



**Elections Division
Office of the Secretary of State**

**Report of the Secretary of State on the Examination
of Democracy Suite 4.14-D Voting System**

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Table of Contents

System	1
Application	3
National Certification	3
Testing & Inspection	7
Voting System Accuracy	7
Results Reporting	7
System Limits	8
Ballot Scanning	8
Ballot Processing	8
System Security	9
Physical Security	9
Write-Ins	9
Accessible Voting	9
Ambiguous Marks	10
Conclusion	10

Overview

Application

On January 15th Dominion Voting Systems submitted an application for Washington State Certification of Democracy Suite 4.14-D. Dominion applied to certify the full functionality of all the Democracy Suite which includes Election Management System 4.14.37, ImageCast Central 4.14.17, ImageCase Precinct 4.14.17, and ImageCast Evolution 4.14.21. Copies of operating and maintenance manuals, training materials, technical and operational specifications were provided as part of the EAC's Technical Data Package.

New Voting System

This is a new system to the State of Washington. This system is paper based optical scan voting system with a commercial off the shelf (COTS) scanner.

This system is currently certified in New York, New Jersey, Louisiana, Virginia, Ohio, Tennessee, Missouri, Iowa, Florida, and New Mexico.

National Certification

After the completion of testing by a certified Voting System Test Lab (VSTL) the Election Assistance Commission (EAC) certified Democracy Suite 4.14-D on November 25, 2014. The following hardware and software of the system have been approved by the EAC:

Software Platform Components

Software Required For Testing	Software Version
EMS Election Event Designer (EED)	4.14.37
EMS Results Tally and Reporting (RTR)	4.14.37
EMS File System Service (FSS)	4.14.37
EMS Audio Studio (AS)	4.14.37
EMS Data Center Manager (DCM)	4.14.37
EMS Election Data Translator (EDT)	4.14.37
EMS Application Server (APPS)	4.14.37
EMS Adjudication	2.4.1.3201

Software Platform Third Party Software Components

Software Required For Testing	Software Version
Infragistics NetAdvantage Win Forms 2011.1	2011 Vol.1
TX Text Control Library for .NET	16.0

Client Application Software Components

Software Required For Testing	Software Version
Microsoft Windows 7 x64	6.1
Windows Server 2008 R2 x64	6.1
Adobe Reader	10.1.1
Microsoft .NET Framework 4.0	4.0
Microsoft SQL Server 2008 R2 x64	10.0
Microsoft SQL Server 2008 Express R2 x64	10.50.4000.0
Microsoft SQL Server 2008 R2 SP2x64	10.50.4000.0
Microsoft Visual J# 2.0 Redistributable Package – Second Edition (x64)	2.0
1-Wire Driver version 4.0.3b x64	4.0.3
Java Runtime Environment 6.0 x64	6.0.290
Microsoft Visual C++ 2010 SP1 Redistributable Package(x86)	10.0.40219
Microsoft Access Database Engine 2010 Redistributable	1 (published 12/16/2010)

Hardware

Equipment	Manufacturer	Model	Specifications	Serial Number
EMS Server PC	Dell	PowerEdge T620	Intel Xeon CPU E5-2640 v2@2.00GHz, 32GB RAM, (6) 1 TB (PERC H710 RAID Controller)	J8H9H02
EMS Client PC	Dell	Precision T1700	Intel Core i5-4570@3.2GHz, 8GB RAM, 500 GB HD	4QGQY12
EMS Express Laptop	Dell	Latitude E6540	Intel Core i7-4810MQ@2.8GHz, 8GB RAM, 500GB HD	FRB8H12
High-Speed Scanners	Canon	DR-X10C	Scanning Speeds: 130 ppm and 260 ipm	ED300880
High-Speed Scanners	Canon	DR-G1130	Scanning Speeds: 130 ppm and 260	GF301677, GF300207

