

# Voting System Use Procedures for California

## **Hart Voting System 6.2**

These procedures have been adopted by the Secretary of State pursuant to Elections Code sections 19100 and 19205 and shall regulate and govern the use of the Hart Voting System at all elections governed by the California Election Code.

These procedures shall be effective beginning July 2006 and shall be used in conjunction with all other statutory and regulatory requirements. Insofar as feasible, all procedures prescribed herein shall be carried out in full view of the public.

These procedures constitute a minimum standard of performance. They are not intended to preclude additional steps being taken by individual election officials to enhance the security and reliability of the electoral process.

# Change History

Version	Date	Description
A	11-11-02	Initial Release
B	2/19/03	Addition of Multilanguage, SERVO System, tabulation and records retention, and recount procedures.
C	12/2/03	Addition of Rally application
D	12/9/03	Added section 9.4.3 under Operational Security
E	9/9/04	Changes to security to support System 3.4
F	9/20/04	Addition of JBC Tally Report posting requirement
G	07/27/05	Re-structured to meet California Voting System Use Procedure template
H	12/09/05	Updated for System 6 and VBO (Verified Ballot Option)
I	02/19/06	Updated for review comments from Bruce McDannold, State of CA for System 6.1
000255 rev A	05/22/06	Update Title to reflect system 6.2
000255 rev B	06/22/06	SW app. Versions for system 6.2 Section 2.2 paper and printing specifications, printing of Ballot Key on VBO can now be disabled in BOSS 4.3 by the jurisdiction.
000255 rev C	07/31/06	Edits from California Election official Bruce McDannold.

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## 1 Introduction

The Hart Voting System is a completely integrated suite of products that offers the most streamlined and efficient method for conducting and reporting elections.

The Hart Voting System automates the balloting and tabulation process using a suite of hardware and software products. The eSlate and eScan systems and their components provide central, regional, and precinct tabulation, as well as complete reporting and auditing.

The system is bracketed by the ballot definition and tabulation functions. The Ballot Origination Software System, BOSS, provides the user the means to enter jurisdictional and election specific information. The tabulation function is support by Tally that accumulates the Cast Vote Records (CVRs) from components of the system that interface with the voter. These voter interface components consist of the eSlate and paper ballots printed with Ballot Now.

### 1.1 Hart Voting System

The Hart Voting System has these major components:

- Hart Election Management System software applications
- eSlate System devices
- eScan System devices

#### 1.1.1 Hart Election Management System

- Ballot Origination Software System™ (BOSS) Ver. 4.3.13  
The software application that creates a BOSS Election database for an election in order to generate ballot styles and write Mobile Ballot Box (MBB) and Audio cards for use in voting devices and for printing paper ballots.
- Ballot Now™ Ver. 3.3.11 (the paper ballot system, not required for DRE)  
The software application that prints an Election's paper ballots on demand. The voted ballots can be digitally imaged by Ballot Now or an eScan to extract the cast vote records (CVRs) for delivery to the Tally application.
- Tally™ System (Tally) Ver. 4.3.10  
The software application that reads and tabulates Election results from the CVRs on MBBs.
- SERVO™ Ver. 4.2.10  
The System for Election Records and Verification of Operations software application, which backs-up CVRs and audit logs from an Election's voting devices and resets voting devices for use in a new Election.
- Rally™ Ver. 2.3.7  
The software application that reads, stores, and transfers CVRs from MBBs via local area network or modem connection to a PC running the Tally application to provide unofficial results from remote locations.
- eCM Manager Ver. 1.1.7 (security key application used by Hart InterCivic to generate signing keys)  
The software application that manages secret keys and PINs for the eSlate Cryptographic Module (eCM).

**1.1.2 eSlate System devices**

- Judge’s Booth Controller™ (JBC) Ver. 4.2.13

The console device for controlling up to 12 eSlate/DAU voting devices. The JBC requires an Election MBB when it is used to generate access codes for the voters.

- eSlate™ Ver. 4.2.13

The DRE voting device that connects to the JBC and presents the ballot to the voting public without audio and records their selections.

- DAU eSlate Ver. 4.2.13

The DRE voting device consisting of an eSlate fitted with additional hardware capable of accepting input from tactile input (jelly) switches or a sip-and-puff device, of reading an Audio card, and of playing audio files through headphones.

- VBO (Verifiable Ballot Option) Ver. 1.8.3

The VVPAT (Voter Verifiable Paper Audit Trail) device that can be connected to an eSlate voting unit inside the voting booth in order to print a paper record of every ballot cast through the eSlate.

- Mobile Ballot Box™ (MBB)

A PC Card (flash card) created by BOSS that carries ballot style information to voting devices and stores CVRs for delivery to the Tally application.



**1.1.3 eScan System devices**

- eScan Ver. 1.3.14

A self-contained voting terminal that scans, decodes, and tabulates results from hand-fed election or absentee paper ballots that were printed by the Ballot Now software application and stores CVRs on an MBB

- Mobile Ballot Box

A PC Card (flash card) created by BOSS that carries ballot style information to voting devices and stores CVRs for delivery to the Tally application.



