



**CERTIFICATION OF A CENTRAL COUNT DIGITAL SCAN SYSTEM AND  
DIRECT RECORDING ELECTRONIC VOTE TALLYING SYSTEM**

In May 2006, Hart InterCivic requested the review and examination of a digital scan electronic vote tallying system and a direct recording electronic system under RCW 29A.12.020, 29A.12.080 and WAC 434-333-107.

As the federal independent testing authority qualified the eSlate DAU as meeting all standards of the FEC 2002 requirements, the Secretary of State also certifies it as capable of meeting the disability access requirements in Help America Vote Act Section 301.

This version of the system, consists of:

- *Hardware* comprised of:
  - eSlate, Precinct Voting Machine (DRE), ver. 4.2.13,
  - Judges Booth Controller (JBC 1000) device, ver. 4.2.13,
  - eScan firmware v.1.3.14,
  - VBO Firmware, v.1.8.3,
  - Mobile Ballot Box (MBB); PCMCIA flash memory card
  
- *Software Version 6.2.*, comprised of:
  - Ballot Now; version 3.3.11
  - BOSS; version 4.3.13
  - Rally; version 2.3.7
  - Tally; version 4.3.10
  - SERVO; version 4.2.10
  - Boss Util. 2.4.14

Having met all requirements of Washington State law, the Office of the Secretary of State hereby certifies the system as a central count digital scan vote tallying system and polling place based direct recording electronic system, and approves it for use by County Governments of the State of Washington when used in compliance with the procedures contained in this certification, the accompanying Report and Findings, and Washington State law.



Certified on this July 17, 2006

  
SAM REED  
Secretary of State

## SECRETARY OF STATE STAFF REPORT ON THE EXAMINATION AND EVALUATION OF AN ELECTRONIC VOTE TALLYING SYSTEM

In May 2006 Hart Intercivic Voting Equipment of Colorado requested the review and examination of an electronic system under RCW 29A.12.020 and 29A.12.030. The hardware and software for this system are marketed under the name Hart System 6.2. The Software that administrates the election definition and election results components of the system is the Hart System 6.2, an upgrade of the previously certified version System 6.1. The hardware components include the eSlate DRE, Firmware Release 4.2.13 with VBO (1.8.3), the JBC Activator, Firmware Release 4.2.13, and the eScan digital scan precinct counter, Firmware Release 1.3.14.

### **eSlate DRE**

The eSlate is a poll-site based, direct recording electronic (DRE) voting device with a rotary wheel interface which allows the voters to scroll through the screen and highlight their choices. Once highlighted, the voters hit the 'Enter' button to record their choices. The eSlate also provides a voter verified paper audit trail (VVPAT), an audio ballot with headphones for voters with visual disabilities, as well as an interface for tactile pads/sip'n'puff devices. The eSlate also comes with a stand that allows wheel chair access to the device.

At a poll site JBC activator device is used by the poll workers to issue a four digit code for each voter. The code will activate the correct ballot type when the voter enters the code into a eSlate device connected to the JBC. As part of the vote processing and ballot saving, the code is deactivated when the voter casts his or her ballot and cannot be reused.

The results cartridge Mobile Ballot Box (MBB), a reusable Flash ROM memory cartridge based upon the PCMCIA interface, is used to store and transfer the poll site specific election and definition, ballot types and the primary copy of the election results for that device. Cast ballot records are stored in three locations; on the MBB (primary copy), JBC (backup), and the eSlate (original)..

### **Optical Scan**

BallotNow software is used in a central count environment on a personal computer with commercial off-the-shelf scanners to capture a digital image of both sides of ballots scanned in batches to a personal computer. The BallotNow identifies and highlights ballot issues, such as overvotes, blank ballots, and damaged contests to be resolved by an election worker. Once all the ballots in a batch have been resolved, the ballots can be written to an MBB to be counted on the Tally system. The BallotNow software can also be used to print paper ballots on a laser printer.

The eScan is a precinct-based digital scanner that scans paper ballots at the polling place. It provides for second chance voting by returning ballots that are either read as blank ballots or have overvoted contests. The voter may either fix the ballot or force the scanner to accept the ballot as cast. Election contest definitions and ballot images are stored in a removable MBB device sealed in the eScan.

