Electronic Voting Machine Information Sheet

Premier Election Solutions (formerly Diebold) — AccuVote-TSx

Name / Model: AccuVote / TSx[1]
Vendor: Premier Election Solutions (formerly Diebold Election Systems)
Voter-Verified Paper Record Capability: Yes.[2]

Brief Description: The AccuVote-TSx is is a touch screen direct-recording electronic (DRE) voting machine. It is a multilingual voting system activated by a smart card and records votes on internal flash memory. Voters insert a "smart-card" into the machine and then make their choices by touching an area on a computer screen, much in the same way that modern ATMs work. AccuVote-TSx offers a summary page once the voter has sequenced through the entire ballot, giving the voter an opportunity to verify their choices and to vote in any race they missed. The votes are then recorded to internal electronic memory. If the optional AccuVote Printer Module (AccuView) is attached, voters have the opportunity to view a printed ballot under a transparent screen, and compare this paper record with the adjacent electronic summary screen. When polls close, the votes for a particular machine are written to a "PCMCIA card," which is removed from the system and either physically transported to election headquarters or their contents transmitted via computer network. Voter-verifiable paper records are removed from their enclosure in the AccuView housing and likewise transported to election headquarters.

Checking the Voter-Verifiable Paper Trail: If the TSx is equipped with the voter-verifiable paper trail, the printer tape is located to the right of the touch screen, viewable under transparent plastic. Many, but not all, TSx machines in use are equipped with printer module. In Texas, Pennsylvania, Virginia, and Tennessee, the TSx systems are not equipped with the paper-trail printer.

Detailed Process: When the voter enters the precinct, he or she is given a "smartcard" by a poll worker after confirming the voter is registered. A "smart-card" is a card the size and shape of a credit-card which contains a computer chip, some memory and basic data

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[1] See http://www.diebold.com/dieboldes/solutions_management_tsx.asp
[2] With the optional AccuView Printer Module™

Electronic Voting Machine Information Sheet
Premier Election Solutions (formerly Diebold) — AccuVote-TSx

such as the voter's voting language and political party. The voter then takes the smart-card to a voting machine and inserts the smart-card into the machine to allow voting. After using the touch screen to vote, 1) the record of the vote is directly recorded electronically to multiple, internal flash memory cards and 2) the voter's smart-card is reset to ensure that it can only be used to vote once. The smart-card pops out of the machine with a loud "click" and the voter returns it to a poll worker.

If the optional printer module is in use, voting takes place as described above however, at the conclusion of voting, a paper ballot is printed and displayed under a transparent screen in the AccuView housing so that the voter can verify their selections before the ballot is deposited into a container within the printer module to await retrieval by poll workers.

When the polls close, a poll worker or election official inserts a different-type of smartcard, an *administrator* card, into each voting machine and puts the machine into a postelection mode where it will no longer record votes. At this point, the machine writes the votes from its internal memory to flash memory on a "PCMCIA card". The PCMCIA card is merely a removable form of flash memory. A printed tape of all votes cast or vote totals for the voting machine can also be printed out at this time depending on local procedure and regulations.

The PCMCIA cards are taken out of each machine and either taken to a central tabulation facility or to remote tabulation facilities. At the tabulation facility the votes are read out of the PCMCIA cards and into a central computer database where precincts are combined to result in an aggregate vote. For remote facilities, the votes are transmitted to the central tabulation facility via a closed "Intranet", the Internet or modem. The PCMCIA cards and any printouts from the voting machines can then become part of the official record of the election.

What to Look Out For
- VVPAT cover. There is an opaque cover on hinges over the VVPAT viewing window. This cover is intended to give voters with visual impairment a higher degree of ballot privacy since they use the audio ballot and do not use the VVPAT for verification. Unfortunately, this cover can be shut inadvertently or not re-opened after a voter with sight impairment votes. This cover should always be open unless a disabled voter is using the TSx. In fact, the cover can easily be removed from its hinges and re-attached when necessary.

