



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

**Report of the Secretary of State on the Examination  
of Dominion Voting Systems Democracy Suite  
5.5**

**December 6, 2018**

## Table of Contents

System .....	1
Application .....	3
National Certification .....	3
Testing & Inspection .....	4
Voting System Accuracy .....	5
Results Reporting .....	5
System Limits .....	6
Ballot Scanning .....	6
Ballot Processing .....	6
System Security .....	7
Physical Security .....	7
Write-Ins .....	7
Accessible Voting .....	7
Ambiguous Marks .....	8
Conclusion .....	8

## Overview

### Application

On November 14th Dominion Voting Systems submitted an application for Washington State Certification of Democracy Suite 5.5. Dominion applied to certify the full functionality of all the Democracy Suite.

### New Voting System

This is a modification of the previously certified Democracy Suite 5.0 system. This system is a paper-based optical scan voting system with a commercial off the shelf (COTS) scanner. Additionally, the system includes an election management system (EMS) and adjudication software.

Democracy Suite 5.5 was certified in State of Ohio, October 5, 2018.

### National Certification

After the completion of testing by a certified Voting System Test Lab (VSTL), the Election Assistance Commission (EAC) certified Democracy Suite 5.5 on September 14, 2018. The following hardware and software of the system has been approved by the EAC:

#### *Software comprised of:*

- EMS Election Event Designer (EED) 5.5.12.1
- EMS Results Tally and Reporting (RTR) 5.5.12.1
- EMS File System Service (FSS) 5.5.12.1
- EMS Audio Studio (AS) 5.5.12.1
- EMS Data Center Manager (DCM) 5.5.12.1
- EMS Election Data Translator (EDT) 5.5.12.1
- ImageCast Voter Activation (ICVA) 5.5.12.1
- EMS Application Server (APPS) 5.5.12.1
- EMS Adjudication 5.5.8.1
- EMS Application Services 5.5.8.1
- Smart Card Helper Service (SCHS) 5.5.12.1
- ImageCast Central Application 5.5.3.0002
- ICX Application 5.5.10.25
- Election Firmware 5.5.3-0002
- Firmware Updater 5.5.3-0002
- Firmware Extractor 5.5.3-0002
- Kernel (uClinux) 5.5.3-0002
- Boot Loader (COLILO) 20040221

- Asymmetric Key Generator 5.5.3-0002
- Asymmetric Key Exchange Utility 5.5.3-0002
- Firmware Extractor (Technician Key) 5.5.3-0002

*Hardware comprised of:*

- iButton (SHA-1)
- ICX Tablet - Avalue 15" Tablet (SID-15V) & Avalue 21" Tablet (SID-21V)
- ImageCast Precinct (ICP) PCOS-320C
- ImageCast Precinct (ICP) PCOS-320A
- ICX Tablet (Classic) SID-15V
- ICX Tablet (Classic) SID-21V
- ICX Tablet (Prime) HID-21V
- Dell PowerEdge R630
- Dell PowerEdge R640
- Dell Precision T3420
- Dell OptiPlex 7440 All in One
- Dell OptiPlex 9030 All In One
- Dell OptiPlex 3050 All In One
- Canon imageFormula DR-G1130
- Canon imageFormula DR-M160II
- Dell Precision T3420
- Dell Latitude E7450
- Dell Latitude e3480

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

## Testing & Inspection

Testing and evaluation of Democracy Suite 5.5 was conducted by Secretary of State staff at the Elections Division in Olympia, WA on December 6, 2018. Examining the system for the Office of the Secretary of State was Stuart Holmes, Voting Information Systems (VIS) Manager.

Due to Democracy Suite 5.5 receiving National Certification from the EAC, a two phase testing program was developed and approved by Secretary of State VIS Manager 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.

## **Executive Summary of Findings of Secretary of State Staff**

### **Voting System Accuracy**

Democracy Suite 5.5 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 5.5 was able to produce the state required reports for election results by precinct and cumulative. Copies of those reports were printed and exported into flat-files.

## System Limits

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

Characteristic	Limiting Component	Limit	Comment
<b>Ballot positions</b>	The ballot	292*/462**	Both
<b>Precincts in an election</b>	EMS	1000; 250	Standard; Express
<b>Contests in an election</b>	EMS	1000; 250	Standard; Express
<b>Candidates/Counters in an election</b>	EMS	10000; 2500	Standard; Express
<b>Candidates/Counters in a precinct</b>	Tabulator	292*/462**	Both
<b>Candidates/Counters in a tabulator</b>	Tabulator	10000; 2500	Standard; Express
<b>Ballot Styles in an election</b>	Tabulator	3000; 750	Standard; Express
<b>Ballot IDs in a tabulator</b>	Tabulator	200	Both
<b>Contests in a ballot style</b>	Tabulator	38*/156**	Both
<b>Candidates in a contest</b>	EMS	240*/231**	Both
<b>Ballot styles in a precinct</b>	Tabulator	5	Both
<b>Number of political parties</b>	Tabulator	30	Both
<b>“vote for” in a contest</b>	Tabulator	24*/30**	Both
<b>Supported languages in an election</b>	Tabulator	5	Both
<b>Number of write-ins</b>	The ballot	24*/462**	Both

\* Reflects the system limit for a ballot printed in landscape.

\*\* Reflects the system limit for a ballot printed in portrait.

## Ballot Scanning

The Democracy Suite system uses Canon high-speed scanners capable of scanning 130 pages per minute. During testing of an 8.5”x14” length ballot, we observed 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 ballots 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.

This system also allows for keyboard navigation which can speed up Adjudication as well as offer accessible access to election staff with disabilities.

## **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. These logs 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. This version of Democracy Suite also incorporates new security updates. Additionally, system hardening scripts create policies that enforce strong password usage on all Windows-based machines.

The system documentation provides procedures on how the user can check the hash code of the software to verify that the applications have not been modified from their certified versions.

## **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 Systems 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 includes new touch screen accessible voting units. The user interface and experience was very user friendly and wonderfully designed. At the end of the

session, the voter's choices are printed on a machine readable ballot that can be put into the voter's return envelopes and returned into a ballot drop box.

### **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.