### **System 6.2 Software**

The Hart 6.2 BOSS software is menu driven and allows the user to describe all aspects of an election. In preparation for ballot counting, the user enters office descriptions, positions, precinct combinations, ballot types, and any statistical information such as registered voter totals. The BOSS software is used to produce and download the precinct specific programming onto the MBBs used to interpret ballots on the BallotNow computer, JBC eSlate, and eScan devices.

A personal computer running the Hart 6.2 Tally System serves as the central accumulator for countywide results. The Tally software accumulates the precinct, district, and candidate totals by tallying the ballot images uploaded from the MBBs. It provides for a variety of election result reports; including, cumulative, precinct, and abstract/canvass reports.

There is no telephonic communication feature at this time.

An electronic vote tallying system must meet the following requirements (as set forth in WAC 434-335-040) in order to be approved for use in Washington State:

1. Secures to the voter secrecy in the act of voting;
2. Permits the voter to vote for any person for any office and upon any measure that he or she has the right to vote for;
3. Permits the voter to vote for all the candidates of one party or in part for the candidates of one or more other parties;
4. Correctly registers all votes cast for any and all persons and for or against any and all measures;
5. Except for functions or capabilities unique to this state, has been tested and approved by the appropriate independent testing authority approved by the United States election assistance commission.
6. Correctly counts votes on ballots on which the proper number of votes have been marked for any office or issue;
7. Ignores votes marked for any office or issue where more than the allowable number of votes have been marked, but correctly counts the properly voted portions of the ballot;
8. Accumulates a count of the specific number of ballots tallied for each precinct, total votes by candidate for each office, and total votes for and against each ballot measure on the ballot in that precinct; and
9. Produces precinct and cumulative totals in printed form.
10. Be capable of being secured with lock and seal when not in use;

11. Be secured physically and electronically against unauthorized access;
12. Not be connected to, or operated on, any electronic network including, but not limited to, internal office networks, the internet, or the world wide web. A network may be used as an internal, integral part of the vote tabulating system but that network must not be connected to any other network, the internet, or the world wide web; and
13. Not use wireless communications in any way.
14. A remote tabulating system must be able to create a disk, paper tape, or other physical record of ballot results prior to a telephonic transmission of results.

Testing and evaluation Hart System 6.2 with the eSlateDRE and eScan precinct counter was conducted by Secretary of State staff, June 12, 2006 in the Secretary of State's office at 520 Union in Olympia, WA. Examining the system for the Office of the Secretary of State was Paul Miller, Elections Information Manager. Also participating in the examination were representatives from Hart Intercivic and several county auditors. The vendor made a presentation of the Hart 6.2 Election Data System and test elections were conducted using groups of test decks prepared at the direction of the Office of the Secretary of State and other ballots prepared by the examiners.

## FINDINGS OF THE SECRETARY OF STATE

The primary change from the previously certified version of Hart, System 6.1, is the support for Washington's consolidated ballot used in partisan primaries. The staff test plan included several functional tests to ensure that the system would respond to voter choices in accordance with state law. The system correctly responded to all functional tests.

The staff testing found a minor issue with the audio ballot when used in conjunction with partisan primary on the eSlate. After selecting a party preference and voting the party choices, the audio ballot had to be advanced through an extra message before proceeding to non-partisan portion of the ballot. This issue, while having the potential for some voter confusion, did not impact the recording or accuracy of the vote in any way.

The Hart System with the eSlate DRE has been successfully used in Yakima County and Skamania County for two years, as well as widely throughout the nation. While the system and its components' reliability and accuracy have not been brought into question, the manual recount in the 2004 governor's revealed that votes on 25+ ballots in a single precinct were recorded as undervotes. The subsequent investigation showed that the error was due to human error in resolving the contests due to inexperience with the system. The system should always have the 'Auto-resolve damaged contests' set off.

Hart counties must add the VVPAT printer to their DREs and upgrade their firmware and software to Hart System 6.0/6.1/6.2 in order to comply with state and federal requirements.

There are now twenty counties in Washington using the Hart system. All current Hart counties are vote by mail counties with the exception of Island County and will be using the eSlate DRE with VVPAT solely to provide disability access to the voting process.

Some concerns have been raised about the ability of a person with visual disabilities to use the VVPAT features of the eSlate DRE. The system does not provide a mechanism that allows the VVPAT to be verified by a person with visual disabilities. It does however produce the paper record simultaneously with the audio review of the ballot and allows the voter to verify his/her choices prior to recording the ballot. It is the understanding of staff that this meets the criteria of the Help America Vote Act as interpreted by the Department of Justice when the paper record is used to audit the machine.