**1.2 Terms and Definitions**

<b>BOSS</b>	Ballot Origination Software System
<b>CVR</b>	Cast Vote Record. An electronic version of a voted ballot cast in the eSlate System and eScan System that contains the information on how contests were voted. In Ballot Now, contains information on how contests were voted, including any resolutions that were needed during the resolve process.
<b>DRE</b>	Direct Recording Electronic
<b>JBC</b>	Judge’s Booth Controller
<b>MBB</b>	Mobile Ballot Box
<b>PCMCIA</b>	Personal Computer Memory Card International Association
<b>SERVO</b>	System for Election Records and Verification of Operations
<b>TRANS</b>	Translation, Recording, and Audio Normalization System
<b>VBO</b>	Verifiable Ballot Option

## 2 Ballot Definition

### 2.1 Overview

Ballot layout for eSlates and paper ballots is performed in BOSS as part of the election definition process.

- Paper ballots are generated for printing through the Ballot Now application using an MBB from the Election.
  - Printing of ballot serial numbers on paper ballots must be turned off in Ballot Now before any ballots are printed.
  - Paper ballots may be printed directly from Ballot Now or saved to files for printing by a California certified third-party printer. PostScript print drivers are set to download all soft fonts. Files provided to a Printer are in PostScript file format.
- Ballot stock used for paper ballots must meet the specifications described in Section 2.2 and Section 2.3.

NOTE: Jurisdictions using Ballot Now to generate and print ballots in an election must be certified by the Secretary of State as ballot finishers under Section 20220 of Title 2, Division 7 of the California Administrative Code.

### 2.2 Paper and Printing Specifications

#### 2.2.1 Paper Ballots

Paper ballot dimensions are set in BOSS.

Paper stock for printed ballots is specified in California Election Code §13002, which describes tints and watermarks required for each election.

Paper ballot stock may only be purchased from a CA certified ballot finisher or manufacturer, after issuance of a release by the Secretary of State.

Consider paper weight and postage when selecting paper ballot dimensions. Hart secure watermarked paper with the lower left corner cut 3/8", 70 lb. offset is recommended. If the ballots have stubs on the bottom, the same paper with the upper left corner cut 3/8" is recommended. Also order envelopes compatible with ballot paper size.

Printing specifications for printing ballots from Ballot Now are described in the following Hart InterCivic documents:

- *Ballot Now Ballot Printing Specification 6000-261 Rev. A*
- *Digital Ballot Printing Specification 6000-297 Rev. B*

#### 2.2.2 Paper for the VBO

The VBO requires a roll of archival quality thermal paper with three low reflectance black stripes across uncoated width of paper at 16 feet from end of roll for the end-of-roll sensor.

Environmental storage requirements for this thermal paper are:

- Relative humidity: 45% – 65%
- Temperature: 40 to 77 °F (5 to 25 °C)
- In absence of:
  - Extended exposure to office and direct sun light
  - Exposure to water, other fluids, or fumes

##### 2.2.2.1 Thin Paper

Width: 4.37 inches

Core inside diameter: 0.45 inches

Length: 305 feet

Thickness: 2.0 mil

Shelf life: 20 years

#### **2.2.2.2** Thick Paper

Width: 4.37 inches

Core inside diameter: 0.45 inches

Length: 250 feet

Thickness: 2.4 mil

Shelf life: 10 years

### **2.3** Layout Requirements and Specifications

Layouts for the Hart System 6.2 ballots, including physical ballot sheet size for paper ballots, are defined in BOSS by selecting one or more templates before the data file for the MBB is generated. Templates contain the language and the number of columns for the electronic and paper ballots, and the paper size for the paper ballots.

#### **2.3.1** eSlate Layout

The options for High Contrast and large fonts must be enabled for jurisdictions using the eSlate voting devices. When BOSS generates layouts for the eSlates, all ballot styles are created for each eSlate template selected.

#### **2.3.2** Paper Ballot Layout

The BOSS template paper sheet dimensions govern the ballot portion of the paper ballot. If ballots will have stubs, the stubs are included through the Ballot Now application. When BOSS generates layouts for the paper ballots, a special Ballot Now polling place is created that contains all ballot styles.

#### **2.3.3** VBO Printout Layout

For the VBO printout layout, the printing of the Ballot Key must be disabled in BOSS. BOSS automatically configures the remaining layout of the VBO printout.

## **3** System Installation and Configuration

### **3.1** Hardware Requirements and Specifications

#### **3.1.1** BOSS Hardware Requirements

BOSS runs on Windows 2000 Professional, Service Pack 3. Various third-party drivers for PCMCIA slots are required for installation. The installation of a third-party database is required. Third-party software is also used for print preview functions.

BOSS is capable of running on any standard PC with the following minimum system configuration.

