ability to support scaling of ballot image on paper down to 96%.
- Add (optional) count of ballots with write ins to tally.
- Only read Code 128 barcodes on FVT ballots.
- Allow systems to accept multiple page ballots with retraction IDs.
- Add Connect Scanner function.
- OVO warns of consequences of overvote in all modes and on ballot alert print.
- Bilingual message pages default text is correct and understandable in both languages.
- Remove Accuracy Test function.
- Simplification to OCR for write in image extraction to remove chance for false positives on write in identification.
- Add translation of measure responses to full review display.

Tabulator (TAB)

- Add support for (optional) strong election/maintenance passwords.

- Allow VR totals by party to be input for all defined parties.
- Aggregate party VR totals when validating ballot counts on upload.
- Support for RCV Single Transferable Vote.
- Add option to allow RCV tally to continue beyond minimum winning threshold.
- Add show splits button on upload interface to make it easier to determine which splits have not reported.
- Improve handling of write ins for RCV. See Tabulator User Guide, Section 5.3.2 (pg. 5-25) for details.
- On export, RCV contests only export the first rank contests.
- Add support for FVS devices.
- Add (optional) count of ballots with write ins to tally.
- Multi-seat RCV + elimination only option – allow candidates below threshold to accumulate votes after winner has been calculated.

Tabulator Reports (TR)

- Add support for (optional) strong election/maintenance passwords.
- Choose all precincts and contests by default when generating reports.
- Filter SOVC report so that a contest only shows precincts assigned to it.
- Add (optional) count of ballots with write ins to tally.

Tabulator Client (TC)

- Add support for FVS devices.

FreedomVote Scan (FVS)

- Add FreedomVote Scan.

Cast Vote Records Utility (CVR)

- Add Cast Vote Records Utility

Write-in Utility (WI)

- Add Write-in Utility

Mark Definition:

The Unisyn OpenElect system will consistently recognize a 60% fill of the target area. Marks must be made with a marking device with sufficiently low reflectance in the visible red band and is of sufficient density/color such that the scanner registers it as black. Most blue, black and green ballpoint pens and markers also meet necessary reflectance requirements and may be used.

Tested Marking Devices:

- BIC Grip Roller
- EF Felt Tip Pen

Language Capability:

System supports Hindi, Chinese, English, Japanese, Korean, Navajo, Spanish, and Thai as well as bilingual (English and one other language on a single ballot page).

Components Included:

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

COTS Software Components:

FVT, FVS, OVO, and OVI-VC Device Software	Version
CentOS Linux (OVO1 and OVI-VC1)	5.0
CentOS Linux (OVO2 and OVI-VC2)	6.3
CentOS Linux (FVS)	8.0
Java JRE + Unlimited Cryptographic Extension (OVO and OVI-VC)	1.6.0_02
Java JRE + Unlimited Cryptographic Extension (FVS)	1.6.0_45
Android OS (FVT)	4.4.4

OCS and OVCS Device Software	Version
CentOS Linux	6.5, 6.8, 7.6
Java JRE + Unlimited Cryptographic Extension	1.6.0_02
Apache-Tomcat Application Server	6.0.13
MySQL Database (BLM. EM, A, and Tab only)	5.0.45-7 5.7 (on CentOS 7.6)
JasperReports	2.0.5
OpenVPN	2.4.4
OpenSSL	1.0.1f-fips

COTS Hardware Components

Hardware	Make	Model
OVO		
Duplex Ballot Scanner	PDI Scan	Pagescan III
Scanner Power Adapter	eUrasia Power	uA36-1024
58mm Thermal Printer	Citizen Printer	CT-5281
Printer Power Adapter	Citizen Printer	28AD4
Chassis	Morex	Morex 2699
DC/DC converter	Morex	MX-0608F
Chassis Fans	Young Lin Tech	DFB404012M
Motherboard	Jetway	JNF9D-2550
Memory	SuperTalent – Onboard RAM	W1333SA2GV
Hard Drive	Western Digital	WD5000AZLX
AC Adapter	EDAC	EA 10951c-120
1Gb USB	Innodisk	DEUA1-01G172AC1SB-B88
1 Gb USB	Delkin	UY0GTFLSY-XN000-D
7" LCD Touchscreen Display	Xenarc Technologies	700TSV
AC Power In Module	Delta	Emi 10BEEG3G
FVS		
CPU w/ Fan	Intel	G5400-LGA1151
Motherboard	Jetway	JNC8H-IH310
Memory	Crucial	CT4G48F8824A
SSD 250GB	Crucial	CT250MX500SSD1
80mm Thermal Printer	SNBC	BTS-S80
Duplex Ballot Scanner	PDI Scan	Pagescan V
Battery	RRC Power Solutions Inc.	RRC2040-2
Power Management Module	RRC Power Solutions Inc.	RRC-PMM240
Power Supply 15VDC AC/DC	Meanwell	UHD-200-15
Power Supply 12/12VDC	Meanwell	RSD-60G-12
Power Supply 12/24VDC	Meanwell	RSD-60G-24
AC Inlet Module	Schurter	4303.5013
Fuse Drawer 1P	Schurter	4303.2406
Switch On/Off DPDT	Switchcraft	EHRRSLBPKG
1 Gb USB	Innodisk	DEUA1-01GI72AC1SB-B88
1 Gb USB	Delkin	UY0GTFLSY-XN000-D
OVI-VC		
Sip and Puff (optional)	Origin Instruments	AirVoter
Headphone (optional)	Koss On-Ear Headphones	KPH7
15" LCD Touchscreen Display	GVision	P15BX-OB-4690
82.5mm Thermal Printer	Star	TSP743IID-24, serial interface
Printer Power Adapter	Star	PS60A-24B 1
Power Adapter Kit	Morex	MX-0608F, DC-DC Converter
Motherboard	Jetway	JNF9D-2550

