

Diebold Election Systems

The Diebold system was re-examined in Austin on January 5, 2005. The system is made up of the following sub-systems. The names and current releases are as follows:

- Accuvote -TSX - version 4.5.2 – DRE voting machine
- Accuvote -TS R6 - version 4.5.2 – DRE voting machine
- Accuvote-OS Central Count- version 2.0.12 – Central count optical scanner
- Gems - version 1.18.22 – Election preparation, central-count tally and reporting system
- VCProgrammer – version 4.1.11

A new feature to the Diebold system is the Accuvote-OS Central Count optical scanner. This is their precinct optical scanner equipped with a hopper so that ballots can be scanned in batches (aka decks). If the device is used to tally a batch of the same precinct's ballots, a "precinct header" card is used. However, the stated intent for this device is to be used for tabulation of early-voting ballots where the ballots are not sorted by precinct. The batch or deck number is assigned using a "ballot header" card. This number identifies the batch.

The Accuvote-OS Central Count optical scanner device worked without error and was tallied and reported by GEMS correctly.

Another new piece to the system is the VCProgrammer. This is a PC-based (typically a notebook computer) system used to program the voter-access smart cards. The VCProgrammer can program a smart card for any ballot style used in the election as well as special features required by the voter such as a provisional ballot, audible or magnified ballot style. If a jurisdiction has purchased the Diebold Voter Registration system, VCProgrammer can interface with it so that when the voter signs in, the election worker will look up the voter in the Voter Registration system and the correct ballot will be assigned automatically to the smart card.

The VCProgrammer worked without error.

Findings

Diebold has not fixed the method used to keep an operator out of the operating system when a central count is being tabulated. A "key" in the Windows registry is used to prevent "escaping to the OS" which would allow un-logged access to the database. The key could easily be removed prior to the election tabulation by anyone with Windows administrator privileges. As stated in my previous report on the system, it would be better to check for the key upon entering the election-night tabulation mode. If the key is not present, it should be restored automatically. The Diebold representative said that they would agree to sell systems in Texas without administrator rights, the rights required to modify the Windows registry. This will be hard to verify so if this solution is allowed, I recommend it be so as a short-term solution only.

Another problem I detected was a lack of detail written to the audit-log when a “deck” was cleared during central-count tabulation in GEMS. A deck is a collection of optical scan ballots (not necessarily from just one precinct), which is read in a batch into GEMS using the new Accuvote-OS Central Count device. The log message indicated that a deck had been cleared but did not identify the deck number. This would be important in the event that the election had to be audited.

Conclusion

Overall, the Diebold system worked flawlessly and handled provisional ballots correctly. The system requires minor changes to the program to correct the problems noted above. I recommend that the changes be demonstrated to a Secretary of State representative prior to certification.

As in my previous report, I recommend that the database be encrypted. Diebold programs that need to read, insert or modify the database can be enhanced to decrypt or encrypt “on the fly”. This is an additional measure to prevent access to the election setup or results data outside the controlled (and logged) access of the Diebold programs.

Tom Watson
Examiner