- 1 GHz Pentium 4 system processor
- 512 MB of RAM
- One (1) 40 GB Hard disk
- CD-ROM drive
- Laser or ink jet printer

- 1 USB Port
- Parallel interface to support report printer
- Monitor screen resolution set to 1024 x 768 or higher
- 1 or more ATA flash card drives
- One (1) Spyrus USB security key provided by Hart InterCivic and USB port

Recommended hardware configuration:

- 2 GHz Pentium 4 processor
- 1G of RAM
- 1280X1024 screen resolution
- 12/24 GB DAT Tape Drive or CD/RW drive
- One (1) non-interruptible power supply (UPS) (for the event of a power outage) capable to power the computer for sufficient time to stop the current process in the application and shut down the computer.
- All else configured as described above.

### 3.1.2 Tally Hardware Requirements

Tally runs on Windows 2000 Professional, Service Pack 3. Various third-party drivers for PCMCIA slots are required for installation. The installation of a third-party database is required.

Tally is capable of running on any standard PC with the following minimum system configuration.

- 1 GHz Pentium 4 system processor
- 512 MB RAM
- 1024 x 768 display resolution, High color (16 bit)
- 30 GB hard drive
- R/W CD drive
- 1 or more ATA flash card drives
- Standard Parallel port to support real-time audit log
- 1 USB Port
- Parallel interface to support report printer
- Audit line printer
- Report printer
- Communication Port
- One (1) Spyrus USB security key provided by Hart InterCivic and USB port

Recommended hardware configuration:

- One (1) non-interruptible power supply (UPS) (for the event of a power outage) capable to power the computer for sufficient time to stop the current process in the application and shut down the computer.
- All else configured as described above.

### 3.1.3 Rally Hardware Requirements

Rally runs on Windows 2000 Professional, Service Pack 3. Various third-party drivers for PCMCIA slots are required for installation. The installation of a third-party database is required.

- TCP/IP Networking Protocol
- Tvich

- ASA 7.0 ODBC drivers

Rally is capable of running on any standard PC with the following minimum system configuration.

- 733 MHz processor
- 512 MB RAM
- 20 GB free hard drive space
- 1 Parallel port
- 1 USB Port
- 1 or more ATA flash card drives
- 1 External communications interface:
- 1 Network Interface Card
- 1 Serial port + 1 external modem
- 1 Internal modem card
- Audit line printer
- Report printer
- One (1) Spyrus USB security key provided by Hart InterCivic and USB port

Recommended hardware configuration:

- One (1) non-interruptible power supply (UPS) (for the event of a power outage) capable to power the computer for sufficient time to stop the current process in the application and shut down the computer.
- All else configured as described above.

### **3.1.4 SERVO Hardware Requirements**

SERVO is capable of running on any standard PC with the following minimum system configuration.

Windows 2000 Professional, Service Pack 3. Various third-party drivers for PCMCIA slots are required for installation. The installation of a third-party database is required.

- 1 GHz Pentium 4 system processor
- 512 MB RAM
- 1024 x 768 display resolution, 16 bit color
- 20 GB hard drive
- R/W CD drive
- 733MHz processor
- 1 USB Port
- 1 EPP parallel port
- Optional Ethernet connection and server-based operating system
- 1 ATA flash card drive
- Laser printer for report printing
- One (1) Spyrus USB security key provided by Hart InterCivic and USB port
- Optional audio card and speakers for the “ding” upon reset or backup-complete

### **3.1.5 Ballot Now Hardware Requirements**

Ballot Now is capable of running on any standard PC with the following minimum system configuration.

- 2.2 GHz Pentium 4 system processor
- 1 GB RAM (400M minimum used as database cache)
- 1024 x 768 display resolution, High color (16 bit)
- 30 GB hard drive
- R/W CD drive
- SCSI interface for scanner
- 19160 for all scanners except the Kodak i800 series
- 29160 for the Kodak i800 series
- Network interface card (if using network)
- 1 USB Port
- Parallel printer port interface for duplex printer
- PCMCIA slot or bay for reading and writing MBBs
- Duplex laser printer for printing ballots and reports, capable of printing on 11x17 paper.
- Tape drive, 20G minimum for backup & election archiving
- Additional PC's for networked image processing if required:
  - 256 MB RAM
  - 1024 x 768 display resolution, High color (16 bit)
  - 30 GB hard drive
  - 2.2 GHz Pentium 4 system processor minimum
  - Network interface card

Recommended hardware configuration:

- One (1) non-interruptible power supply (UPS) (for the event of a power outage) capable to power the computer for sufficient time to stop the current process in the application and shut down the computer.
- All else configure as described above.

### 3.1.6 eCM Manager Hardware Requirements

eCM Manager runs on Windows 2000 Professional, Service Pack 3.

eCM Manager is capable of running on any standard PC with the following minimum system configuration.

- 1 GHz Pentium 4 system processor
- 512 MB of RAM
- One (1) 40 GB Hard disk
- 1 USB Port
- Monitor screen resolution set to 1024 x 768 or higher

## 3.2 Hardware and Network Setup and Configuration

Hardware configuration is performed by Hart InterCivic personnel to ensure that operation and security standards for the network and hardware configuration are met.

- The computers running the various components will be physically isolated from any other networks or computers running software that is not part of the certified Hard Election Management System or an approved utility identified in this document.

