



United States Election Assistance Commission



## Certificate of Conformance

### Clear Ballot ClearVote 2.5

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 (VMSG 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: ClearVote

Model or Version: 2.5

Name of VSTL: Pro V&V

EAC Certification Number: CBG-CV-25

Date Issued: \_\_\_\_\_

Brianna Schletz, Executive Director

Scope of Certification Attached



## Scope of Certification

**Manufacturer:** *Clear Ballot Group*  
**System Name:** *ClearVote 2.5*  
**Certificate:** *CBG-CV-25*  
**Laboratory:** *Pro V&V*  
**Standard:** *VVSG 1.0*  
**Date:** *November 19, 2025*

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## Introduction

This document describes the scope of the validation and certification of Clear Ballot Group's ClearVote 2.5. 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 component of a certified system is certified for use outside the certified configuration.

## Representation of EAC Certification

Manufacturers may not represent or imply that a voting system is certified unless they have received a Certificate of Conformance for that system. Statements regarding EAC certification in brochures, on websites, 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

This system is a modification of the Clear Ballot ClearVote 2.3 Voting System, previously certified by the EAC. The Clear Ballot ClearVote 2.5 Voting System is a paper-based optical scan voting system consisting of the following major components: ClearDesign (ballot design and EMS), ClearCount (central count, tabulation, and election reporting), ClearCast (precinct count and tabulation), ClearAccess (accessible voting and ballot marking device), and ClearMark (accessible voting and ballot marking device). [www.eac.gov](http://www.eac.gov)

## Components Included:

### ClearDesign

ClearDesign is an Election Management System consisting of an interactive set of applications which are responsible for all pre-voting activities necessary for defining and managing elections. This includes ballot design, ballot proofing, ballot layout, and ballot production. The ClearDesign system consists of the physical components listed below. All the components and generation of voting machine election definition file packages are unmodified COTS that are connected via a wired, closed, and isolated network not connected to any other systems or the Internet.

- DesignServer: A laptop or desktop computer running Ubuntu with the ClearDesign software and hosting the election database.
- DesignStation(s): One or more laptops or desktops running Windows used to connect to the DesignServer. A browser is used to perform the necessary tasks. A user with administrative rights can define users and manage the elections.
- Network Switch: Used to connect DesignStations to the DesignServer using a wired, closed Ethernet-based network.

### ClearCount

ClearCount is a central, high-speed, optical scan ballot tabulator coupled with ballot processing applications. The ClearCount software runs on unmodified COTS laptop or desktop computers running the Windows operating system and supports specific models of scanners. The ClearCount central-count system running on an Ubuntu Linux operating system, with Ethernet connections to workstations running the Windows operating system consists of the physical components listed below. All the components are unmodified COTS that are connected via a wired, closed, and isolated network not connected to any other systems or the Internet.

- CountServer: An Ubuntu Linux laptop or desktop computer running the ClearCount software and hosting its election database and the web server that serves its election reports.
- ScanStation(s): One or more Windows laptop or desktop/scanner pairs used to scan and tabulate ballots.
- Network Switch: Used to connect the ScanStations to the CountServer using a wired, closed Ethernet.
- CountStation(s): One or more Windows laptop or desktop computers installed with browser software, linked by a wired Ethernet connection to the CountServer using the network switch. This station can serve multiple uses: user administration, election administration, adjudication, and reporting.

This station is also used to consolidate vote totals and ballot images from the ClearCast precinct tabulator. Vote totals and ballot images are consolidated by the ClearCount Software via the ClearCast USB drive.

All files that make up the ClearCount software reside on a single CountServer that is shared by all client ScanStations. The Tabulator software is executed by the ScanStations at run-time from files that reside on the CountServer. The only software programs that must be installed on ScanStations, apart from the Windows operating system, are the Fujitsu PaperStream Capture software and drivers required by the scanner hardware. The ClearCount software consists of the following components:

- Tabulator: The Tabulator application handles ballot tabulation. The Tabulator software is stored on the CountServer, and an instance of Tabulator runs on each ScanStation. The Tabulator counts the ballots and adjudicates the vote for the ballots scanned on that ScanStation. Upon completion of a batch of ballots, the Tabulator application sends its results and the associated card images to the central election database on the CountServer.
- Election Database: A centralized election database that resides on the CountServer and collects the output of each Tabulator.
- Election Reports: A suite of reports that provides election results and analysis and allows election officials to review individual ballot images.
- Card Resolutions tool: A web application that allows election officials to review and appropriately resolve unreadable voted ballots. It also allows manual adjudication of automatically adjudicated ballots where officials determine changes need to be made to reflect voter intent.
- User and Election Database Management through web applications: On the User Administration dashboard, the administrator can add, rename, or delete users, assign permissions, and change user passwords. On the Election Administration dashboard, the administrator can create or delete an election, set an election as active, merge ClearCast election results, and backup or restore an election.

## ClearCast and ClearCast Go

The ClearCast and ClearCast Go tabulators are precinct count ballot scanning solutions suitable for early and election day in-person voting, including processing ballots printed by the ClearAccess and ClearMark accessible ballot marking devices. The ClearCast application runs on the precinct count-based tabulator, and is used to scan, count and tally marked ballots. Its functionality is divided into three essential modes, Election Mode (Early Voting and/or Election Day), which is used to process voter cast ballots, Pre-Election Mode, this occurs prior to Election Mode,

and is used to test all system functionality prior to the start of the election, and Post-Election Mode, which is used to perform administrative functions following the close of the election.

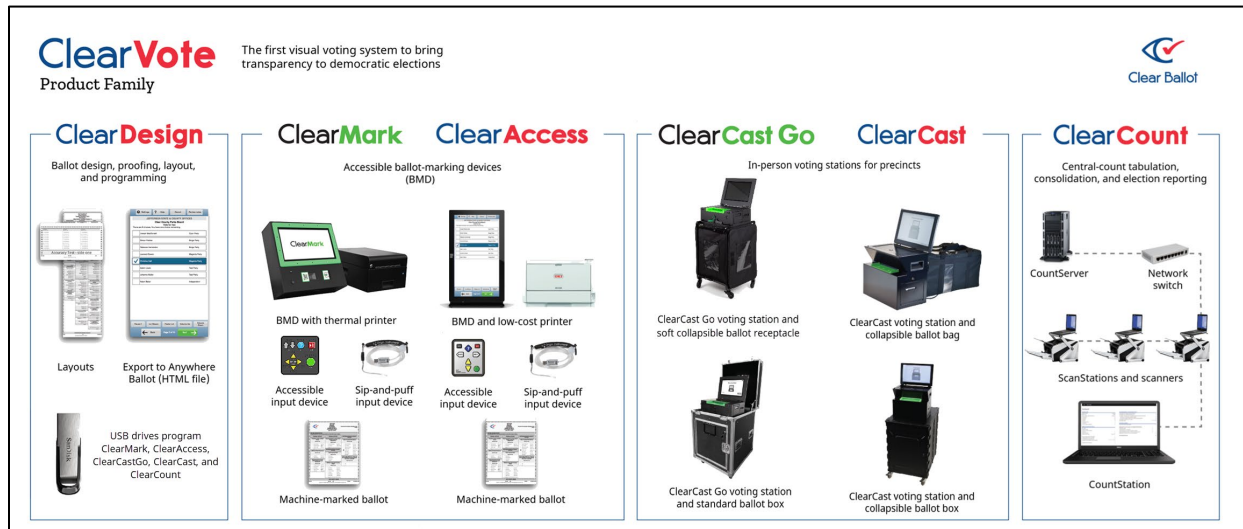
### ClearAccess

ClearAccess is an accessible touchscreen ballot marking device (BMD) used for the creation of paper ballots that can be scanned and tabulated by ClearCast or ClearCount. The ClearAccess components of the ClearVote voting system consist of computers combined with personal assistive devices, printers, and uninterruptible power supplies to form a ballot marking device.

