United States Election Assistance Commission

VVSG 2005 VER. I

EAC

CERTIFIED

Certificate of Conformance

Dominion Voting Democracy Suite 4.14

The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the 2005 *Voluntary Voting System Guidelines (2005 VVSG)* . 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 an*d *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: Democracy Suite

Model or Version: 4.14

Name of VSTL: Wyle Laboratories

EAC Certification Number: DemSuite-4-14

Date Issued: July 18, 2013

Chief Operating Officer & Acting Executive Director
U.S. Election Assistance Commission

Scope of Certification Attached

Scope of Certification

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

Significance of EAC Certification

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

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

Representation of EAC Certification

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

System Overview:

The Dominion Democracy Suite 4.14 Voting System is a modification to the certified Democracy Suite 4.0 Voting System. The full Dominion Democracy Suite 4.0 Voting System description can be found in the EAC Certificate of Conformance, dated May 10, 2012. The Dominion Democracy Suite 4.14 Voting System includes modifications to all components listed below. The Dominion Voting Systems Democracy Suite Version 4.14 Voting System is a paper-ballot based, optical scan voting system. The Democracy Suite Version 4.14 Voting System hardware consists of four major components:

1. The Election Management System (EMS)
2. ImageCast Evolution (ICE) precinct scanner with optional ballot marking capabilities

3. ImageCast Precinct (ICP) precinct scanner
4. ImageCast Central (ICC) central count scanner

The Dominion Voting System Technical Data Package was the source for much of the summary information that follows in this section.

Election Management System
The Dominion Voting Systems Democracy Suite 4.14 EMS consists of eight components running as either a front-end/client application or as a back-end/server application. Below is a list and bri ef description of each.

- Democracy Suite 4.14 EMS Election Event Designer client application - integrates election definition functionality and represents a main pre-voting phase end-user application.
- Democracy Suite 4.14 EMS Results Tally and Reporting client application – integrates election results acquisition, validation, tabulation, reporting and publishing capabilities and represents a main post-voting phase end-user application.
- Democracy Suite 4.14 EMS Audio Studio client application - represents an end-user helper application used to record audio files for a given election project. As such, it is utilized during the pre-voting phase of the election cycle.
- Democracy Suite 4.14 EMS Data Center Manager client application - represents a system level configuration application used in EMS back-end data center configuration.
- Democracy Suite 4.14 EMS Application Server application - represents a server side application responsible for executing long running processes, such as rendering ballots, generating audio files and election files.
- Democracy Suite 4.14 EMS Network Attached Storage (NAS) Server application – represents a server side file repository for election project file based artifacts, such as ballots, audio files, reports, log files, and election files.
- Democracy Suite 4.14 EMS Database Server application - represents a server side RDBMS repository of the election project database which holds all the election project data, such as districts, precincts, candidates, contests, ballot layouts, tabulators, vote totals, and poll status.
- Democracy Suite 4.14 EMS Election Data Translator (EDT) – Exports and Imports data in a format suitable for rapid interaction with Election Event Designer (EED)

The EMS platform was tested in two deployable physical hardware configurations:

EMS Express hardware configuration - all EMS software components were installed on a single physical PC or laptop. This is a stand-alone configuration.
EMS Standard hardware configuration - the EMS server components were installed on a single physical server, in addition to the Local Area Network (LAN) switch devices, while the EMS client components were installed on one or more physical PCs or laptops.
All system components were interconnected in a client-server local LAN environment.

- ImageCast Evolution (ICE) precinct scanner with optional ballot marking capabilities. The Dominion Democracy Suite ImageCast Evolution system employs a precinct-level optical

scan ballot counter (tabulator) in conjunction with an external ballot box. This tabulator is designed to mark and/or scan paper ballots, interpret voting marks, communicate these interpretations back to the voter (either visually through the integrated LCD display or audibly via integrated headphones), and upon the voter's acceptance, deposit the ballots into the secure ballot box. The unit also features an Audio Tactile Interface (ATI) which permits voters who cannot negotiate a paper ballot to generate a synchronously human and machine-readable ballot from elector-input vote selections. The ATI can also accept input from sip and puff and other personal assistive technologies. In this sense, the ImageCast Evolution acts as a ballot marking device.