- Wireless networking is specifically prohibited for use with this system or any device connected by network to a component of this system.

If the Rally software application will be used to transfer election results from remote sites to the Tally system, Hart InterCivic personnel configures either a network or a dial-up connection to the Tally system, protected by security certificates through SSL (Secure Sockets Layer).

In a large jurisdiction, Ballot Now can be run on a server and multiple clients for resolving voted ballots. Communication between the Ballot Now server and a client is protected by security certificates through SSL. Each network of a Ballot Now server and its clients must be physically separate.

### 3.3 Software Installation and Configuration

Software installation and configuration is exclusively performed by Hart InterCivic personnel.

For the State of California, the following options must be set during installation as indicated below:

- Tally application will be installed with the retrievable ballot interface disabled.
- Tally application must be installed with the option to allow parsing of provisional ballots.
- Tally and Rally applications must have the requirement for a line printer for the real-time audit logs changed to write the audit logs to a FILE.

#### 3.3.1 User IDs, Passwords, and Permissions

After installation of each Hart Voting System software application, the jurisdiction must create new user accounts for the software application, and then must delete the user pre-defined by Hart InterCivic. Each new user account should be assigned the appropriate pre-defined role with sufficient permissions and appropriate restrictions so that user can perform his or her functional duties.

BOSS users are created by the jurisdiction. See the Hart InterCivic *Ballot Origination Software System Operations Manual* 6100-019 Rev. 43-62B and *Ballot Origination Software System Training Manual* 6300-002 62A.

Ballot Now users are created by the jurisdiction. See the Hart InterCivic *Ballot Now Operations Manual* 6100-067 Rev. 33-62B and *Ballot Now Training Manual* 6300-003 62A.

Tally users are created by the jurisdiction. See the Hart InterCivic *Tally Operations Manual* 6100-049 Rev. 43-62C and *Tally Training Manual* 6300-005 62A.

Rally users are created by the jurisdiction. See the Hart InterCivic *Rally Operations Manual* 6100-114 Rev. 23-62A and *Tally Training Manual* 6300-005 62A.

SERVO users are created by the jurisdiction. See the Hart InterCivic *SERVO Operations Manual* 6100-102 Rev. 42-62B and *Hart Voting System Support Procedures Training Manual* 6300-006 62C.

Note: Each of the applications enforces minimal password length and complexity for security purposes.

### 3.4 Acceptance Testing

The Hart InterCivic document section titled *Polling Place Equipment Acceptance and Functionality Test Procedures*, in the *Hart Voting System Support Procedures Training Manual* 6300-006 62C provides the detailed description of Acceptance Test procedures for the eSlate System.

In brief, the eSlate System Acceptance Test procedure includes:

- Checking receipt of equipment and supplies.
- Unbox equipment and supplies.
- Set up and test voting booths.
- Set up and test JBCs and eSlate voting units.

- Use SERVO to:
  - Log the serial numbers of the JBCs and eSlates
  - Write the signing key to the JBCs
  - Set the clock in the JBCs
  - Verify firmware revisions in the JBCs and eSlates.
- Inventory (scan and record serial numbers of booths, eSlates, JBCs, booth caddies).
- Reconfigure booths and JBCs for storage.
- Transfer equipment to storage area.
- Stow booths on caddies and JBC boxes on shelving.
- Move caddies into place in storage area.

NOTE: For acceptance testing of the eSlate in California, a minimum of 20 ballots must be cast on each eSlate in predetermined pattern. For acceptance testing of the eScan in California, a minimum of 50 ballots must be cast on each eScan.

### 3.5 Software and Firmware Upgrades

Software and firmware upgrades to the Hart Voting System are only performed by Hart InterCivic personnel, and only then, after certification by the Secretary of State.

Operating system upgrades to the computers on which the Hart Voting System applications are installed are only performed by Hart InterCivic personnel, and only then, after certification by the Secretary of State.

Anti-virus software installation is only installed by Hart InterCivic personnel, but updates to definitions may be performed by the jurisdiction personnel from removable media, such as a CD.

## 4 Election Setup and Definition

### 4.1 Programming and Configuration of Election Management System

A database for the election is created in the Ballot Origination Software System (BOSS) software, a component of the Hart Election Management System.

The BOSS application user interface is described in the Hart InterCivic *Ballot Origination Software System Operations Manual 6100-019 Rev. 43-62B*.

The procedures for using BOSS to create a database for an election are described in the Hart InterCivic *Ballot Origination Software System Training Manual 6300-002 62A*.

The steps for creating a BOSS election database include:

- Gather data for creating the BOSS election database.
- In BOSS:
  - Create a new election database.
  - Enter all jurisdiction information into the BOSS election database.
  - Printing of a serial number in the Ballot Key field in the layout for the printout from the VBO must be disabled in BOSS.
  - New passwords must be defined for each election for the JBC and the eScan.
  - Minimum and maximum timeouts must be defined for Access Codes for the eSlate voting devices.