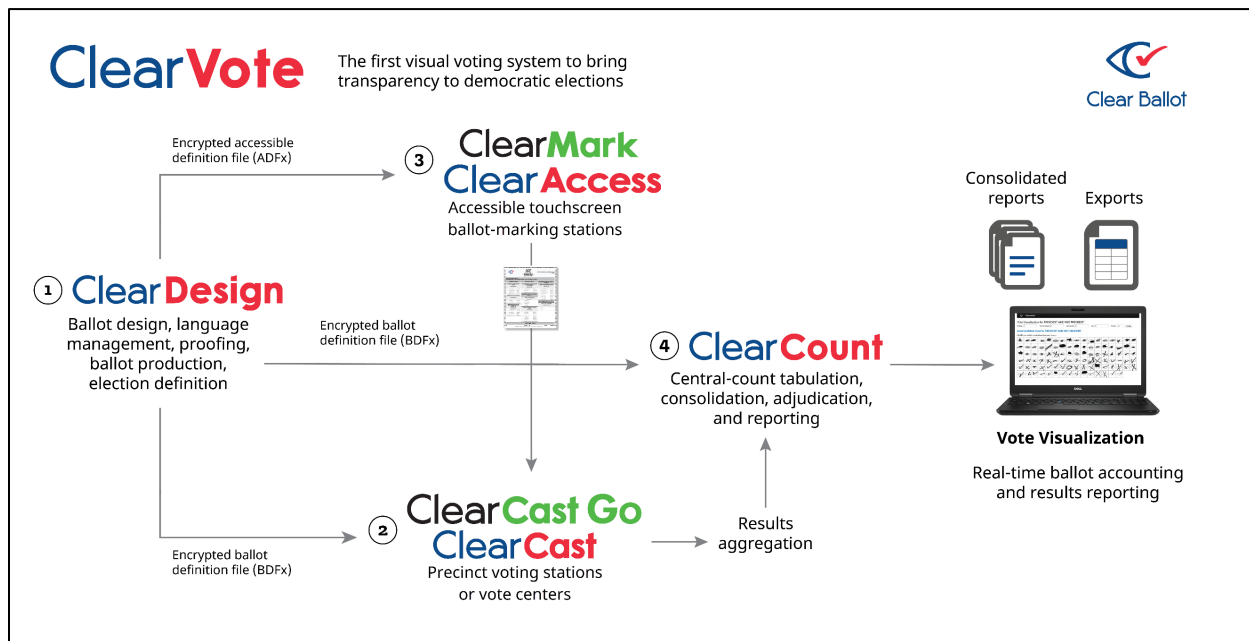
### ClearMark

ClearMark is an accessible touchscreen ballot marking device (BMD) used for the creation of paper ballots that can be scanned and tabulated by ClearCast or ClearCount. The ClearMark components of the ClearVote voting system consist of computers combined with personal assistive devices, printers, and uninterruptible power supplies to form a ballot marking device.

## System Diagrams



### System Components



### System Component Relationship

## List of Modifications

The submitted modifications include the following changes from version 2.3 to 2.5.

| Unique ID | Component                   | Description of Fix/Modification/Enhancement                                                                                                                                                                                                |
|-----------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-11928  | Ballot Tabulator            | Enables ClearCount to properly tabulate a card that only has contests on the back side.                                                                                                                                                    |
| SW-10691  | ClearAccess,<br>ClearCast   | Minor version update to the libssl and openssl libraries                                                                                                                                                                                   |
| SW-10690  | ClearAccess,<br>ClearDesign | Updated the ADF to account for the new page number macros introduced in this release.                                                                                                                                                      |
| SW-11531  | ClearCast                   | The ClearCast results reports now include a party breakdown rather than aggregating all the votes for a candidate into one number.                                                                                                         |
| SW-11604  | ClearCast                   | Updated OpenSSL1.0 version to 1.0.2n-1ubuntu5.8 and OpenSSL1.1 version to 1.1.1f-1ubuntu2.12 to address CVE-2022-0778.                                                                                                                     |
| SW-11655  | ClearCast                   | Users can now log in with the poll worker password after the ClearCast unit is restarted. Previously, a user would have to log in with the election administrator password before the poll worker login was enabled.                       |
| SW-11694  | ClearCast                   | ClearCast would occasionally fail to start the application in Chrome kiosk mode and instead show the Ubuntu login screen. The system now detects when this occurs and restarts the browser if the application does not start successfully. |
| SW-12422  | ClearCast                   | Each ClearCast unit has a unique public/private key pair used for digitally signing ballot images and Cast Vote Records.                                                                                                                   |
| SW-12423  | ClearCast                   | The public key fingerprint of the ClearCast unit is printed on all result reports and the Power On report.                                                                                                                                 |
| SW-12425  | ClearCast                   | The election_state.txt file now stores the public key value corresponding to each private key that is used to sign election data.                                                                                                          |
| SW-12467  | ClearCast                   | The voting_sigs.txt file now includes the digital signature of the archive.tar file.                                                                                                                                                       |
| SW-12648  | ClearCast                   | "Active Directory" value added to the Election Management screen, and metadata inconsistency errors no longer halt normal operation.                                                                                                       |
| SW-13207  | ClearCast                   | ClearCast now attempts to detect a hard shutdown which may occur due to an application failure, holding down the power button, or power failure and logs a message in the system log to aid in troubleshooting.                            |
| SW-14397  | ClearCast                   | Adds 'Protected Card Count' to the vote and administrative screens.                                                                                                                                                                        |
| SW-8167   | ClearCast                   | The ClearCast code has been updated to Python 3.                                                                                                                                                                                           |