- ImageCast Precinct (ICP) precinct scanner. The ImageCast Precinct Ballot Counter is a precinct-based optical scan ballot tabulator that is used in conjunction with ImageCast compatible external ballot boxes. The system is designed to scan marked paper ballots, interpret voter marks on the paper ballot and safely store and tabulate each vote from each paper ballot. In addition, the ImageCast Precinct supports enhanced accessibility voting which may be accomplished via an Audio Tactile Interface (ATI) connected to the ImageCast unit. The ATI can also accept input from sip and puff and other personal assistive technologies.

- ImageCast Central (ICC) central count scanner. The Dominion Democracy Suite ICC Ballot Counter system is a high-speed, central ballot scan tabulator based on Commercial off the Shelf (COTS) hardware, coupled with the custom-made ballot processing application software. It is used for high speed scanning and counting of paper ballots. Central scanning system hardware consists of a combination of two COTS devices used together to provide the required ballot scanning processing functionality:
  - Canon DR-X10C Scanner: used to provide ballot scanning and image transfers to the local ImageCast Central Workstation.
  - ImageCast Central Workstation: a COTS computer used for ballot image and election rules processing and results transfer to the EMS Datacenter. The ImageCast Central Workstation is COTS hardware which executes software for both image processing and election rules application.

Mark definition: 50% or more of the target area marked consistently provides mark recognition. The manufacturer recommends black ink for marking ballot selections.

Tested Marking Devices: Sharpie brand markers, black ink

Language capability: This voting system supports: Alaska Native, Aleut, Athabascan, Chinese, English, Eskimo, Filipino, French, Japanese, Korean, Spanish, and Vietnamese. Additionally, the following Native American languages are supported: Apache, Jicarilla, Keres, Navajo, Seminole, Towa, Ute, and Yuman.

Democracy Suite™ – System High-level Block Diagram
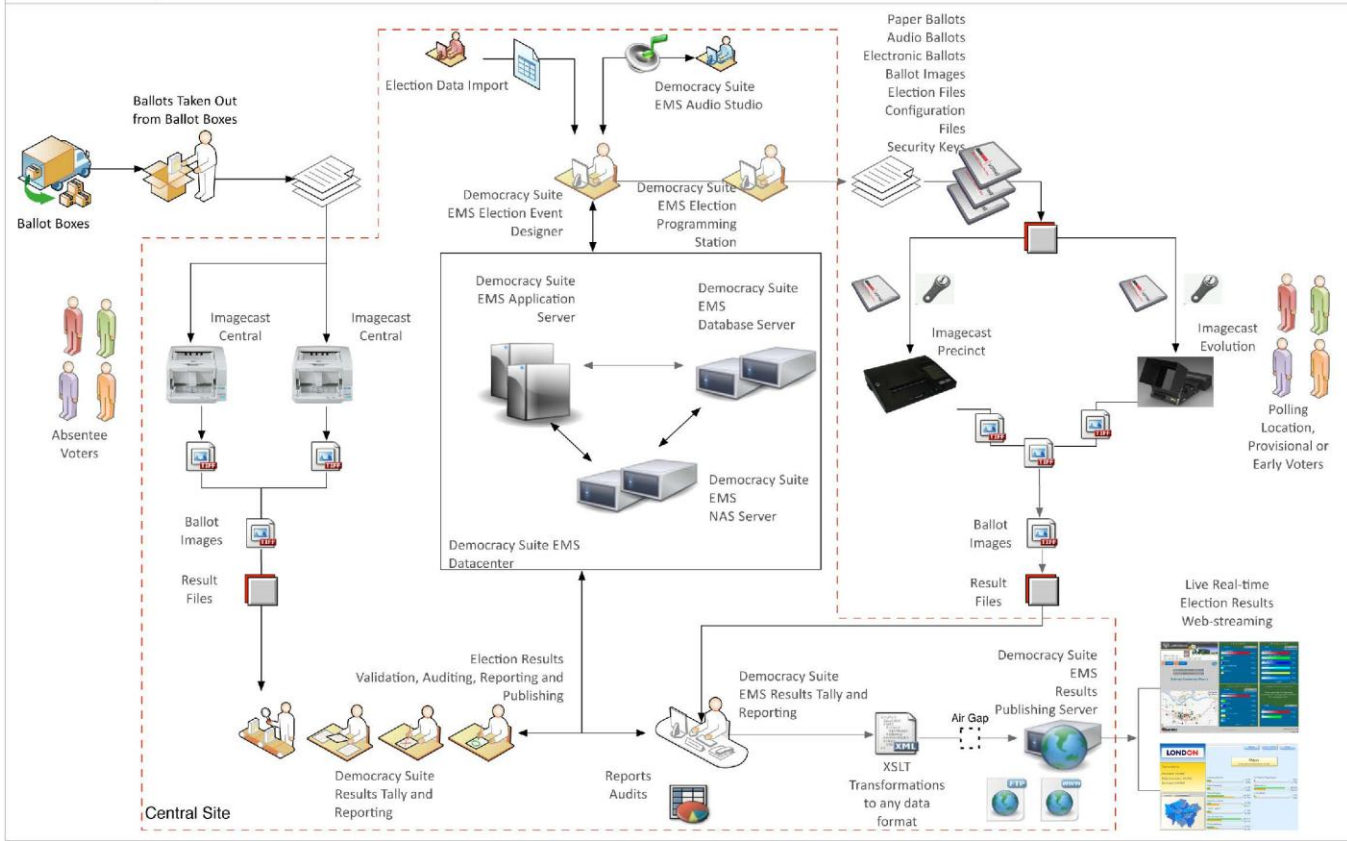
Components Included:

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

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
ImageCast Precinct	4.14.5	320A	uClinux	
ImageCast Precinct	4.14.5	320C	uClinux	
ImageCast Evolution	4.14.10	410A	Ubuntu linux	
ImageCast Central	4.14.4	Canon DR-X10C	COTS	Windows 7
Democracy Suite election management system	4.14.23	N/A (application software)	Windows Server 2008 R2	

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
Server Hardware		Dell PowerEdge R610 or T610	Windows Server 2008 R2	Processor: Intel Xeon E5-2620 2.4 GHz, Memory: 8x 4GB 1333MHz DDR3, Hard Drive Capacity: 2x 500GB
Server Hardware		Dell PowerEdge R620 or T620	Windows Server 2008 R2	Processor: Intel Xeon E5-2620 2.0 GHz, Memory: 2x 4GB 1333MHz DDR3, Hard Drive Capacity: 2x 500GB
Server Hardware		Dell PowerEdge R720 or T720	Windows Server 2008 R2	Processor: Intel Xeon E5-2620 2.0 GHz, Memory: 2x 4GB 1333MHz DDR3, Hard Drive Capacity: 2x 500GB
Client Hardware		Dell Precision T1500	Windows 7 Professional	Processor: Intel Core i7-860 2.8 GHz, Memory: 4x 1GB 1333MHz DDR3, Hard Drive Capacity: 500 GB
Client Hardware		DELL Inspiron 2305	Windows 7 Professional x64	Processor: AMD Athlon II X2 240e2.8 GHz, Memory: 8GB Dual Channel 1333MHz DDR3, Hard Drive Capacity: 1 TB
Client Hardware		DELL Latitude e6530	Windows 7 Professional x64	Processor: Intel Core i5-3210M 2.5 GHz, Memory: 8GB 16000MHz DDR3, Hard Drive Capacity: 500GB
ICC Workstation Hardware		DELL Optiplex 9010 All in One	Windows 7 Professional x64	Processor: Intel Core i7-3770 3.9 GHz, Memory: 8GB 16000MHz DDR3, Hard Drive Capacity: 500GB
ICC Workstation Hardware		DELL Optiplex 9010 All in One	Windows 7 Professional x64	Processor: Intel Core i7-3220 339 GHz, Memory: 4x 1GB 1333MHz DDR3, Hard Drive Capacity: 500GB
NAS disk array		Rocstor Guardian 4RM	COTS	4TB or 8TB size
Additional data storage		Rocstor Commander 2UE	COTS	500GB or 1TB