- The options for High Contrast and large fonts must be enabled for jurisdictions using the eSlate voting devices.
- eScans must be set to provide voter warning of over-votes. A jurisdiction may optionally set the eScan to provide warning of undervotes as well.

NOTE: If there are any two-sheet ballots in the election and the jurisdiction is using eScans, the eScans must be configured to require the pollworker to override rejected ballots (to prevent inadvertent feeding of second ballot sheet during the override of the rejected sheet).

- Enter all election information into the BOSS election database.
- Proofread all information entered into the BOSS election database.
- Generate ballot formats from the election database, preview/print the ballot layouts and proof them.
- Make necessary corrections to the ballot layouts.
- Be sure the ballot formats are correct and that all passwords for eScans and eSlates have been defined.
- Generate ballot formats and accept them.

NOTE: Accepting the ballot formats for a BOSS election database writes the signing key from the eCM installed in the BOSS PC to the election database AND changes the BOSS data entry fields for election definitions to display-only.

- Create test or official MBBs, and create Audio cards for the DAU eSlates.

The Hart InterCivic *Ballot Origination Software System Training Manual 6300-002 62A* contains recommendations in the section titled *Planning Ballot Media Quantities* for how to figure how many MBBs and Audio cards should be written for an election.

Because once the election database is locked (finalized) within BOSS, no more MBBs can be written, jurisdictions should burn an additional 10% of the total required MBBs for emergency backup.

NOTE: The election's signing key is written to each MBB.

- Prior to finalizing the BOSS database, make a backup copy of the BOSS database and store the backup in a secure location in case the jurisdiction needs to burn additional MBBs in the event of a recount.
- Finalize the election database for use with Tally.

NOTE: After the election database is finalized for use with Tally, no more MBBs or Audio cards can be written from the BOSS database.

Each MBB for the election can:

- Configure one Judge's Booth Controller to supply ballot data for the presentation of the ballot to voters on an eSlate voting unit, and record cast vote records.
- Configure one eScan to supply ballot data for scanning paper ballots and record cast vote records.
- Configure Ballot Now to print paper ballots and record cast vote records.
  - **Ballot Serial Numbering must be disabled for paper ballots.**

NOTE: Ballot Now can print paper ballots to PostScript files for delivery to a print vendor. Use of Ballot Now to print ballots is described in Section 6.1.1 Printing Ballots.

The same MBB used in a Judge's Booth Controller, an eScan, or in Ballot Now is used to return the cast vote records to Election Headquarters for tabulation by Tally.

Once MBBs are written, they must be protected, tracked and maintained with a strict chain-of-custody. Please refer to section 5.8 Securing Audit Logs and Backup Records for more information on this.

## 4.2 Programming and Configuration of Vote Recording/Tabulation Devices

The actual programming of Ballot Now, the JBC/eSlate devices and the eScans for a specific election is written and stored on the MBBs from BOSS as described in the previous section. Prior to receiving the programming from the MBBs, each JBC, eSlate and eScan must be prepared by SERVO as described in this section.

SERVO is used at a jurisdiction's warehouse where all of the JBCs and eSlate voting devices, and eScan devices are stored. A conveyor line will lead up to the PC running SERVO, where one JBC/eSlate device, or eScan device, after another will get attached to the SERVO computer for processing.

The procedures for resetting devices for an election in SERVO described in the Hart InterCivic *SERVO Operations Manual 6100-102 Rev. 42-62B* and the *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

JBCs, eSlates, and eScans are added to the SERVO database and reset. Resetting of the devices includes:

- Erasing any cast vote records to achieve zero-public-count.
- Erasing internal audit logs that may exist from a previous election or testing on a device.
- Setting the clock on a JBC or eScan.
- Writing the election's signing key to a JBC or eScan.  
NOTE: A new signing key must be used for each election.

## 4.3 System Diagnostic Testing Procedures

### 4.3.1 JBC Diagnostic Test

The JBC automatically performs a diagnostic test at power-up and prints the JBC Initialized Report that includes the following information:

- Date / time
- Software version
- Device serial number
- Results of power-on diagnostics (Pass or Fail)

Store the JBC Initialized Report in a JBC Diagnostic Test records envelope.

A zero tape report must be printed from the JBC prior to opening the polls and stored in a JBC Diagnostic Test records envelope.

### 4.3.2 eScan Diagnostic Test

The eScan automatically performs a diagnostic test at power-up and prints the eScan Power-Up Report that includes the following information:

- Date / time
- Software version
- Device serial number
- Results of power-on diagnostics (Pass or Fail)

Store the eScan Power-Up Report in an eScan Diagnostic Test records envelope.

A zero tape report must be printed from the eScan prior to opening the polls and stored in an eScan Diagnostic Test records envelope.

### 4.3.3 Tally Diagnostic Test

After the election's Tally database is created in Tally, zero reports are printed and reviewed before MBBs are read into Tally.

### 4.3.4 Ballot Now Diagnostic Test

Before ballots are scanned into Ballot Now, the Election Report is printed and reviewed to serve as a zero report.