Hardware	Make	Model
Hard Drive	Western Digital	WD5000AZLX
AC Adapter	EDAC	EA 10951c-120
Chassis Fans	Young Lin Tech	DFB404012M
Motherboard	Jetway	JNF9D-2550
Memory	SuperTalent - Onboard RAM	W1333SA2GV
1 Gb USB	Innodisk	DEUA1-01GI72AC1SB-B88
1 Gb USB	Delkin	UY0GTFLSY-XN000-D
AC Power In Module	Delta	Emi 10BEEG3Ge
FVT		
Tablet Battery Charger	Sager Power System	GC30B-4P1J
13.3" Touchscreen Tablet	Android Tablet	GVision-T13
Barcode Reader 1D, 2D series	Newland	FM420, FM430
USB Hub	D-Link	DUB-H4
Hub Adapter	Meanwell	PSD-15A-05
1Gb USB	Innodisk	DEUA1-01G172AC1SB-B88
1 Gb USB	Delkin	UY0GTFLSY-XN000-D
Micro SD	San Disk	4 GB Edge
Sip and Puff (optional)	Origin Instruments	AirVoter
Headphone (optional)	Koss On-Ear Headphones	KPH7
USB to Ethernet RJ45 Adapter	D-Link	DUB-E100
FVT-B (includes items above)		
Battery	RRC Power Solutions Inc.	RRC2040-2
Power Management Module	RRC Power Solutions Inc.	RRC-PMM240
Power Supply 15VDC AC/DC	Meanwell	UHD-200-15
Power Supply 12/12VDC	Meanwell	RSD-60G-12
Power Supply 12/24VDC	Meanwell	RSD-60G-24
UPS		
UPS, Minuteman Power Technologies	Para Systems, Inc.	Entrepid Series
Surgecube – Surge Protector	Belkin	F9H100-CW
OVCS		
Desktop for non-redundant solutions	Dell	OptiPlex 360, 755, 7010, D075/XE2
Desktop for redundant solutions	Dell	Precision T3500, T3600, T5810, T5820, 3420
Laptop	Dell	Dell Latitude E5500, E5540, E5570, E5590, E5500 v2, Dell XPS m1530, HP 2000
Large Volume Scanner	Canon	DR-X10C DR-X10CII DR-G2140
Desktop Scanner	Canon	DR-M160II

System Limitations

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

Characteristic	Limiting Component	Limit	Comment
Maximum Elections	BLM	8	
Maximum Precincts	BLM	2000	
Maximum Splits per Precinct	BLM	9	
Maximum Districts	BLM	400	
Maximum Contests per District	BLM	20	
Maximum Parties	BLM	24	
Maximum Parties in primary	BLM	12	
Maximum Parties w/ Straight Ticket	BLM	12	
Maximum District types	BLM	25	
Maximum Languages	BLM	10	
Maximum Ballot styles per Election	BLM	400	
Maximum Contests per Election	BLM	150	
Maximum Measures per Election	BLM	30	
Maximum Instruction Blocks per Election	BLM	5	
Maximum Headers per Election	BLM	50	
Maximum Candidates per Election	BLM	3000	
Maximum Candidates per Contest	BLM	120	
Maximum Ballot Pages	BLM	3	
Maximum Votes for N of M	BLM	25	
Maximum Ranks in RCV	BLM	3	
Maximum Ballot sheets per OVO	BLM	5000	
Maximum Ballot Pages per batch (OVCS)	OVCS	500	
Maximum Ballot Pages per session	OVCS	5000	
Maximum expected scanning speed (ballot pages per hour)	OVCS	2100	
Maximum Units simultaneously loading	BLM	20	
Maximum Precincts initialized per OVO on Election Day	BLM	30	
Maximum Precincts initialized per OVI-VC/FVT on Election Day	BLM	2000	
Maximum Precincts initialized per OVO/FVS /OVI-VC/FVT in early voting	BLM	2000	