			ipm	
ICC Workstation	Dell	OptiPlex 9020	Intel Core i7-4770S@3.1GHz, 8GB RAM, 500 GB HD	4NPL9Z1
ICC Workstation	Dell	OptiPlex 9030	Intel Core i5-4590S@3.0GHz 8GB RAM, 500 GB HD	FYNTY12
USB reader/Writer	Maxim	USB R/W: DS9490R	3	4D027C, 4C9CF5, 514DFD
iButton (SHA-1)	Maxim	DS1963S	2	4CE4C9, 4D064A
ICE external LCD monitor	AOC	E1649FWU	3	D2RE4HA020348, D2RE4HA017467, D2RE4HA017592
LCD Monitor	Soyo	18.5" wide LCD	1	DYLM19R6-KLE-10202
LCD Monitor	Samsung	23" wide LCD	1	MY23HVMS701197B
LCD Monitor	Dell	1909W	4	07E-4EUS, 07F-071S, 07F-06US, 07F-074S
LCD Monitor	Dell	N445N	3	2TWC, 2UOC, 2U6C
Footswitch Pair	--	Kinesis	4	FS-57381-001 thru 004
Audio Adapter	Soundwave	USB Soundwave 7.1 Audio Adapter	2	SW-57381-001, SW-57381-002
PCI Software	Soundwave	Soundwave 7.1 PCI Software	2	n/a
USB Software	Soundwave	USB Soundwave 7.1 Software	1	n/a
Compact Flash Cards	RiData	CFC-14A	50	NTS-assigned numbers: CF-XXX
Compact Flash Cards	RiData	RDCF8G-233XMCB2-1	2	NTS-assigned numbers: CF-XXX
Compact Flash Cards	RiData	RDCF16G-233XMCB2-1	2	NTS-assigned numbers: CF-XXX
Compact Flash Cards	RiData	RDCF32G-233XMCB2-1	2	NTS-assigned numbers: CF-XXX

Compact Flash Cards	SanDisk Extreme	SDCFX-016G	2	NTS-assigned numbers: CF-XXX
Compact Flash Cards	SanDisk Extreme	SDCFX-032G	2	NTS-assigned numbers: CF-XXX
Compact Flash Cards	SanDisk	8 GB	40	NTS-assigned numbers: CF-XXX
Compact Flash Reader	SanDisk	USB	3	0171618, 0201833, 0171631
Compact Flash Reader	GGI Gear	USB	4	CFRW-57381-001 thru 004
Networking Switch	D-Link	D-Link DES-1105 5-Port Switch	1	DRL728A001397
Mouse	Dell	USB w/rollerball	1	G1A00M0M
Mouse	Microsoft	USB w/rollerball	1	X800898
Headphones	Cyber Acoustics	ACM-70	2	DVS23000048,04 9
Sip & Puff	Origin Instruments	Air Voter	7	AV-57381-001 thru 003, 002251, 002268, 002267
UPS for ICC	APC	C1000	1	3S1427X10085
UPS for EMS	APC	C1500	1	3S1425X00415
Build Server	SuperMicro	SuperServer 7045	1	BM-57381-001
ImageCast Precinct (ICP)	Dominion Voting Systems		WLDAFBH0023, WLDAFBH0018, AANAGCP0265	
ImageCast Evolution (ICE)	Dominion Voting Systems		CAFEBDC0015, AAFEBDZ0068, AAFEBC0097, AAFEBEP0003	
ICE Plastic Ballot Box	Dominion Voting Systems		AAUCBEJ0120, AAUCBEG0018, AAUCBEA0043	
ICP Metal Ballot Box	Dominion Voting Systems		BOX-57381-011, BOX-57381- 014, BOX-	

Additional information about software components available in the EAC Test Lab report.

Testing & Inspection

Testing and evaluation of Democracy Suite 4.14-D was conducted by Secretary of State staff at the King County Elections Building in Renton, WA on May 27th. Examining the system for the Office of the Secretary of State was Stuart Holmes, EIS Supervisor. Mike Rooney and Patrick Pow from the Voting System Review Board were also present.

Due to Democracy Suite 4.14-D receiving National Certification from the EAC, a two phase testing program was developed and approved by Secretary of State EIS Supervisor for state certification testing.

Delivery acceptance testing of the equipment and software to determine if the correct model and versions of the equipment and software are delivered and that the equipment, software and system operate as documented by the vendor.