## 4.4 System Proofing

Proofing of ballots is performed in BOSS:

- Generate BOSS reports and compare the data to the information gathered and organized prior to data entry.
  - Active Contests Options List Report
  - Ballot Content Proof Report
  - Ballot Style List by Precinct Report
  - Ballot Style List by District Report
  - Contest List With Details Report
  - Assigned Precinct Report
  - Polling Place List - Early Voting - Detail Report
  - Polling Place List - Early Voting - Summary Report
  - Polling Place List - Election Day Voting - Detail Report
  - Polling Place List - Election Day Voting - Summary Report
  - Precinct List Report
- Check for all Contests on ballot and candidate/proposition spelling is correct.
- Verify the correct number of votes allowed in each contest.
- Verify that write-in positions are correct.

If election definition and programming is done by Hart InterCivic or a third-party vendor, the vendor emails PDF files of the ballot to the jurisdiction so the elections officials can proofread the text and layout.

If ballot printing is done by Hart InterCivic or a third-party vendor, elections officials proof a copy of each ballot format/style. A test of scanning paper ballots can be done using Ballot Now and/or an eScan. Separate MBBs from the election will be required for the Ballot Now test and the eScan test.

## 4.5 Logic and Accuracy Testing of System and Components

### 4.5.1 Pre-Conditions for Performance of Tests

The operation of the eSlate System devices (JBCs and eSlate voting units) and eScan devices must be verified prior to deploying the equipment to the polling location. As part of preparing for transport, each piece of equipment must have power applied to it and verify that it reaches the ready state in the power up cycle. This indicates that the equipment is functioning properly and has passed the resident power-up diagnostics.

- The JBC prints out a report indicating that it, and all connected eSlates, have passed diagnostics and identifies each device by serial number.

- The eScan prints out a report indicating that it has passed diagnostics and identifies the device by serial number.

These reports are retained as part of the election record.

#### **4.5.2 Accuracy Test Procedures**

Accuracy testing consists of those procedures necessary to ensure hardware and software to be used in the election are working properly, both as individual units and as a combined system.

Instructions for performing the system accuracy test and the embedded eScan accuracy test are described in the chapter titled *Logic and Accuracy Testing Procedures* of the *Hart InterCivic Tally Training Manual 6300-005 62A*. The Ballot Now accuracy test is described in the section titled *Elections Office Preparation - Sample Ballots and Logic and Accuracy Test* in the *Ballot Now Training Manual 6300-003 62A*.

Not more than 10 days before Election Day, the local election official shall have the entire system, tested to ascertain that it will count properly, the votes cast for all offices and all questions. Successful testing will demonstrate that, each candidate and ballot measure receives the proper number of votes, the system accepts only the proper ballot types and all tabulations are reported accurately. In the case of offices for which the voter is allowed to vote for more than one candidate, at least one ballot shall be voted with the maximum allowed number of choices.

The election-specific test is an essential method of testing electronic ballots to be used in that particular election to ensure that the eSlate System and eScan System devices perform adequately. The purpose of this test is to ensure that the ballot used with a particular election will function properly when run with the ballot tabulation software for that election.

All ballot logic and accuracy functions of the Hart VS are static. This means that the functions are compiled, tested and verified as part of extensive system testing and certification processes and do not change between elections. The only element of the system that changes from one election to the next is the content and format of the ballots.

The responsible elections official shall require the following accuracy test deck to be prepared and tested. Predetermined results of accuracy test must be available for inspection and sign off by the Logic and Accuracy Board.

The pre-election Ballot Inspection and Verification (BIV) for the eSlate System and eScan System ensures that the Electronic Ballot Data provides properly formatted ballots.

##### **4.5.2.1 BIV (Ballot Inspection and Verification) for the eSlate System**

This process verifies that the ballot(s) will be correctly presented to the voter for a given revision of the Electronic Ballot Data and that the VBO printout matches the ballot summary screen. Formatting errors or changes require that the information be updated in BOSS, generation of new ballots and repeating the above process.

The JBC Tally Report can be used to verify the number of votes for each option matches the spreadsheet that tallies the expected total number of votes for each contest option when the option is voted on one ballot from each ballot style.

For the eSlate System, the BIV requires:

- 1 Test mode MBB containing the Electronic Ballot Data file
- 1 Audio card containing the recordings for the ballot texts
- 1 JBC that has been reset
- 1 DAU eSlate that has been reset
- 1 pair of headphones
- 1 set of tactile input switches
- 1 VBO
- The Ballot Content Proof Report proof report printed from BOSS

- A spreadsheet that tallies the expected total number of votes for each contest option when the option is voted on one ballot from each ballot style.

Use the following steps to perform the BIV for ballots presented on the eSlate System.