| Unique ID | Component              | Description of Fix/Modification/Enhancement                                                                                                                                                                                                                                                                                                                                                                     |
|-----------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-9523   | ClearCast              | Changing the time zone setting in ClearCast now also updates the current time accordingly.                                                                                                                                                                                                                                                                                                                      |
| SW-9689   | ClearCast              | A ballot that belongs to a ballot set which is not associated with a specific vote center category in ClearDesign under the "paper scanner" settings will not be accepted by ClearCast when configured for those vote centers.                                                                                                                                                                                  |
| SW-12417  | ClearCast, ClearCount  | All Cast Vote Records produced by ClearCast are digitally signed with a private key.                                                                                                                                                                                                                                                                                                                            |
| SW-12418  | ClearCast, ClearCount  | All ballot images produced by ClearCast are digitally signed with a private key.                                                                                                                                                                                                                                                                                                                                |
| SW-11624  | ClearCast, ClearDesign | If a voter votes for a cross-endorsed candidate more than once, they can be notified upon inserting their ballot into ClearCast that only the first instance will count, allowing a user to take their ballot back and adjust their vote if desired. ClearDesign has an option to configure whether to warn on double vote for the paper scanner and the ability to set the wording of the double vote warning. |
| SW-13208  | ClearCast, ClearMark   | The ClearCast Go operating system has been upgraded to Ubuntu 20.04.6.                                                                                                                                                                                                                                                                                                                                          |
| SW-10118  | ClearCount             | Add support to export card images filtered by contests, precinct, counter groups, boxes, and voting conditions (overvoted, undervote, write-ins).                                                                                                                                                                                                                                                               |
| SW-10222  | ClearCount             | On the Election Administration page, the Redact Small Vote Subtotals column will no longer default to hidden.                                                                                                                                                                                                                                                                                                   |
| SW-10224  | ClearCount             | Creating an election with no parser row in the metadata.csv no longer defaults to "Premier". Instead, an error is thrown stating the field is missing and required.                                                                                                                                                                                                                                             |
| SW-10432  | ClearCount             | Improve the positioning of the green line used to show what contest is being adjudicated in the Resolver.                                                                                                                                                                                                                                                                                                       |
| SW-10663  | ClearCount             | Added the Statement of Votes Cast with Parties to the reports menu.                                                                                                                                                                                                                                                                                                                                             |
| SW-10733  | ClearCount             | Previously the 'whole' precinct record was record with the minimum BallotStyleID and now it is the precinct with BallotStyleID equal to 0.                                                                                                                                                                                                                                                                      |
| SW-11261  | ClearCount             | Added "Precinct" Localization to BDFExport metadata. Allows Localization to be uploaded to ClearCount when creating an Election under Election Administration.                                                                                                                                                                                                                                                  |
| SW-11391  | ClearCount             | Add support for displaying ClearDesign landscape ballots in the proper orientation.                                                                                                                                                                                                                                                                                                                             |
| SW-11605  | ClearCount             | Updated OpenSSL1.0 version to 1.0.2n-1ubuntu5.8 and OpenSSL1.1 version to 1.1.1f-1ubuntu2.12 to address CVE-2022-0778.                                                                                                                                                                                                                                                                                          |
| SW-11640  | ClearCount             | Changed the ClearCount API to require authentication before uploading files (such as ballot images and tabulation results) to the server.                                                                                                                                                                                                                                                                       |

| Unique ID | Component  | Description of Fix/Modification/Enhancement                                                                                                                                                                                                                                                                              |
|-----------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-11641  | ClearCount | Removed dead code related to encrypted backups.                                                                                                                                                                                                                                                                          |
| SW-11911  | ClearCount | Enables ClearCount to properly tabulate a card that only has contests on the back side.                                                                                                                                                                                                                                  |
| SW-11921  | ClearCount | Previously, doing a "Safely merge updateable BDF content" operation would create an additional "Invalid" candidate name in the Write-in Assignments Tool for each contest that has write-in choices. There is now only one "Invalid" entry in the candidate names regardless of whether a safe merge has been performed. |
| SW-11925  | ClearCount | Updated OpenSSL1.0 version to 1.0.2n-1ubuntu5.9 and OpenSSL1.1 version to 1.1.1f-1ubuntu2.13 to address <a href="https://ubuntu.com/security/notices/USN-5402-1">https://ubuntu.com/security/notices/USN-5402-1</a> .                                                                                                    |
| SW-12213  | ClearCount | Installer now prompts for and sets the grub username and password                                                                                                                                                                                                                                                        |
| SW-12244  | ClearCount | Previously the OpenSSL command line utility was used to check the expiry date on the SSL certificate. Now the check is done using the OpenSSL shared library.                                                                                                                                                            |
| SW-12247  | ClearCount | Previously, for performance reasons, the 'find' utility was used to find files, such as election backups, and ballot images. Now an equally efficient internal function has been created to 'find' the files.                                                                                                            |
| SW-12253  | ClearCount | Data exported into CSV format (for example, cast vote records) now has double quotes around all strings to guard against SQL injection.                                                                                                                                                                                  |
| SW-12290  | ClearCount | Users logged into the Ubuntu operating system on the CountServer are logged out automatically after 5 minutes of inactivity.                                                                                                                                                                                             |
| SW-12303  | ClearCount | Previous versions incorrectly created summary counts for ballots where the card style could be determined but not the precinct. This version only creates counters when both the card style and precinct id are valid.                                                                                                   |
| SW-12466  | ClearCount | Added functionality to detect whether system logging is running and to display an error message if it has been disabled.                                                                                                                                                                                                 |
| SW-13211  | ClearCount | The ClearCount operating system has been upgraded to Ubuntu 20.04.5.                                                                                                                                                                                                                                                     |
| SW-13520  | ClearCount | Increase the maximum length of ballot supported for scanning from 28 to 30 inches                                                                                                                                                                                                                                        |
| SW-7916   | ClearCount | The SOVC by Choice report no longer includes withdrawn candidates.                                                                                                                                                                                                                                                       |
| SW-8070   | ClearCount | The CountStation operating system has been upgraded to Windows 10 IoT Enterprise LTSC 2021.                                                                                                                                                                                                                              |
| SW-8071   | ClearCount | The ScanStation operating system has been upgraded to Windows 10 IoT Enterprise LTSC 2021.                                                                                                                                                                                                                               |

| Unique ID | Component   | Description of Fix/Modification/Enhancement                                                                                                                                                                         |
|-----------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-8166   | ClearCount  | The ClearCount code has been updated to Python 3.                                                                                                                                                                   |
| SW-9194   | ClearCount  | "Show Party Subtotals" option should only show for a closed primary/semi-closed. These are elections with more than one party associated with it.                                                                   |
| SW-10336  | ClearDesign | Fixed a bug preventing the accurate display of non-Latin characters on the digital ballot.                                                                                                                          |
| SW-10639  | ClearDesign | Added "Precinct" Localization to BDFExport metadata. Allows Localization to be uploaded to ClearCount when creating an Election under Election Administration.                                                      |
| SW-10700  | ClearDesign | This release implements the New York Grid Style Ballot layout.                                                                                                                                                      |
| SW-11184  | ClearDesign | During a ClearAccess voting session, if a voter votes for a cross-endorsed candidate more than once, they will be notified that only the first instance will count. This warning is always enabled for ClearMark.   |
| SW-11342  | ClearDesign | Changed the behavior for the 'float' language option so that each language only uses the space required rather than each language being allocated the same width.                                                   |
| SW-11606  | ClearDesign | Updated OpenSSL1.0 version to 1.0.2n-1ubuntu5.8 and OpenSSL1.1 version to 1.1.1f-1ubuntu2.12 to address CVE-2022-0778.                                                                                              |
| SW-11661  | ClearDesign | Updated system configuration for the CIS SCAP Ubuntu 20.04 revision 1.1.0 profile.                                                                                                                                  |
| SW-11816  | ClearDesign | A unique smart card customer key is now generated when a customer is created in ClearDesign, or when a customer that did not previously have a smart card key is upgraded from a previous version.                  |
| SW-11817  | ClearDesign | A unique smart card election key is now generated when an election is created in ClearDesign, or when an election that did not previously have a smart card key is upgraded from a previous version.                |
| SW-11819  | ClearDesign | The ADFx has been modified to contain the smart card customer and election keys.                                                                                                                                    |
| SW-11820  | ClearDesign | The smart card election key can be regenerated for the Accessible Marker device.                                                                                                                                    |
| SW-11927  | ClearDesign | Updated OpenSSL1.0 version to 1.0.2n-1ubuntu5.9 and OpenSSL1.1 version to 1.1.1f-1ubuntu2.13 to address <a href="https://ubuntu.com/security/notices/USN-5402-1">https://ubuntu.com/security/notices/USN-5402-1</a> |
| SW-12214  | ClearDesign | The username and password for the grub boot loader are now set during the installation of the system, when the install-setup script is run.                                                                         |
| SW-13204  | ClearDesign | Fix issue with not displaying the party separator '.' between parties when multiple parties endorse a choice.                                                                                                       |
| SW-13210  | ClearDesign | The ClearDesign operating system has been upgraded to Ubuntu 20.04.5.                                                                                                                                               |

