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May 26, 2006

Ms. Ann McGeehan
Deputy Assistant
Office of the Secretary of State
1019 Brazos Street
Austin, TX 78701

RE: Examination of Hart Intercivic voting systems

Dear Ms. McGeehan:

I attended a scheduled re-examination on May 25, 2006, at 9:00 am, for the purpose of examining the voting system from Hart Intercivic. This report summarizes my findings.

Hardware/Software Version	Date Previously Certified
Ballot Origination Software System v4.2.13	October 20, 2005
Ballot now: Paper Ballots v3.2.4	October 20, 2005
eSlate v4.1.3	October 20, 2005
Judges Booth Controller v4.1.3	October 20, 2005
Tally, version v4.2.8	October 20, 2005
Rally, version v2.2.4	October 20, 2005
eCM Manager v1.1.7	October 20, 2005
SERVO v4.1.6	October 20, 2005
eScan v1.2.0	October 20, 2005
VBO (Verified Ballot Option) 1.7.5	N/A

Collectively all these components are referred to as System 6.1. Note that version 6.0 was not submitted for certification earlier.

Most of the upgrades in this version were minor. They include things such as support for graphics on the ballot, enhancements to security, and feature enhancements to the VBO, Hart's implementation of the Voter Verified Paper Audit Trail (VVPAT). Many of the upgrades were specific features required by other states.

Review of issues in prior elections

Before examining the system, the vendor provided explanation of four glitches and/or bugs that occurred in Hart systems since the prior examination. Two of the reported problems appear to be user errors occasioned by lack of training or lax procedures. A series of rough spots in Galveston County was caused by problems with the paper ballots themselves rather than the Hart equipment.

A more visible problem was caused by improper use of Fusion, a utility reporting program produced by the vendor. Fusion allows jurisdictions to combine tallies of votes by different vendors' systems to produce one unified report. The vendor describes it as a "glorified spreadsheet."

Because it is not a part of the actual voting system, and combines reports produced by other vendors' systems, Fusion is not considered part of System 6.1 that is to be certified.

The discussion of Fusion also ignited an extended exchange between the vendor and examiners about the nature of data exchange among different vendors' systems. Hart has proposed an XML standard for voting data to an IEEE technical committee, but it has received lukewarm reception among Hart's competitors.

A key recommendation among some Texas examiners has been that the state or a national group develop a vote tallying system that is independent of any vendor, is maintained at the state or national level, and is open source so that it can be publicly examined and proved to be accurate. In this scenario, voting system vendors would be required to use the tally software, or export their voting data in a standard format (e.g. XML) so that a jurisdiction could use the standard tallying software independent of the voting systems used to collect the votes.

SERVO

The functions provided by SERVO still appear to be far ahead of its competitors. Many of the features would seem to appeal to individuals and groups who are asking for more oversight of and accountability for electronic systems. Thus it is strange that such groups do not routinely request public access to information such as the consolidated audit logs provided by the program.

eScan

The eScan product has been slightly enhanced by providing the ability to capture images of write-in boxes and send them directly to Tally. This allows central office personnel to resolve write-ins much more quickly on screen rather than having to use paper ballots. It was also necessary to enhance Tally to use this functionality.

At the prior exam, eScan generated some discussion about a small utility the vendor uses internally to clear votes off of voting machines for testing and for demonstrations such as this examination. The existence of this utility creates a small chance that an unauthorized person with access to the program could cause a significant amount of mischief in a local jurisdiction. The utility has since been discontinued by the company and its function is now done through Servo so all actions are logged and require password and security keys.

eSlate

The eSlate has been modified to allow multiple font sizes. This allows jurisdictions to put more information on screen for the voters. However, the voter cannot change the font size at voting time. Other vendors have demonstrated products that allow the user to

change fonts. Thus it is suggested that this functionality be included in a future version of eSlate.

During the examination it was noted that the JBC tracks all eSlates attached to it. However, each eSlate considers itself to be an island. It does not know anything about any other devices in the chain except for the JBC. Thus in the unlikely event that a JBC and one or more eSlates are lost or stolen, there would be no electronic record of votes on the lost machines. Indeed, there would be no evidence on the remaining eSlates that there were ever any other devices attached except the missing JBC.

This is an extreme scenario, but it has been addressed successfully in other, similar situations. So this examiner requests the vendor evaluate this risk and provide more information about how the JBC/eSlate system would handle such a failure.

VBO

The VBO is Hart's implementation of the Voter Verified Paper Audit Trail (VVPAT). The vendor modified the current eSlate voting booth to accommodate a self-contained sealed module for printing a VVPAT. Each module contains a printer and a roll of thermal paper large enough for a full day's voting in all but the most extreme circumstances. The paper is wide enough to allow the system to use large, easily readable fonts.

The staff at a polling place does not have access to the paper or printer inside the module, nor do they need such access. If a module does run out of paper, it is a simple process to remove the module and plug in another one.

While Texas does not currently require a VVPAT, existing eSlate systems can be retrofitted with the printer. This unit appears to be well-designed for security, reliability, and usability, and is very likely the best of breed at this time.

Results of the examination

The voting test did not uncover any anomalies in counting votes and the user interface.

The few new features that were introduced appeared to work as advertised, and to increase the systems' usability and security.

DIR finds no objections to certifying the system itself as presented at this examination.

Respectfully,

Nick Osborn
Systems Analyst