1. Connect the VBO, the headphones, and the tactile input switches to the DAU eSlate.
2. Connect the JBC to the DAU eSlate ..
3. Power-up the VBO.
4. Insert the test MBB in the JBC.
5. Power-up the JBC and open the polls.
6. Using the Ballot Content Proof Report from BOSS, select a representative precinct for the first ballot style and print an Access Code.
7. Put on the headphones.
8. Enter the Access Code into the eSlate and display the ballot. If multiple languages are required, select the language to be verified.
9. Review the text on the ballot and verify the following on each page of the ballot:
  - The text on the ballot is displayed, as desired.
  - The correct audio plays for each text area.
  - The position of contests relative to pages and columns are accurate.
  - The required contests are present.
  - The tactile input switches work for navigation and selection.
10. Go to the ballot summary screen and verify the following:
  - Move to the first contest on the ballot summary screen and verify the formatting of the contest name.
  - Press ENTER on that contest and verify the focus returns to the contest on the ballot page.
  - Select an option in the contest and verify the focus returns to the summary screen, then verify the formatting of the option on the summary screen.
  - Repeat for each option in the contest. For contests with write-ins, enter three alpha characters, sequencing through the alphabet for subsequent contests
11. Repeat Step 10 for each contest.
12. Cast the ballot.
  - Press the CAST BALLOT button.
  - Verify that each VBO printout matches the ballot summary screen.
  - Cast the ballot.
13. Repeat steps 6 through 12 for each ballot style.
14. Repeat steps 6 through 13 for each language, as required.
15. Close the polls.
16. Print the Tally Report from the JBC and verify the number of votes for each option matches the spreadsheet that tallies the expected total number of votes for each contest option when the option is voted on one ballot from each ballot style.
17. Remove the MBB from the JBC, label it and retain as part of the Election record.

#### **4.5.2.2 BIV (Ballot Inspection and Verification) for the eScan System**

This process verifies that the paper ballot(s) will be correctly printed for the voter and scanned correctly in the eScan for a given revision of the Electronic Ballot Data. Formatting errors or changes require that the information be updated in BOSS, generation of new ballots and repeating the above process.

For the eScan System, the Ballot Inspection and Verification (BIV) requires:

- 2 Test mode MBBs containing the Electronic Ballot Data file (one for the eScan and one for Ballot Now)
- 1 eScan that has been reset
- The Ballot Content Proof Report proof report printed from BOSS
- A spreadsheet that tallies the expected total number of votes for each contest option when the option is voted on one ballot from each ballot style.

Use the following steps to perform the BIV for ballots. scanned into eScan System:

1. Print representative ballot styles from Ballot Now.

Insert the test MBB in the eScan..

2. Review the text on the ballot and verify the following for each ballot style:

- The text on the ballot is laid out, as desired.
- The position of contests relative to pages and columns are accurate.
- The required contests are present.

3. After verifying each of the ballot pages for each ballot style, mark the ballots to vote them according to the spreadsheet.

4. Insert the MBB in the eScan.

5. Power-up the eScan and open the polls

6. Scan the ballots in the eScan

7. Repeat the process for each language as required.

8. Close the polls.

9. Print the Tally Report from the eScan and verify the number of votes for each option matches the spreadsheet that tallies the expected total number of votes for each contest option when the option is voted on one ballot from each ballot style.

10. Remove the MBB from the eScan, label it and retain as part of the Election record.

#### 4.5.3 Logic Test Procedures

Ballot logic is verified by the jurisdiction using their Ballot Inspection and Verification process.

Instructions for performing the logic and accuracy testing for the eSlates and eScans are described in the chapter titled *Logic and Accuracy Testing Procedures* of the Hart InterCivic *Tally Training Manual 6300-005 62A*.

If a voting machine or the central tabulating system does not accurately count the test script or test vote, the cause for the error shall be as ascertained and corrected and an errorless count shall be made before the system is approved for use of counting votes.

#### 4.5.4 Retention of Test Materials

The report of accumulated results from all devices used in the logic and accuracy tests and paper ballots scanned by Ballot Now are contained in the Tally application Cumulative report. The JBC and eScan device Tally reports are printed from the devices used in the logic and accuracy tests.

Copies of the Cast Vote Records and the accumulated results from the logic and accuracy tests shall be retained in secure locations designated by the jurisdiction:

- For as long after the election as required by law; or
- By order of a court or directive of the Secretary of State.

#### 4.5.5 Logic and Accuracy Board and Certification of Testing

Accuracy tests shall be performed prior to Logic and Accuracy Certification to the Secretary of State and prior to Election Day. In the event of hardware failure and the component has been repaired, replaced or adjusted the accuracy test should be re-run.

The election observer panel should witness the testing as described in Section 4.7.

#### 4.6 Ballot Tally Programs

California Election Code §15001 requires each county to submit a copy of their vote tally program to the Secretary of State at least 7 days prior to each election. If there is a subsequent change in the program, an updated copy must be submitted to the Secretary of State by 12 PM on the day of the election.

The Hart Voting System “vote count program” (as used in CA Election Code section 15001) consists of the Hart software applications and equipment firmware for the county’s current Hart Voting System at the time of the election. Per agreement with the State of California this software and firmware code is placed in escrow upon system certification, and is therefore accessible by the Secretary of State if required. No county procedure is therefore required for a given election.

#### 4.7 Election Observer Panel

California Election Code §15004 sets forth minimal requirements for observation of the programming and testing of the voting system for each election. Each jurisdiction may allow additional procedures in accordance with their official election observer panel plan. All logic and accuracy testing must be performed in accordance with these requirements for observation.