| Unique ID | Component                           | Description of Fix/Modification/Enhancement                                                                                                                        |
|-----------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-13263  | ClearDesign                         | Resolves an issue that could cause HTML ballots to not layout properly due to the VoterGroupID not being set properly.                                             |
| SW-8069   | ClearDesign                         | The DesignStation operating system has been upgraded to Windows 10 IoT Enterprise LTSC 2021.                                                                       |
| SW-8168   | ClearDesign                         | The ClearDesign code has been updated to Python 3.                                                                                                                 |
| SW-10177  | ClearDesign, ClearMark              | Fixes an issue that caused elements of the touchscreen to be accidentally double-clicked by voters.                                                                |
| SW-10460  | ClearDesign, ClearMark              | Support new key mappings specific to ClearMark keypad.                                                                                                             |
| SW-10560  | ClearDesign, ClearMark              | Instructional text bugfix for sip-and-puff input device.                                                                                                           |
| SW-11108  | ClearDesign, ClearMark, ClearAccess | Fixed issue with not displaying contests if there were contests for only one partisan party and no nonpartisan contests on the ballot in an open primary election. |
| SW-10353  | ClearMark                           | Sets the default screen orientation for ClearMark to portrait mode.                                                                                                |
| SW-10840  | ClearMark                           | Added support for the Lexmark MS520 Series.                                                                                                                        |
| SW-11062  | ClearMark                           | Added a "Save System Info" feature to ClearMark which enables export of system logs and other troubleshooting information.                                         |
| SW-11133  | ClearMark                           | Added feature for a voter to be able to initiate a voting session with a smart card.                                                                               |
| SW-11134  | ClearMark                           | Added feature for a poll worker to be able to activate a smart card for a voter to use in ClearMark.                                                               |
| SW-11135  | ClearMark                           | Added feature for an administrator to initialize a blank smart card, enabling its use by that jurisdiction for session activation.                                 |
| SW-11136  | ClearMark                           | Simplified the payload for barcodes used to select a ballot style in ClearMark to make the resulting QR code easier to read.                                       |
| SW-11487  | ClearMark                           | Change version of ADF to support grid style ballots.                                                                                                               |
| SW-11598  | ClearMark                           | Updated OpenSSL1.0 version to 1.0.2n-1ubuntu5.8 and OpenSSL1.1 version to 1.1.1f-1ubuntu2.12 to address CVE-2022-0778.                                             |
| SW-8164   | ClearMark                           | The ClearMark code has been updated to Python 3.                                                                                                                   |
| SW-9892   | ClearMark                           | The ClearAccess software was ported to run on Ubuntu for ClearMark.                                                                                                |
| SW-11930  | ClearVote                           | Upgraded to use Windows Enterprise IoT 21H2 release.                                                                                                               |
| SW-10275  | ClearAccess                         | When the user opens an election, if there are more than 1000 logs in the system log, the system log will                                                           |

| Unique ID | Component                                     | Description of Fix/Modification/Enhancement                                                                                                                                                                         |
|-----------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |                                               | now be automatically rolled to a new log to prevent performance issues.                                                                                                                                             |
| SW-14573  | ClearAccess                                   | Exported csv files now have double quotes around all strings.                                                                                                                                                       |
| SW-14711  | ClearAccess                                   | Allows for Windows IoT OS to run on all required versions of ClearAccess hardware.                                                                                                                                  |
| SW-14825  | ClearAccess                                   | Updates hardening scripts to more thoroughly protect software and OS.                                                                                                                                               |
| SW-14888  | ClearAccess                                   | Resolves an issue that caused a timeout when using the "Save System Info" feature as a maintenance user                                                                                                             |
| SW-14993  | ClearAccess                                   | Provides more specificity of which ClearAccess build/version number is being used.                                                                                                                                  |
| SW-14572  | ClearAccess, ClearMark                        | Resolves an issue that caused an extra column in the CSV when exporting logs.                                                                                                                                       |
| SW-14830  | ClearAccess, ClearMark                        | Updates battery status indicators/messaging to remove confusion that could result from some hardware configurations.                                                                                                |
| SW-13575  | ClearAccess, PrintNow                         | Updates the ClearAccess software to allow it to run on all needed hardware configurations and associated operating systems.                                                                                         |
| SW-11841  | ClearCast                                     | Resolves error that resulted from a System Admin attempting to validate an election.                                                                                                                                |
| SW-12469  | ClearCast                                     | Creates an interface for regenerating private keys when an election is not loaded in ClearCast.                                                                                                                     |
| SW-13388  | ClearCast                                     | Resolves an issue that could cause ClearCast to not properly delete an election                                                                                                                                     |
| SW-13526  | ClearCast                                     | Resolves an issue that would let FolderScanner continue to scan ballots even after the USB stick is full.                                                                                                           |
| SW-14639  | ClearCast                                     | ClearCast database upgraded to MySQL 8.                                                                                                                                                                             |
| SW-14831  | ClearCast                                     | Updates older versions of ClearCast to be compatible with changes made to other ClearVote components.                                                                                                               |
| SW-14929  | ClearCast                                     | This allows ClearCast to scan and tabulate a paper ballot with a RCV contest, provide warnings to the voter for the RCV contest, and store the tabulated ballot on a USB stick that will be loaded into ClearCount. |
| SW-14930  | ClearCast                                     | This allows an election worker to generate reports in ClearCast that include RCV contests as well as a RCV-specific contest report that shows rank data.                                                            |
| SW-15441  | ClearCast                                     | Adds a total count of duplicate/double votes to each rank in the RCV contest report on ClearCast.                                                                                                                   |
| SW-9597   | ClearCast                                     | Updates logging to record any time that a low battery warning is presented.                                                                                                                                         |
| SW-14241  | ClearCast, ClearCount, ClearDesign, ClearMark | ClearCount, ClearMark and ClearCast are now compatible with BDFs and ADFs that include RCV contest and ruleset data.                                                                                                |

| Unique ID | Component                        | Description of Fix/Modification/Enhancement                                                                                                                                                                                                                 |
|-----------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-14471  | ClearCast, ClearCount, ClearMark | Updated ballot tabulation functionality in ClearCount, ClearCast, and ClearMark to be able to adjudicate ranked-choice contests.                                                                                                                            |
| SW-13877  | ClearCast, ClearMark             | Expands the ClearMark hardware offering to include a tabletop variation.                                                                                                                                                                                    |
| COTS-192  | ClearCount                       | Ricoh fi-7600 scanner                                                                                                                                                                                                                                       |
| DEV-648   | ClearCount                       | Ricoh fi-8950 scanner                                                                                                                                                                                                                                       |
| SW-10508  | ClearCount                       | Database and threading updates to make ClearCount more performant, especially with many concurrent tasks and larger elections.                                                                                                                              |
| SW-10792  | ClearCount                       | Reduces ClearCount security vulnerabilities regarding SQL injection.                                                                                                                                                                                        |
| SW-14459  | ClearCount                       | Allows for RCV contests to be included in ClearCount web and PDF reports with a Rank filter to determine which ranks should be included on those reports.                                                                                                   |
| SW-14470  | ClearCount                       | This creates a function in ClearCount to export a zip with the RCV CVRs and their associated configuration files that are needed to tabulate the contest in RCTab.                                                                                          |
| SW-14549  | ClearCount                       | Upgrades the ClearCount database to MySql 8 and InnoDB.                                                                                                                                                                                                     |
| SW-14710  | ClearCount                       | Resolves an issue that caused Ballot Tabulator to fail to start properly.                                                                                                                                                                                   |
| SW-14727  | ClearCount                       | Provides more specificity of which ClearCount build/version number is being used.                                                                                                                                                                           |
| SW-14743  | ClearCount                       | This updates manual adjudication for RCV contests to work through the contest one rank at a time and seamlessly integrates it with adjudication of non-RCV contests.                                                                                        |
| SW-14744  | ClearCount                       | This allows Oval Visualization in ClearCount to display ovals for RCV contests, applies a Rank filter to the page so that a user can choose to see ovals for only a given rank or ranks, and updates the oval hover to show the RCV contests appropriately. |
| SW-14758  | ClearCount                       | Added a new report 'Statement of Votes Cast by Rank' which is available in the report menu if the election contains RCV contests. This report displays the votes grouped by Contest and Rank.                                                               |
| SW-14806  | ClearCount                       | Updates to ClearCount to ensure core functionality remains intact after the database upgrades.                                                                                                                                                              |
| SW-14817  | ClearCount                       | Updates requirements in order to reach MySql database to prevent any unintentional access.                                                                                                                                                                  |
| SW-14822  | ClearCount                       | Updates user creation to validate user names in order to prevent errors with logging.                                                                                                                                                                       |
| SW-14877  | ClearCount                       | Updates the XML functionality to accommodate RCV contest data.                                                                                                                                                                                              |

