Elections Division
Office of the Secretary of State

Report of the Secretary of State on the Examination of a ES&S Unity 3.4.1.0 Voting System

February 2015

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Overview

Application

On January 14, 2015 ES&S submitted an application for Washington State Certification of Unity 3.4.1.0. ES&S applied to certify the full functionality of all the Unity software, the AutoMARK, DS850, M650 and M100. Copies of operating and maintenance manuals, training materials, technical and operational specifications were provided.

Current Voting System

This system is considered an optical scan voting system and contains the Unity software with the AutoMARK, DS850 central count scanner, M650 central county scanner and the M100 precinct tabulator.

This system is currently certified in Alabama, Iowa, Idaho, Kansas, Maine, Minnesota, Mississippi, North Dakota, Nebraska, Ohio, Oregon, South Dakota, Texas, West Virginia, and Wyoming.

Modified Voting System

Unity 3.4.1.0 contains a slight modification to the Unity 3.4.0.0 voting system currently certified in the State of Washington, allowing the currently certified components to run on a Windows Operating System. A list along with description and extent of changes can be found in the Change Notes document.

National Certification

After the completion of testing by a certified Voting System Test Lab (VSTL) the Election Assistance Commission (EAC) certified Unity 3.4.1.0 on April 4, 2014. The following hardware and software of the system have been approved by the EAC:

- *Software* comprised of:
  - Election Data Manager (EDM) v. 7.8.2.0
  - ES&S Image Manager (ESSIM) v. 7.7.2.0
  - AutoMARK Information Management System (AIMS) v. 1.3.257
  - Hardware Programming Manager (HPM) v. 5.9.0.0
  - Election Reporting Manager (ERM) v. 7.9.0.0
  - LogMonitor v. 1.1.0.0

- o Audit Manager v. 7.5.2.0
- o VAT Previewer v. 1.3.2907
- Hardware
  - o M650, Central tabulator, Firmware 2.2.20, Hardware v. 1.1, 1.2
  - o DS850, Central scanner, Firmware v. 2.4.0.0, Hardware v. 1.0
  - o M100, Precinct tabulator, Firmware v. 5.4.4.5, Hardware v. 1.3
  - o AutoMARK Voter Assist Terminal
  - o A100 (H/W/Rev 1.0) v. 1.3.2907
  - o A200 (H/W/Rev 1.1, 1.3) v. 1.3.2907

Testing & Inspection

Testing and evaluation of Unity 3.4.1.0 was conducted by Secretary of State staff at the Election Division in Olympia on February 26th. 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 Unity 3.4.1.0 receiving National Certification from the EAC, a two phase testing program was developed and approved by Secretary of State staff 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.

Stress testing and security audit were not completed as the system uses the same software and hardware currently in use in Washington State. The only changes were upgrades to ballot scanning equipment and small updates to current software. Additionally, the VSTL testing completed security testing and determined the Unity 3.4.1.0 Voting System to be compliant with the security requirements of the EAC 2005 VVSG.

Executive Summary of Findings of Secretary Of State Staff

Voting System Accuracy

A testing environment was setup at the Secretary of State's Election Division with a DS850 central count scanner and a M100 precinct tabulator scanners. 102 ballots were ran through the DS850 and M100 scanners and results were compared to the predetermined testing matrix. An error was found in the testing matrix but the ballots were tabulated correctly by both scanners. The test ballots included write-ins, blank ballots, and overvoted ballots. Each scanner correctly identified each of these ballots.

At each stage of the testing the results were compared to the expected results in the test matrix and no errors or discrepancies were found.

Results Reporting

As ballots are ran through the central count scanners, results are being tabulated. The result reports are not password protected or locked down in Unity 3.4.1.0. WAC 434-250-110 allows optical scan voting systems to begin scanning ballots after 7:00am on Election Day if the county auditor follows a security plan that has been submitted by the county auditor and approved by the secretary of state to prevent tabulation until after 8:00 p.m.. Counties that choose to use Unity 3.4.1.0 would have to have strict procedures in their security plan to prevent the release of election results prior to 8:00pm.

Ballot Scanning

Ballots created using the ballot design software, ES&S Ballot Image Manager, do not include any serial number or identification on the ballot in any way. All ballots for a ballot style are printed from a single PDF file exported from the design software.

The Unity 3.4.1.0 software has no way of distinguishing if a ballot has been previously scanned by the DS850, M650, or M100 tabulators. ES&S recommends teams of 3 to use the DS850 and M650 tabulators (1 staff jogging ballots, 1 staff loading ballots into scanner, 1 staff unloading ballots). In addition to accountability and ballot handling procedures, this 3 person team would help prevent ballots being scanned twice because each staff member only does one activity that takes place on each end of the machine. The staff member unloading ballots would never contact ballots that are being loaded.

Write-Ins

The Unity 3.4.1.0 software has no way of entering individual write-in votes as they are scanned by the tabulators. Only a total county of write-ins is available in the election results. Counties would have to develop a manual process of write-in accounting or review the ballots individually after they are scanned in order to report of writes-ins for declared or undeclared candidates. This is particularly important in the Primary where only 1% of the vote is required to appear on the General Election ballot.

Conclusion

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