- Memory cards. The TSx is susceptible to viruses transmitted through its memory card pack. Great care should be taken when handling the memory packs. A voter should never touch, remove or otherwise mess with the TSx memory pack. Poll

Electronic Voting Machine Information Sheet
Premier Election Solutions (formerly Diebold) — AccuVote-TSx

workers should only do so after polls have closed and the election closed on each TSx terminal.

- Security seals. Many jurisdictions wisely employ tamper-evident seals to indicate when a machine might have been compromised. These seals look like stickers with serial numbers on them. When removed, they change color or otherwise indicate that the seal is no longer covering the security-sensitive area it was before. To see an example of a seal after it has been removed (thus, voided), see this image: http://www.flickr.com/photos/joebeone/2247733620/ . It is important than any seal that reads "VOID" or similar that is still in place on a machine be reported immediately to poll workers (and then called into the Our Vote hotline listed at the top of the page). Places to expect security seals include over the power switch or "close polls" button, over the memory card or memory card cover and over the case seams (if someone gains access to the internals of a TSx by removing its case they can install their own software on it).

Past Problems

August 2008: *Ohio*. State and local election officials find that when memory cards from TSx machines and from Premier optical scan machines are uploaded to the county server, some votes may not be uploaded."[3] The problem lies in the source code of the GEMS election management server (the "county server") affects almost all of the jurisdictions which use Premier's county server. Premier has advised all of its customers to audit precinct totals and take other steps to avoid uncounted votes.[4]

August 2007: *California.* Following an expert top-to-bottom review of voting systems which finds critical security vulnerabilities in the Tsx, and the Secretary of State disallows the machine's use as a primary voting system.[5]

May 2006: *Ohio.* Voter access card failures, paper jams, and even a missing electrical adapter on the touch screen machines caused election problems. Screen review doesn't match ballot printout. Electronic ballot boxes were lost in two counties.[6]

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[3] "E-voting Vendor: Programming Error Cause Dropped Votes," PC World, August 22, 2008, available at: http://www.pcworld.com/businesscenter/article/150188/evoting_vendor_programming_errors_caused_dropped_votes.html
[4] Advisory from Premier Election Solutions to all customers. August 19, 2008, available at: http://www.votersunite.org/info/premier_pan_081908.PDF
[5] Secretary of State of California, Premier Election Solutions, Withdrawal of Approval/Conditional Reapproval, October 25, 2007. http://www.sos.ca.gov/elections/voting_systems/ttbr/diebold_102507.pdf
[6] See: http://www.votersunite.org/info/dieboldinthenews.pdf

Electronic Voting Machine Information Sheet

Premier Election Solutions (formerly Diebold) — AccuVote-TSx

July 2005: *California.* California. After testing 96 touch screen machines and finding a 10% error rate, Secretary of State Bruce McPherson rejected Diebold's application to certify the AccuVote TSx touch screen with AccuView printer module.[7]

April 2004: *California.* Secretary of State Kevin Shelley decertified all electronic touch-screen voting machines in the state due to security concerns, primarily caused by Diebold.[8]

References:

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"Security Analysis of the Diebold AccuVote-TS Voting Machine ," Center for Information Technology Policy, Princeton University, September, 2006. See http://itpolicy.princeton.edu/voting/. Diebold's response may be found at http://www.diebold.com/dieboldes/pdf/princetonstatement.pdf.

Tadayoshi Kohno, Adam Stubblefield, Aviel D. Rubin, and Dan S. Wallach, "Analysis of an Electronic Voting Machine", *IEEE Symposium on Security and Privacy 2004*. IEEE Computer Society Press, May 2004. See: http://avirubin.com/vote.pdf

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"Risk Assessment Report: Diebold Accuvote-TS Voting System and Processes (redacted)", Science Applications International Corporation SAIC-6099-2003-261, Sept. 2, 2003. See: http://www.dbm.maryland.gov/SBE

"Trusted Agent Report -- Diebold AccuVote-TS Voting System," RABA Technologies, Jan. 20, 2004. See: http://www.raba.com/text/press/TA_Report_AccuVote.pdf

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[7] Id.
[8] Id.