| Unique ID | Component               | Description of Fix/Modification/Enhancement                                                                                                                                                                                                                                                                         |
|-----------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-14913  | ClearCount              | Provides more specificity of which ClearDesign build/version number is being used.                                                                                                                                                                                                                                  |
| SW-15395  | ClearCount              | Resolves an issue that could cause XML exports to have inconsistent count of Ballots Cast when using multi-card ballots.                                                                                                                                                                                            |
| SW-15634  | ClearCount              | RCV contest exports are created more efficiently, so that files can be ready for download more quickly.                                                                                                                                                                                                             |
| SW-16037  | ClearCount              | Resolves the issue in the previous ClearCount 2.5 version that did not correctly handle duplicate boxes.                                                                                                                                                                                                            |
| SW-13545  | ClearCount, ClearDesign | Previous versions of ClearDesign did not reserve space for the Judges Initial's box and so could end up with a box of zero height. The new release ensures the box is at least 2/3 of a timing mark high.                                                                                                           |
| SW-13555  | ClearDesign             | Enhance the message displayed when ovals overlap front to back (coincide) to include the candidate and contest names cause the issue.                                                                                                                                                                               |
| SW-13760  | ClearDesign             | Allows a user to save name and sort seq changes to an image without requiring a change of the image itself.                                                                                                                                                                                                         |
| SW-14012  | ClearDesign             | SW-14012. Added support for ranked-choice voting tabulation rulesets and ranked-choice voting contest type.                                                                                                                                                                                                         |
| SW-14062  | ClearDesign             | This allows ClearDesign to layout a paper ballot that includes a RCV contest, with consideration of the RCV contest's layout configurations, number of ranks/candidates and the other contests and content on the ballot.                                                                                           |
| SW-14063  | ClearDesign             | This updates the voter experience on the HTML ballot to allow for ranking and re-ranking of candidates in RCV contests on HTML ballots, provide appropriate on-screen and audio warnings for RCV contests, updates the Review page to show candidates ranked and allows for printing of a ballot with RCV contests. |
| SW-14253  | ClearDesign             | This allows for the creation and editing of a RCV ruleset with specific tabulation and layout rules. The ruleset can then be associated to a RCV contest, where some of the rules can be overwritten.                                                                                                               |
| SW-14754  | ClearDesign             | This allows for the RCV Ruleset functionality to be disabled or enabled for a given user.                                                                                                                                                                                                                           |
| SW-14818  | ClearDesign             | Updates the BDF/ADF to allow for contests with no candidates, or with Label Only candidates, to be used throughout ClearVote.                                                                                                                                                                                       |
| SW-14864  | ClearDesign             | Updates the Text Editor translation tool to hide a Google Translator overlay which made it difficult to click the Save button.                                                                                                                                                                                      |

| Unique ID | Component                  | Description of Fix/Modification/Enhancement                                                                                                                                                    |
|-----------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW-15242  | ClearDesign                | Updates the way that ballot PDFs are named by ClearDesign to they can be more easily identified and organized.                                                                                 |
| SW-15280  | ClearDesign                | Updates the BlankBallotFileName value in the BDF to match the updates made to ballot PDF naming in SW-15242.                                                                                   |
| SW-15583  | ClearDesign                | Previous versions did not include the audio that was recorded in ClearDesign in the file created using the Export Audio function. This version now includes them.                              |
| SW-15587  | ClearDesign                | Resolves an issue on very large elections/ballot sets that could cause Printing of ballots to result in an internal server error.                                                              |
| SW-15917  | ClearDesign                | Ensure functionality conforms with VVSG 1.0 Volume 1 Sec 3.1.6 d. ii. "No key or control on a voting machine shall have a repetitive effect as a result of being held in its active position." |
| COTS-195  | ClearDesign,<br>ClearCount | Brother HL-L2460DW printer.                                                                                                                                                                    |
| HW-5555   | ClearMark                  | Resolves an issue that resulted in errors when starting a voting session using the barcode scanner.                                                                                            |
| SW-14567  | ClearMark                  | Resolves an issue when exporting logs that caused the CSV to have an extra column.                                                                                                             |
| SW-14684  | ClearMark                  | Resolves an issue that would show no information about an attached Smart Card Reader on the ClearMark Setup page.                                                                              |
| SW-14992  | ClearMark                  | Provides more specificity of which ClearMark build/version number is being used.                                                                                                               |
| SW-15116  | ClearMark                  | Resolves an issue that caused unnecessary and repetitive system logs during scanner calibration.                                                                                               |
| SW-15142  | ClearMark                  | Resolves an issue that could sometimes cause paper jam error messages to not be displayed at the correct time.                                                                                 |
| COTS-11   | ClearVote                  | Add Dell OptiPlex XE4 as an admin station for ClearDesign and ClearCount.                                                                                                                      |
| COTS-144  | ClearVote                  | Add Dell Latitude 5540 as admin station for ClearDesign and ClearCount, and as a ClearCount ScanStation.                                                                                       |
| COTS-40   | ClearVote                  | Add Dell PowerEdge T150 as a DesignServer and a CountServer.                                                                                                                                   |
| COTS-41   | ClearVote                  | Add Dell PowerEdge R450 as a DesignServer and a CountServer.                                                                                                                                   |
| COTS-208  | ClearVote                  | Add Dell Latitude 5550 as admin station for ClearDesign and ClearCount, and as a ClearCount ScanStation.                                                                                       |
| DEV-1139  | ClearDesign                | This resolves an issue that caused an error message when creating an election in ClearCount using a BDF that was originally generated from the 2.3 version of ClearDesign.                     |