A voter who uses an incorrect marking tool to mark the ballot can create a problem. The equipment will not read a range of red ink. Inspection should be performed on each ballot to insure that black ink, or an ink or pencil that provides

high contrast with the ballot color, was used by the voter in marking the ballot.

Additionally, the BallotNow software only scans the response areas next to the candidate name looking for votes. If a voter marks the ballot in a manner inconsistent with the function of the system (for example, they mark the ballot by circling candidate names), the system will fail to record an otherwise valid vote. A visual inspection of each ballot looking for odd marks and duplicating ballots where necessary will solve this issue.

The test and material review could not establish that the provisional ballot feature functions in a manner consistent with RCW and state practice for provisional ballots. The eSlate provides a feature of convenience that allows a provisional ballot to be cast and optionally included in the election results after review by the elections staff. Provisional ballots are part of a “fail safe” process that allows an individual to cast a ballot in situations where poll workers are unable to establish the individual’s eligibility. The ballot is counted only after election staff is able to determine if the individual is eligible to vote on the ballot contests.

After an evaluation of the system as upgraded and a review of the accompanying documentation, staff believes the system and its components continue to meet current Washington State requirements as outlined in WAC 434-335-040. The documentation accompanying the application for certification shows the system with upgrades has been fully reviewed by federally approved independent testing authorities prior to receiving NASED certification.

At this time, Hart System 6.2 has been tested and certified in Ohio, but has not been issued a NASED number.

After review of the successful completion of the ITA reports, our office has provisionally authorized Hart to proceed with training and installation of System 6.2 with the twenty Washington counties in time to meet the partisan primary deadlines.

## SECRETARY OF STATE STAFF RECOMMENDATION

Staff recommends the Hart System 6.2 with the eSlate DRE and eScan precinct digital scanner be fully certified for use in Washington State, pending completion of the EAC review of the ITA tests, namely the receipt of a NASED/EAC number.

Staff recommends the following procedures be required in conjunction with the Hart System 6.2 to assure proper tallying and results:

The system may be used as a central counting system if each ballot is manually inspected before tabulation. The inspection should look for improperly marked ballots, and ballots marked with non-standard marking colors.

The system must always set the 'Auto-resolve damaged contests' to off. This allows the election workers to correctly resolve votes in contests where an anomaly may have obscured the candidate response areas.

Counties using this system must maintain a regular program of maintenance of the scanner consistent with the manufacturer's recommendations. The counties must also review precinct election results during the canvassing period to detect anomalies. This is required of all systems used in the state.

The Mobile Ballot Box (MBB) memory cartridge must be treated with the same accountability and security practices that are employed with unvoted and voted paper ballots.

The user county will not use the systems' provisional voting feature and will continue to provide a paper ballot to voters in situations that call for a provisional ballot.

The design of the eSlate and Washington State law allow the user county to employ the eSlate as an 'early voting' system. 'Early voting' refers to voters who cast a ballot on the eSlate prior to the election date. Conceptually this is the same as a voter picking up and casting an absentee paper ballot at the county elections office prior to an election.

The eSlate may be used as an 'early voting' system provided the following procedures are used to comply with the requirements of Washington State law:

- The security safeguards applied to the eSlate are consistent with those used to protect returned absentee ballots.
- Access to the eSlate is controlled. The device must remain in plain view of the office at all times during working hours and under lock and seal after business hours.
- The eSlate voter must sign the same oath an absentee voter does and the user county must maintain a log of all 'early' voters with the voters' signatures.

- The county must be able to determine that the voter has not yet voted prior to voting on the eSlate and must be able to update their records so that any mail ballots returned by the voter will be rejected.
- The poll books must be marked with an indicator that warns the poll worker to issue a provisional ballot to a voter at the polls who has voted early.
- It is also recommended that the user county keep a record of the number of votes cast each evening when they close the eSlate and confirm the number of votes on the device when opening the device the next morning. It is further recommended that the JBC Activator be kept separate from the eSlate after hours.

The user counties, in conjunction with Hart, will provide instructions to the voter to eliminate any potential for confusion with the audio partisan primary ballot on the eSlate.

It is recommended the canvassing board of any county using this system adopt written procedures governing these processes. This equipment should be used with a device or devices capable of suppressing current surges, voltage fluctuations, and any other line disturbances.