

ES&S

The ES&S systems were re-examined in Austin on January 8, 2004. The names and releases of the hardware and software are as follows:

Unity - version 2.4.2 - an election setup, and central accumulator and reporting system.

Unity subsystems:

Audit Manager v- 7.0.2.0
Election Data Manager - v- 7.2.1.0
Optech Image Manager - v- 3.2.0.0
ES&S Image Manager - v - 7.2.0.0
Hardware Programming Manager - v - 5.0.2.0
Data Acquisition Manager - v - 5.0.3.0
Election Reporting Manager - v - 6.4.2.0

Model 650 - firmware v. 1.2.0.0 - optical central-counting scanner
Model 100 - firmware v. 5.0.0.0 - optical precinct-counting scanner
Model 150/550 - firmware v. 5.0.0.0 - optical central counting scanners
Model IV-C - firmware v. 1.06a - optical central counting scanner
Eagle - firmware v. 1.50APS, 1.28 HPS, 1.02 CPS - optical precinct-counting scanner
iVotronic - version 8.0.0.0 - DRE voting machine
Votronic - version 5.19 - DRE voting machine

The examination revealed two serious problems and a few minor problems with the systems:

- An op-scan ballot marked with the pens handed out by the vendor caused a "bleed-through" mark to be counted incorrectly. This reveals a potentially serious problem. The "bleed-through" can cause a candidate on the opposite side of the ballot to lose a vote because the errant mark triggers an overvote.

If the ballot layout is done correctly, the marking positions will be offset so that a "bleed-through" will not be read. However, a ballot may intentionally be designed to cause this problem.

This can be prevented by poll workers issuing voters the correct marking pen. An explicit warning about using pens that can bleed through (e.g. Sharpies) should be part of the documentation. There is no way to guarantee that the wrong pen will not be used (perhaps intentionally) in a precinct. It was the vendor who issued the examiners the wrong pens.

- When the Model IV-C and Eagle ballots were accumulated in Unity, the results were incorrect. It was explained that the ballots were coded for a previous test election. There was no indication of a problem by Unity. The fact the examiners were checking for specific counts revealed the error.

Unity should have detected an election setup mismatch. To prevent this a checksum, CRC or some other code should be coded in the setup. Additionally, an L&A test which has various counts for the candidates would reveal a mismatch.

When Unity was re-programmed to match the Eagle/IV-C ballots, it tallied correctly.

- The Report Manager audit log did not indicate the program was exited, in real-time. Only after the program was restarted did the message print.

- The message on the Unity audit log was inconsistent regarding "replacemode" when loading the results from Model 100 versus the iVotronic.

Conclusion

The "bleed-through" problem is not easy to correct. Explicit warnings about using the correct pens should be communicated to the precinct workers.

The election setup mismatch problem (between Unity and the Model IV-C) could have been prevented procedurally (i.e. a good L&A test with different expected results for each candidate). However, since it occurred at the examination, it indicates the possibility that a good L&A test may not happen. Therefore, the vendor should find a way to prevent an election mismatch programmically.

The second two problems mentioned can easily be corrected.

The systems worked well overall and do meet the standards outlined in the Texas Election Code. I recommend certification for systems but the problems indicated should be addressed before the next examination.

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