| Unique ID | Component                                 | Description of Fix/Modification/Enhancement                                                                                                                                                             |
|-----------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEV-3519  | ClearMark,<br>ClearAccess                 | This resolves an issue that caused various buttons to be too small to meet VVSG 1 size/spacing requirements.                                                                                            |
| DEV-3723  | ClearDesign,<br>ClearMark,<br>ClearAccess | Introduces a new default ABC onscreen keyboard for voters when adding write-in candidates with buttons that meet size requirements and moves the QWERTY keyboard to an optional alternate input method. |
| DEV-3252  | Doc                                       | Add Lexmark MS531 printer to APL for use with ClearAccess EloPOS                                                                                                                                        |
| DEV-4193  | Doc                                       | Add additional Sandisk USB stick option (64gb) to APL                                                                                                                                                   |
| DEV-3474  | Doc                                       | Remove Ballot Verification scanner from APL for use with ClearMark                                                                                                                                      |
| DEV-1489  | ClearCount                                | Adds the option in the Ballot Saving queue views to requeue any items that have not moved out of the queue.                                                                                             |
| DEV-3306  | ClearCount                                | Resolves an issue where logs could sometimes contain incorrect information                                                                                                                              |
| DEV-3305  | ClearCount                                | Resolves an issue where the flash message content could be unrelated to the action the user just took.                                                                                                  |
| DEV-4521  | ClearCount                                | Resolves an issue where the user isn't given an appropriate error message when they attempt to merge a ClearCast USB stick with an invalid HMAC or hash value.                                          |
| DEV-4556  | ClearDesign                               | Resolves an issue in the HTML ballot wherein ballots printed via ClearMark display write-in lines as misaligned with their corresponding ovals.                                                         |
| DEV-4909  | ClearDesign                               | Updates the RCV Ruleset configuration dialog to remove the option for Bottoms Up Percentage Threshold as a RCV Type option.                                                                             |

### Proprietary Software

| System Component | Software or Firmware Version |
|------------------|------------------------------|
| ClearAccess      | 2.5.6                        |
| ClearCount       | 2.5.8                        |
| ClearDesign      | 2.5.9                        |
| ClearMark        | 2.5.6                        |
| ClearCast        | 2.5.3                        |
| ClearCast Go     | 2.5.3                        |

### Proprietary Hardware

| Description                               | Version                  |
|-------------------------------------------|--------------------------|
| Clear Ballot Group Collapsible Ballot Bag | CV-1032-1.5, CV-1032-2.0 |
| Clear Ballot Group Collapsible Ballot Box | CV-1033-1.5, CV-1033-2.0 |
| ClearCast Go Transport Ballot Box         | 61211-1-3                |

|                                                         |                                  |
|---------------------------------------------------------|----------------------------------|
| ClearCast Soft Collapsible Ballot Box                   | Standard (14620)<br>Long (14616) |
| ClearCast Soft Insert Collapsible Ballot Receptacle     | Standard (14452)<br>Long (14460) |
| ClearCast Go Soft Collapsible Ballot Box                | Standard (14148)<br>Long (14156) |
| ClearCast Go Soft Insert Collapsible Ballot Receptacle  | Standard (14452)<br>Long (14460) |
| ClearMark AIO Touchscreen                               | 46100-1-1                        |
| ClearMark Thermal Printer                               | 46200-1-1                        |
| ClearMark Thermal Printer Transportation and Setup Case | 62321-1-2                        |
| ClearMark Lexmark Printer Transportation and Setup Case | 62322-1-2                        |

### COTS Software and Firmware

| Description              | Version       |
|--------------------------|---------------|
| <b>ClearDesign 2.5.9</b> |               |
| Google Chrome            | 87.0.4280.141 |
| Ubuntu                   | 20.04.5 LTS   |
| MySQL                    | 5.7.37        |
| Apache                   | 2.4.29        |
| PhantomJS                | 1.9.8         |
| Unzip                    | 6.0           |
| Samba                    | 4.15.13       |
| auditd                   | 2.8.5         |
| libpam-pwquality         | 1.4.2         |
| apparmor-utils           | 2.13.3        |
| libapache2-mod-apparmor  | 2.12          |
| Python PIP               | 22.0.4        |
| Zip                      | 3.0.11        |
| Pyinstaller              | 4.7           |
| Python JSMIN             | 3.0.0         |
| Python                   | 3.8.10        |
| Python altgraph          | 0.17          |
| Python dev               | 3.8.10        |
| Python wheel             | 0.37.0        |
| Python setuptools        | 59.5.0        |
| jaraco.funcitools        | 3.4.0         |

|                             |                                     |
|-----------------------------|-------------------------------------|
| gcc                         | 10.3.0                              |
| build-essential             | 12.8                                |
| m4                          | 1.14.18                             |
| bc                          | 1.07.1                              |
| Python Webpy                | 0.62                                |
| PyMySQL                     | 1.0.2                               |
| SQLAlchemy                  | 1.3.24                              |
| Python Pillow               | 8.3.2                               |
| Python DBUtils              | 1.3                                 |
| Python XLRD                 | 1.2.0                               |
| Python FontTools            | 3.41.0                              |
| Python RTF                  | 0.2.1                               |
| Python Gunicorn             | 20.0.4                              |
| OpenSSL (FIPS)              | 2.0.16                              |
| OpenSSL                     | 1.0.2n                              |
| LibSSL                      | 1.0.2n                              |
| DataTable                   | 1.10.16                             |
| DataTable-Buttons           | 1.4.2                               |
| DataTable-Buttons-Bootstrap | 1.4.2                               |
| DataTable-Buttons-JSZip     | 2.5.0                               |
| DataTable-Buttons-Pdfmake   | 0.1.32                              |
| DataTable-Plugins           | 1.10.16                             |
| bootstrap                   | 3.0.0                               |
| jquery                      | 2.2.4                               |
| jquery-impromptu            | 6.2.3                               |
| jquery-qrcode               | 1.0                                 |
| jquery-splitter             | 0.27.1                              |
| jquery-ui                   | 1.12.1                              |
| jscolor                     | 1.4.2                               |
| tinymce                     | 4.1.9                               |
| jslibmp3lame                | 0.5.0                               |
| jszip                       | 3.2.0                               |
| jsmin                       | 4.6                                 |
| papaparse                   | 4.6.0                               |
| jquery-throttle-debounce    | 1.1                                 |
| <b>ClearAccess 2.5.6</b>    |                                     |
| nsis                        | 3.06.1                              |
| PyInstaller                 | 4.2                                 |
| Windows                     | Windows 10 IoT Enterprise LTSC 2021 |
| Google Chrome               | 87.0.4280.141                       |
| DataTables                  | 1.10.16                             |
| EloPOS driver pack          | 12/5/2019                           |

|                           |                  |
|---------------------------|------------------|
| jquery                    | 1.10.2           |
| jsmin                     | 10/30/2019       |
| LGPO                      | 3                |
| pefile                    | 2019.4.18        |
| pyserial                  | 3.5              |
| Python                    | 3.8.10           |
| Python-future             | 0.18.2           |
| pywin                     | 302              |
| Webpy                     | 0.62             |
| Zebra Corescanner Driver  | 3.07.0042        |
| <b>ClearCast 2.5.3</b>    |                  |
| Ubuntu                    | 20.04.5          |
| chromium-browser          | 112.0.5615.49    |
| pyinstaller               | 3.2.1            |
| openssl-fips              | 2.0.16           |
| openssl                   | 1.0.2n           |
| libScanAPI.a              | 2.0.5.0          |
| DataTables                | 1.10.22          |
| JTSage DateBox            | 4.0.0            |
| jQuery.NumPad             | 1.4              |
| jQuery                    | 3.5.1            |
| jquery.ui                 | 1.12.1           |
| <b>ClearCast Go 2.5.3</b> |                  |
| Ubuntu                    | 20.04.5          |
| Linux kernel              | 5.4.52           |
| U-boot                    | 2020.1           |
| rk3399_loader             | 1.25.126         |
| rk3399_bl31               | 1.35             |
| trust_merger              | 1.0 (2015-06-15) |
| boot_merger               | 1.31             |
| rk3399_ddr-800MHz         | 1.25             |
| rk3399_miniloader         | 1.26             |
| rkdeveloptool             | 1.2              |
| chromium-browser          | 112.0.5615.49    |
| libssl                    | 1.0.0_1.0.2n     |
| openssl                   | 1.0.0_1.0.2n     |
| libscanAPI.a              | 1.0.7.0          |
| DataTables                | 1.10.22          |
| JTSage DateBox            | 4.0.0            |
| jQuery.NumPad             | 1.4              |
| jQuery                    | 3.5.1            |
| jquery.ui                 | 1.12.1           |