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
		or Hawker HX		
iButton (SHA-1) with USB Reader/Writer		USB R/W: DS9490R# with DS1402-RP8+ iButton: DS1963S	COTS	MAXIM/Dallas Semiconductor
LCD monitor		DELL 1909W or DELL N445N or DELL 2007PF or DELL E1713S	COTS	
Audio Adapter		Soundwave 7.1 USB Audio Adapter	COTS	
PCI Software	Soundwave 7.1		COTS	
USB software	Soundwave 7.1 USB		COTS	For audio adapter
Network switch		5-Port Switch: D-Link DES-1105 or D-Link DGS-105 8-Port Switch: D-Link DGS-2208 or D-Link DGS-108	COTS	Also can use DGS-108 if 8-port needed
Mouse		Dell or Microsoft	COTS	With rollerball
Keyboard		Kensington, Microsoft, or IBM	COTS	USB enabled
Compact Flash Reader/Writer		SanDisk or GGI Gear	COTS	
Accessible Tactile Interface (ATI)		1.1.0		
Headphones		Sony, Cyber Acoustics, or Radio Shack	COTS	Sony MDR-G45LP; Cyber Acoustics ACM-70; Radio Shack 33-276-01
eSATA PCI card		SIIG, Inc	COTS	eSATA II PCIe Pro Card
Sip and Puff		Origin Instruments or Enabling Devices	COTS	Origin Instruments AirVoter or Enabling Devices #972
Disposable Sip and Puff Mouthpieces		Origin Instruments or Enabling Devices	COTS	Origin Instruments AC-310 or Enabling Devices #970K
Footswitch Pair		Enabling Devices	COTS	#971
Compact Flash cards		SanDisk	COTS	SanDisk SDCFAA or SDCFAB
Machine Tape rolls			COTS	Available from Dominion Voting
Tamper Evident Seals			COTS	Available from Dominion Voting
Ballot Privacy Sleeves		Various lengths to fit the ballot		Available from Dominion Voting
Machine cleaning kit		For ImageCast Precinct, Evolution, and Central		Available from Dominion Voting

System Limitations

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

Characteristic	Limiting Component	Limit	Comment
Ballot positions	The ballot	462	Standard Configuration
Precincts in an election	EMS	1000	Standard Configuration
Contests in an election	EMS	4000	Standard Configuration
Candidates/Counters in an election	EMS	40000	Standard Configuration
Candidates/Counters in a precinct	Tabulator	462	Standard Configuration
Candidates/Counters in a tabulator	Tabulator	10000	Standard Configuration
Ballot Styles in an election	Tabulator	4000	Standard Configuration
Contests in a ballot style	Tabulator	156	Standard Configuration
Candidates in a contest	EMS	462	Standard Configuration
Ballot styles in a precinct	Tabulator	5	Standard Configuration
Number of political parties	Tabulator	30	Standard Configuration
"vote for" in a contest	Tabulator	30	Standard Configuration
Supported languages in an election	Tabulator	5	Standard Configuration
Number of write-ins	The ballot	462	Standard Configuration
Ballot positions	The ballot	462	Express Configuration
Precincts in an election	EMS	250	Express Configuration
Contests in an election	EMS	250	Express Configuration
Candidates/Counters in an election	EMS	2500	Express Configuration
Candidates/Counters in a precinct	Tabulator	462	Express Configuration
Candidates/Counters in a tabulator	EMS	2500	Express Configuration
Ballot Styles in an election	EMS	750	Express Configuration
Contests in a ballot style	Tabulator	156	Express Configuration
Candidates in a contest	EMS	231	Express Configuration
Ballot styles in a precinct	Tabulator	5	Express Configuration
Number of political parties	Tabulator	30	Express Configuration
"vote for" in a contest	Tabulator	30	Express Configuration
Supported languages in an election	Tabulator	5	Express Configuration
Number of write-ins	The ballot	462	Express Configuration

Functionality

2005 VVSG Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
Voter Verified Paper Audit Trails		
VVPAT	N/A	
Accessibility		
Forward Approach	YES	
Parallel (Side) Approach	YES	
Closed Primary		
Primary: Closed	YES	
Open Primary		
Primary: Open Standard (provide definition of how supported)	NO	

Feature/Characteristic	Yes/No	Comment
Primary: Open Blanket (provide definition of how supported)	NO	
Partisan & Non-Partisan:		
Partisan & Non-Partisan: Vote for 1 of N race	YES	
Partisan & Non-Partisan: Multi-member ("vote for N of M") board races	YES	
Partisan & Non-Partisan: "vote for 1" race with a single candidate and write-in voting	YES	
Partisan & Non-Partisan "vote for 1" race with no declared candidates and write-in voting	YES	
Write-In Voting:		
Write-in Voting: System default is a voting position identified for write-ins.	YES	
Write-in Voting: Without selecting a write in position.	NO	
Write-in: With No Declared Candidates	YES	
Write-in: Identification of write-ins for resolution at central count	YES	
Primary Presidential Delegation Nominations & Slates:		
Primary Presidential Delegation Nominations: Displayed delegate slates for each presidential party	YES	
Slate & Group Voting: one selection votes the slate.	YES	
Ballot Rotation:		
Rotation of Names within an Office; define all supported rotation methods for location on the ballot and vote tabulation/reporting	YES	Equal time rotation only in this version
Straight Party Voting:		
Straight Party: A single selection for partisan races in a general election	YES	
Straight Party: Vote for each candidate individually	YES	
Straight Party: Modify straight party selections with crossover votes	YES	
Straight Party: A race without a candidate for one party	YES	
Straight Party: "N of M race (where "N">1)	YES	
Straight Party: Excludes a partisan contest from the straight party selection	YES	
Cross-Party Endorsement:		
Cross party endorsements, multiple parties endorse one candidate.	YES	
Split Precincts:		
Split Precincts: Multiple ballot styles	YES	
Split Precincts: P & M system support splits with correct contests and ballot identification of each split	YES	
Split Precincts: DRE matches voter to all applicable races.	N/A	
Split Precincts: Reporting of voter counts (# of voters) to the precinct split level; Reporting of vote totals is to the precinct level	YES	
Vote N of M:		
Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	YES	
Vote for N of M: Invalidates all candidates in an overvote (paper)	YES	
Recall Issues, with options:		
Recall Issues with Options: Simple Yes/No with separate race/election. (Vote Yes or No Question)	YES	
Recall Issues with Options: Retain is the first option, Replacement candidate for the second or more options (Vote 1 of M)	NO	