Characteristic	Limiting Component	Limit	Comment
Maximum 11" Ballot positions	BLM	228 (without Rank Choice Voting) 456 (with Rank Choice Voting)	Limit (Double Sided)
Maximum 14" Ballot positions	BLM	300 (without Rank Choice Voting) 600 (with Rank Choice Voting)	Limit (Double Sided)
Maximum 17" Ballot positions	BLM	372 (without Rank Choice Voting) 744 (with Rank Choice Voting	Limit (Double Sided)
Maximum 19" Ballot positions	BLM	420 (without Rank Choice Voting) 840 (with Rank Choice Voting)	Limit (Double Sided)

Functionality

2005 VVSG Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
Voter Verified Paper Audit Trails		
VVPAT	No	Not applicable
Accessibility		
Forward Approach	No	
Parallel (Side) Approach	No	
Closed Primary		
Primary: Closed	Yes	
Open Primary		
Primary: Open Standard	Yes	A registered voter may vote in any *party primary* regardless of his own party affiliation
Primary: Open Blanket	No	

Feature/Characteristic	Yes/No	Comment
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.	No	
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	Yes	
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	Top to Bottom by Precinct grouping
Straight Party Voting:		
Straight Party: A single selection for partisan races in a general election	Yes	
Straight Party: Vote for each candidate individually	Yes	
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	
Vote N of M:		

Feature/Characteristic	Yes/No	Comment
Vote for N of M: Counts each selected candidate if the maximum is not exceeded.	Yes	
Vote for N of M: Invalidates all candidates in an overvote (paper)	Yes	
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 2nd 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 2nd contest.)	No	
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.	Yes	
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	Yes	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	Yes	
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	Yes	
Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.	Yes	
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.	Yes	
Provisional or Challenged Ballots		

Feature/Characteristic	Yes/No	Comment
Provisional/Challenged Ballots: A voted provisional ballot is identified but not included in the tabulation but can be added in the central count.	Yes	
Provisional/Challenged Ballots: A voted provisional ballot 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	Supported. Overvotes are tabulated for each office as an Over / Under Vote report in Vote Tabulation
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	Supported. Undervotes are tabulated for each office as an Over / Under Vote report in Vote Tabulation
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	
Demonstrates the voting system capability to handle the designated language groups		
Default language (English)	Yes	
Secondary language using a Western European font	Yes	
Ideographic language (such as Chinese or Korean),	Yes	
Non-written languages requiring audio support	Yes	

ECO – 01551

Summary:

- Eliminate a cause of extended set up time during Verity Touch Writer Duo (Touch Duo) booth assignment, performed during equipment setup at the polling place
- Change affects Verity Controller and Touch Duo on the Verity Voting 2.5 system **only**

Specific Changes:

- Anomaly caused by excessive traffic on the Controller-Duo daisy chain, which then causes a concurrency issue
- Touch Duo re-downloading the Verity database file unnecessarily caused excess traffic
- Update the Verity Touch Writer Duo and Controller software to fortify the equipment set up process only

Reason/Justification:

- Changes eliminate the cause of an unexpected time to set up the Verity Controller used with Touch Duo in the polling place

VERITY™

HART intercivic

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December 7, 2022

Kathy Summers
Elections Specialist
Division of Elections
Office of Tennessee Secretary of State
Via: Email

RE: De Minimis Change Approval Request

Dear Ms. Summers,

Hart InterCivic, Inc. is seeking approval of a de minimis voting system change associated with the Verity Voting system. This modification has already been approved as a de minimis change by the U.S. Election Assistance Commission (EAC). The EAC defines a de minimis change as "a change to a certified voting system's hardware, software, Technical Data Package (TDP), or data, the nature of which will not materially alter the system's reliability, functionality, capability, or operation." Therefore, we respectfully request approval of the change listed below for use in the State of Tennessee.

ECO Number	Description of Change	EAC Approval Date
ECO01551	Duo Networking Improvement	08/24/2022

Additional Documentation:
For this change, I have included the following documentation:

- Hart's full description of the change, as submitted to the Voting System Test Laboratory (VSTL) and EAC.
- Email from the EAC approving the change as de minimis

Hart InterCivic looks forward to your favorable review of this request. For questions or additional information, please feel free to contact me.

Respectfully submitted,

Elisabeth A. Spring

Elisabeth A. Spring
Certification Project Manager
Hart InterCivic
979.219.3356 (mobile)
espring@hartic.com

U.S. ELECTION ASSISTANCE COMMISSION
633 3rd St. NW, Suite 200
Washington, DC 20001

August 24, 2022

Sent via email

Pam Geppert, Senior Director of Product Management
Hart InterCivic
15500 Wells Port Drive
Austin, TX 78728

Re: ECO 01551

Dear Ms. Geppert,

This correspondence is to inform you that Hart ECO 01551 is approved.

Sincerely,

Paul Aumayr
Senior Election Technology Specialist

Cc: SLI Compliance