| ClearCount 2.5.8             |                                     |
|------------------------------|-------------------------------------|
| Windows                      | Windows 10 IoT Enterprise LTSC 2021 |
| Google Chrome                | 87.0.4280.141                       |
| Ubuntu                       | 20.04.5 LTS                         |
| Python(part of Ubuntu)       | 3.8.10                              |
| MySQLdb (part of Ubuntu)     | 8.0.37                              |
| OpenSSL                      | 1.0.2n                              |
| OpenSSL FIPS Object Module   | 2.0.10                              |
| sqlalchemy                   | 1.3.24                              |
| Six                          | 1.14.0                              |
| Python-DateUtil              | 2.8.2                               |
| Apache                       | 2.4.29                              |
| auditd                       | 2.8.5                               |
| debconf                      | 1.5.73                              |
| pmount                       | 0.9.23                              |
| Samba                        | 4.15.13                             |
| udisks2                      | 2.8.4                               |
| python3-audit                | 2.8.5                               |
| python-debconf               | 1.5.73                              |
| libzbar0                     | 0.23                                |
| libpam-pwquality             | 1.4.2                               |
| apparmor                     | 2.13.3                              |
| apparmor-utils               | 2.13.3                              |
| ufw                          | 0.36                                |
| xserver-xorg-core            | 1.20.13                             |
| xinit                        | 1.4.1                               |
| lightdm                      | 1.30.0                              |
| xfce4                        | 4.14                                |
| menu                         | 2.1.47                              |
| menu-xdg                     | 0.6                                 |
| xubuntu-default-settings     | 20.04.4                             |
| xfce4-whiskermenu-plugin     | 2.4.3                               |
| xfce4-terminal               | 0.8.9.1                             |
| xfce-power-manager           | 1.6.6                               |
| leafpad                      | 0.8.18.1                            |
| exfat-fuse                   | 1.3.0                               |
| exfat-utils                  | 1.3.0                               |
| screen                       | 4.8.0                               |
| zip                          | 3.0                                 |
| unzip                        | 6.0                                 |
| sudo                         | 1.8.31                              |
| JavaScript Bootstrap library | 2.3.2, & 4.3.1                      |

|                                             |                  |
|---------------------------------------------|------------------|
| JavaScript Chosen library                   | 1.8.7            |
| JavaScript jQuery splitter library          | 0.28.3           |
| JavaScript jQuery library                   | 1.10.2J          |
| J JavaScript jQuery-migrate library         | 1.2.1            |
| JavaScript jQuery hotkeys library           | 0.8              |
| JavaScript jQuery tooltip library           | 1.3              |
| JavaScript DataTables library               | 1.10.18          |
| JavaScript DataTables Buttons               | 1.5.6            |
| JavaScript DataTables Buttons ColVisLibrary | 1.0.8            |
| JavaScript DataTables Buttons html5 library | 1.3.3            |
| JavaScript DataTables FixedHeader library   | 3.1.4            |
| JavaScript DataTables pdfmaker library      | 0.1.36           |
| Javascript Vue                              | 2.6.10           |
| JavaScript bootstrap-vue library            | 2.0.2            |
| <b>ClearMark 2.5.6</b>                      |                  |
| Ubuntu                                      | 20.04.6          |
| chromium-browser                            | 97.0.4692.99     |
| DataTables                                  | 1.10.16          |
| jquery                                      | 1.10.2           |
| jsmin                                       | 09/30/2011       |
| pefile                                      | 2019.4.18        |
| pyserial                                    | 3.5              |
| Python                                      | 3.8.10           |
| Webpy                                       | 0.62             |
| Linux Kernel                                | 5.4.52           |
| U-boot                                      | 2020.1           |
| rk3399_loader                               | 1.24.126         |
| rk3399_bl31                                 | 1.35             |
| trust_merger                                | 1.0 (2015-06-15) |
| boot_merger                                 | 1.31             |
| rk3399_ddr-800Mhz                           | 1.25             |
| rk3399_miniloader                           | 1.26             |
| rkdeveloptool                               | 1.2              |
| libssl                                      | 1.0_1.0.2n       |
| openssl                                     | 1.0.0_1.0.2n     |
| libscanAPI.a                                | 1.0.7.0          |
| pycups                                      | 2.0.1            |
| evdev                                       | 1.4.0            |
| more-itertools                              | 8.6.0            |
| Pillow                                      | 8.3.1            |
| multiprocess                                | 0.70.12.2        |
| argparse                                    | 1.4.0            |

|       |       |
|-------|-------|
| pysub | 1.2.1 |
|-------|-------|

## COTS Hardware

| Description                          | Component Type                           |
|--------------------------------------|------------------------------------------|
| <b>ClearDesign</b>                   |                                          |
| Dell Latitude Laptop (DesignStation) | 5580, 5590, 5500, 5511, 5521, 5540,5550  |
| Lenovo ThinkPad (DesignStation)      | E14 G-series                             |
| Dell OptiPlex (DesignStation)        | XE3 SFF, XE4 SFF                         |
| Dell PowerEdge Server (DesignServer) | T130, T140, T150, R440, R450, T440, T630 |
| Cisco 8-Port Switch                  | SG250-08-K9-NA                           |
| Cisco Catalyst 8-port switch         | 1300-8T-E-2G                             |
| Cisco Business 8-Port Switch         | CBS350-8T-E-2G-NA                        |
| NetGear 8-Port Switch                | FVS318G                                  |
| TRENDnet 8-Port Switch               | TEG-S80G                                 |
| TP-Link 8-Port Switch                | TL-SG108E                                |
| TP-Link 4-Port Switch                | TL-R600VPN                               |
| Brother Laser Printer                | HL-L2350DW                               |
| Brother Laser Printer                | HL-L2460DW                               |
| <b>ClearAccess</b>                   |                                          |
| ELO 15 inch EloPOS                   | EPS15E2                                  |
| ELO 15 inch AIO                      | E-Series (ESY15E2)                       |
| ELO 15 inch AIO                      | X-Series (ESY20X2)                       |
| Dell OptiPlex                        | 5250                                     |
| Oki Data Laser Printer               | B432dn                                   |
| Lexmark Laser Printer                | MS521dn                                  |
| Lexmark Laser Printer                | MS531dw                                  |
| CyberPower Smart App UPS             | PR1500RT2U                               |
| APC Smart UPS                        | SMT2200C                                 |
| APC Smart UPS                        | SRT1500RMXLA                             |