Feature/Characteristic	Yes/No	Comment
Recall Issues with Options: Two contests with access to a second contest conditional upon a specific vote in contest one. (Must vote Yes to vote in 2nd contest.)	NO	
Recall Issues with Options: Two contests with access to a second contest conditional upon any vote in contest one. (Must vote Yes to vote in 2nd contest.)	NO	
Cumulative Voting		
Cumulative Voting: Voters are permitted to cast, as many votes as there are seats to be filled for one or more candidates. Voters are not limited to giving only one vote to a candidate. Instead, they can put multiple votes on one or more candidate.	NO	
Ranked Order Voting		
Ranked Order Voting: Voters can write in a ranked vote.	NO	
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	NO	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	NO	
Ranked Order Voting: Voters rank candidates in a contest in order of choice. A candidate receiving a majority of the first choice votes wins. If no candidate receives a majority of first choice votes, the last place candidate is deleted, each ballot cast for the deleted candidate counts for the second choice candidate listed on the ballot. The process of eliminating the last place candidate and recounting the ballots continues until one candidate receives a majority of the vote	NO	
Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.	NO	
Ranked Order Voting: The total number of votes for two or more candidates with the least votes is less than the votes of the candidate with the next highest number of votes, the candidates with the least votes are eliminated simultaneously and their votes transferred to the next-ranked continuing candidate.	NO	
Provisional or Challenged Ballots		
Provisional/Challenged Ballots: A voted provisional ballots is identified but not included in the tabulation, but can be added in the central count.	YES	
Provisional/Challenged Ballots: A voted provisional ballots is included in the tabulation, but is identified and can be subtracted in the central count	NO	
Provisional/Challenged Ballots: Provisional ballots maintain the secrecy of the ballot.	YES	
Overvotes (must support for specific type of voting system)		
Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	YES	Overvotes cause a warning to the voter and can be configured to allow voter to override.
Overvotes: DRE: Prevented from or requires correction of overvoting.	N/A	

Feature/Characteristic	Yes/No	Comment
Overvotes: If a system does not prevent overvotes, it must count them. Define how overvotes are counted.	YES	If allowed via voter override, overvotes are tallied separately.
Overvotes: DRE systems that provide a method to data enter absentee votes must account for overvotes.	N/A	
Undervotes		
Undervotes: System counts undervotes cast for accounting purposes	YES	
Blank Ballots		
Totally Blank Ballots: Any blank ballot alert is tested.	YES	Precinct voters receive a warning; both precinct and central scanners will warn on blank ballots.
Totally Blank Ballots: If blank ballots are not immediately processed, there must be a provision to recognize and accept them	YES	Blank ballots are flagged. These ballots can be manually examined and then be scanned and accepted as blank; or precinct voter can override and accept.
Totally Blank Ballots: If operators can access a blank ballot, there must be a provision for resolution.	YES	Operators can examine a blank ballot, re-mark if needed and allowed, and then re-scan it.
Networking		
Wide Area Network – Use of Modems	NO	
Wide Area Network – Use of Wireless	NO	
Local Area Network – Use of TCP/IP	YES	Client/server only
Local Area Network – Use of Infrared	NO	
Local Area Network – Use of Wireless	NO	
FIPS 140-2 validated cryptographic module	YES	
Used as (if applicable):		
Precinct counting device	YES	ImageCast Precinct and Evolution
Central counting device	YES	ImageCast Central