Election Results Testing to ensure that the equipment, software and system perform each of the functions required by federal, state and local law in order to administer an election from the beginning to the end.

A 'vote sim' was triggered on the Democracy Suite accessible voting units to automatically mark and vote a test pattern to simulate someone voting on the unit. This feature was not unique to this test and will be available for use by county staff.

Executive Summary of Findings of Secretary Of State Staff

Voting System Accuracy

Democracy Suite 4.14-D successfully and accurately tabulated all ballots including additional hand marked and manually voted ballots from the accessible voting units. Results were manually audited and reviewed by a team of two.

Results Reporting

Democracy Suite 4.14-D was able to produce the state required reports for election results by precinct and cumulative.

System Limits

Limit (Maximum Number of)	Value (by Configuration)		Limiting Component
	Express	Standard	
Ballot Positions	462	462	22 Inch Portrait Ballot
Precincts in Election	250	1000	Memory
Contests in Election	250	4000	Memory
Candidates/Counters in Election	2500	40000	Memory
Candidates/Counters in Precinct	462	462	22 Inch Portrait Ballot
Candidates/Counters in Tabulator	2500	10000	Memory
Ballot Styles in Election	750	4000	Memory
Contests in a Ballot Style	156	156	22 Inch Portrait Ballot
Candidates in a Contests	231	462	22 Inch Portrait Ballot (Column Span 3)
Ballot Styles in a Precinct	5	5	Memory
Number of Parties	30	30	22 Inch Portrait Ballot
Vote For in Contest	30	30	22 Inch Portrait Ballot
Supported Languages per Election	5	5	Memory
Number of Write-ins	462	462	22 Inch Portrait Ballot

Ballot Scanning

The Democracy Suite system uses Canon high-speed scanners capable of scanning 130 pages per minute. During testing of an 8.5x14 ballot size we experienced a scanning speed of about a ballot per second. If the scanner was used continuously for 8 hours, a total of 28,800 ballots could be scanned by one unit.

During testing we did not need to replace the scanner’s feeder roller but Dominion approximates that the roller would have to be replaced every 20,000 ballots.

Ballot Processing

The system will allow multiple users to adjudicate ballots simultaneously, including in the same batch. This feature will speed up the processing of ballots by county staff. Additionally, user

roles can be restricted so they can only perform certain tasks within the application which will reduce the risk of accidental or intentional changes.

System Security

Windows logs are used to track the use of the PC's by individual users in addition to the Democracy Suite audit logs that can be printed. Another important feature is that every ballot scanned has an audit log attached for easy review of the history of that ballot from scanning to tabulation.

Democracy Suite uses two-step authentication by requiring the user to enter their name and password as well as having a valid 'iButton' connected to the PC.

Physical Security (excerpt from Dominion's security documentation)

The Democracy Suite EMS environment must be physically secured in a locked area with security access controls in place. No access to this area should be permitted to unauthorized personnel. Dominion Voting requires that an access control system is utilized that will automatically log and record each individual's access to the EMS Datacenter environment.

Such systems include the use of electronic passes or biometrics to gain entry into the secure area. In addition, if cameras and/or a cardkey system are not in use, all personnel must be required to sign in and out when accessing the secure Democracy Suite EMS environment area. The access log must include: name, organization, purpose of access, date, time in, time out, and signature. Buildings and rooms within those buildings which contain EMS and ICC installations must be secured. Security for these can include traditional methods such as keys and locks, cardkeys, and surveillance cameras.

Write-Ins

Democracy Suite does allow the user to enter write-in candidates into the system. However, write-in candidates cannot be entered until they have been added to the list of write-in candidates in the system.

Accessible Voting

This version of Democracy Suite allows for the use of existing accessible voting units currently in use in Washington State so that counties do not need to replace the accessible voting units and saving them money.

Ambiguous Marks

Democracy Suite has the ability to adjust the settings on what is an 'ambiguous mark'. Essentially it adjusts the systems sensitivity on what it considers a valid mark. There is no RCW/WAC in place that states a minimum requirement for the 'ambiguous mark' control.

Conclusion

After an evaluation of the system, staff believes the system and its components meet current Washington State requirements for Presidential Primary, Special, Primary, and General Elections.