|                                                    |                                                                   |
|----------------------------------------------------|-------------------------------------------------------------------|
| Zebra Barcode scanner                              | DS457-SR                                                          |
| ELO Barcode scanner                                | UM600149                                                          |
| Storm EZ Access Keypad                             | EZ08-22200,<br>EZ08-22201                                         |
| Tapes Master – ESD Copper tape                     | TM-36-COPP-1M-3                                                   |
| ESD acrylic cover                                  | CV-1180-1.4-1                                                     |
| ESD 0.75" polyimide film                           | Kapton S-17213                                                    |
| ESD 1" polyimide film                              | CV-1210-2.0                                                       |
| ESD 2" polyimide film                              | CV-1211-2.0                                                       |
| ESD 4" polyimide film                              | CV-1212-2.0                                                       |
| EMI ferrite                                        | Würth Elektronik 742-416-33S, 742-711-32, 742-712-22, 742-717-22, |
| EMI ferrite                                        | Laird 28A2029-0A2, 28A2029-0A0, 28A5776-0A2                       |
| EMI ferrite                                        | Takachi Electronics TFT152613N                                    |
| <b>ClearCount</b>                                  |                                                                   |
| Dell PowerEdge Server (CountServer)                | T140, T150, R440, R450, T440                                      |
| Dell OptiPlex (CountStation)                       | XE3 SFF, XE4 SFF                                                  |
| Dell OptiPlex (ScanStation)                        | XE4 SFF                                                           |
| Dell Latitude Laptop (CountStation, ScanStation)   | 5580, 5590, 5500, 5511, 5521, 5540, 5550                          |
| Lenovo ThinkPad Laptop (CountStation, ScanStation) | E14 G-series                                                      |
| Fujitsu Scanner                                    | fi-6400                                                           |
| Fujitsu Scanner                                    | fi-6800                                                           |
| Fujitsu Scanner                                    | fi-7180                                                           |
| Fujitsu/Ricoh Scanner                              | fi-7800                                                           |
| Fujitsu/Ricoh Scanner                              | fi-7600                                                           |
| Fujitsu/Ricoh Scanner                              | fi-7900                                                           |
| Ricoh Scanner                                      | fi-8950                                                           |
| Cisco 8-Port Switch                                | SG250-08-K9-NA                                                    |

|                                        |                                                                 |
|----------------------------------------|-----------------------------------------------------------------|
| Cisco 26-Port Switch                   | SG250-26-K9-NA                                                  |
| Cisco Catalyst 8-Port switch           | 1300-8T-E-2G                                                    |
| Cisco Business 8-Port Switch           | CBS350-8T-E-2G-NA                                               |
| Cisco Business 24-Port Switch          | CBS350-24T-4G-NA                                                |
| NetGear 8-Port Switch                  | FVS318G                                                         |
| TRENDnet 8-Port Switch                 | TEG-S80G                                                        |
| TP-Link 8-Port Switch                  | TL-SG108E                                                       |
| TP-Link 4-Port Switch                  | TL-R600VPN                                                      |
| Brother Laser Printer                  | HL-L2350DW                                                      |
| Brother Laser Printer                  | HL-L2460DW                                                      |
| APC Smart-UPS                          | SMT-1500C                                                       |
| <b>ClearCast</b>                       |                                                                 |
| ClearCast                              | Model D Revision 5                                              |
| ClearCast Go                           | ClearCast Go                                                    |
| Corsair Flash Padlock 32 GB USB        | CMFPLA3B-32GB                                                   |
| Corsair Flash Voyager GTX 128 GB USB   | CMFVYGTX3C-128GB                                                |
| SanDisk Extreme Go 64 GB USB           | SDCZ800-064G-G46                                                |
| SanDisk Extreme Pro 128 GB USB         | SDCZ880-128G-G46                                                |
| SanDisk Ultra Flair 32 GB USB          | SDCZ73-032G-A46/G46                                             |
| SanDisk Ultra Flair 64 GB USB          | SDCZ73-064G-A46/G46                                             |
| Shielded HDMI cable                    | CC-2115-1.5                                                     |
| EMI ferrite                            | Würth Elektronik 742-711-32, 742-711-42, 742-758-12, 742-758-13 |
| <b>ClearMark</b>                       |                                                                 |
| Lexmark Laser Printer                  | MS521dn                                                         |
| CyberPower Smart App UPS               | PR1500RT2U                                                      |
| <b>ClearVote</b>                       |                                                                 |
| SySTOR 1:15 USB Duplicator & Sanitizer | SySTOR 1:15 USB Duplicator & Sanitizer                          |

### Language capability:

The ClearVote 2.5 voting system supports the following languages:

- English
- Spanish
- Chinese
- Korean
- Vietnamese
- Danish
- Dutch
- Flemish
- French
- German
- Italian
- Japanese
- Norwegian
- Portuguese
- Swedish

## System Limitations

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

| Characteristic                                  | Limit     |
|-------------------------------------------------|-----------|
| <b>Election Parameters</b>                      |           |
| Precincts per election                          | 3200      |
| Splits per election                             | 3200      |
| District categories per election                | 100       |
| Districts per single category                   | 3200      |
| Districts per election                          | 3200      |
| Contests per election                           | 3200      |
| Choices per election                            | 3200      |
| Choices per contest                             | 300       |
| Vote positions per side                         | 420       |
| Card styles per election                        | 3200      |
| Contests per ballot style                       | 60        |
| Card styles per precinct                        | 50        |
| Parties per election                            | 50        |
| Counter groups per election                     | 7         |
| "Vote for" per contest                          | 50        |
| Languages per election                          | 15        |
| Cards per ballot (per language)                 | 5         |
| Write-ins per contest                           | 50        |
| <b>Reporting Name Parameters (Reports Only)</b> |           |
| Election name (characters)                      | 60        |
| Jurisdiction name (characters)                  | 60        |
| Precinct name (characters)                      | 60        |
| Vote center name (characters)                   | 60        |
| Contest name (characters)                       | 60        |
| Candidate name (characters)                     | 60        |
| Party name (characters)                         | 60        |
| Write-in length (characters)                    | 60        |
| <b>System Parameters</b>                        |           |
| Central-count scanners per network              | 10        |
| Cards per precinct-voting device                | 10,000    |
| Cards per central-count device                  | 4,000,000 |

## Functionality

### VVSG 1.0 Supported Functionality Declaration

| Feature/Characteristic            | Yes/No | Comment                           |
|-----------------------------------|--------|-----------------------------------|
| <b>System Functionality</b>       |        |                                   |
| General Election                  | Yes    |                                   |
| Closed primary                    | Yes    |                                   |
| Open primary                      | Yes    |                                   |
| N-of-M contest                    | Yes    |                                   |
| Precinct splits                   | Yes    |                                   |
| Ballot rotation                   | Yes    | Rotation by precinct and district |
| Straight-party contest            | Yes    |                                   |
| Cumulative contest                | No     |                                   |
| Ranked choice contest             | Yes    |                                   |
| Party preference contest          | Yes    |                                   |
| Top-2 primary contest             | Yes    |                                   |
| Presidential delegate contest     | Yes    |                                   |
| Proportional voting contest       | No     |                                   |
| Group voting contest              | Yes    |                                   |
| Recall contest                    | Yes    | Supported variants: Simple Yes/No |
| Top-2 IRV contest                 | Yes    |                                   |
| Cross-party endorsement           | Yes    |                                   |
| Write-In voting                   | Yes    |                                   |
| Nonpartisan offices               | Yes    |                                   |
| Partisan offices                  | Yes    |                                   |
| <b>Tabulation</b>                 |        |                                   |
| Provisional or Challenged Ballots | Yes    | via jurisdiction processes        |
| Overvotes                         | Yes    |                                   |
| Undervotes                        | Yes    |                                   |
| Blank Ballots                     | Yes    |                                   |
| <b>Devices Supported</b>          |        |                                   |
| Ballot marking device             | Yes    |                                   |
| Precinct Scanner                  | Yes    |                                   |
| Central count scanner             | Yes    |                                   |
| All-in-one device                 | No     |                                   |