#### 4.8 Hardware Maintenance and Preparation for Use

##### 4.8.1 Maintenance of Devices Between Elections

Maintenance procedures for the JBC, eSlate, DAU eSlate, VBO, and eScan devices are minimal. The eSlate and eScan equipment does not require any calibration or regular upgrading. Any problems detected in functionality testing should be re-tested, logged, and equipment returned to Hart InterCivic for replacement. There are only a few regularly scheduled maintenance procedures necessary:

- Cleaning the equipment screens
- Checking battery levels
- Performing functionality tests
- Other repair, replacement, and miscellaneous maintenance procedures
- PC printer, Ballot Now PC scanner, and PC peripheral maintenance
- eScan scanner path cleaning

Details of hardware maintenance procedures are described in the section titled *Maintenance Procedures* in the Hart InterCivic *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

##### 4.8.2 Preparation of Devices for Use in an Election

JBC, eSlate, and eScan devices are prepared for use in a new election using the reset procedure in the SERVO application as described in Section 4.2 Programming and Configuration of Vote Recording/Tabulation Devices. Details of the reset procedures for JBCs, eSlates, and eScans are described in the chapter titled *Equipment Administration* in the *SERVO Operations Manual 6100-102 Rev. 42-62B* and in the section titled *eSlate System Acceptance and Functionality Test Procedures* in the Hart InterCivic *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

In addition:

- Batteries are installed in the JBCs, eSlates, DAU eSlates, and VBOs.
- Printer paper is installed in the JBCs, eScans, and VBOs.
- The eScan scanner path is cleaned using pressurized air.
- The Ballot Now scanner path is cleaned according to the scanner manufacturer's procedures.

#### 4.8.2.1 JBC and eScan Preparation

Before a JBC or an eScan is deployed to a polling place, an Election MBB is installed and the device is configured at the warehouse to assign it to a specific polling place. Device preparation steps are recorded on checklists, listed by device type and device serial number. Detailed checklists for preparation are provided in the Hart InterCivic *Hart Voting System Management and Tasks* 6300-001 62B. The details include:

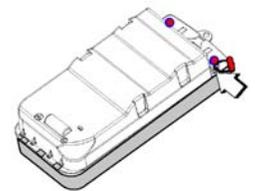
- Install an Election MBB, install a serialized, tamper-evident security seal, and record the serial number of the security seal in the chain-of-custody log.
  - Place the seals in the appropriate location(s) on the housing to prevent/deter unauthorized access to the internal components of the equipment.
  - Seal the eScan or the JBC in a lockable case and place serialized, tamper-evident seals on the case to detect unauthorized access into the case.
  - All seal numbers should be logged and a copy of the appropriate seal numbers included with the precinct supplies for verification prior to the opening of the polls.
- For a JBC, the battery key is connected, then the JBC is connected to power. For an eScan, the eScan is connected to power and turned ON.
- The Start-Up password is entered.
- The polling place ID is entered.
- If available, the choice is made to set the device for Early Voting or Election Day voting.
- The device is disconnected from power.
- All printed reports are torn off of the device printer and placed in an election records envelope.
- The preparation checklist is updated.
- The device is labeled with its polling place identifier so that it will be delivered to the targeted polling place.
- One power cord accompanies each JBC and eScan, and one JBC to eSlate cable accompanies each JBC.
- The device is boxed up and the box is labeled with its polling place identifier and grouped with the other equipment for that polling place.



#### 4.8.2.2 VBO Preparation

The procedure for preparation of a VBO unit is described in the Hart InterCivic *Hart Voting System Hart Voting System Support Procedures Training Manual* 6300-006 62C.

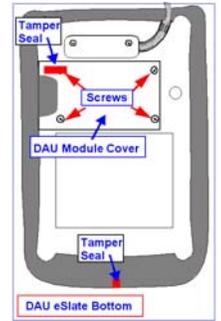
- A new roll of paper is installed in the VBO unit.
- Install a serialized, tamper-evident security seal on the VBO unit case and record the serial number of the security seal.
- The VBO units are installed in the booths (described in Sections 4.8.2.3 and 4.8.2.4).
- One VBO power supply accompanies each VBO unit.



#### 4.8.2.3 eSlate and Booth Preparation

It is not necessary to configure an eSlate or its booth for any particular polling place. Preparation of an eSlate booth for an election involves installing the eSlate and the VBO in the booth:

- Seal the housing of the eSlate with a serialized, tamper-evident seal to detect unauthorized access to the internal components of the eSlate case.
  - Place a seal on the end of the eSlate over the junction of the top and bottom covers.
  - If the eSlate has a DAU board, place a seal over one of the screws that holds the DAU board in place.
- Connect the eSlate serial port to the pigtail cable in the booth.
- Lock the eSlate into place in the booth.
- Connect the VBO data cable to the eSlate slider cable.
- Connect the VBO power cable to the VBO unit.
- Lock the VBO unit into place in the booth.
- Install a security seal through the hole in the VBO security post and record the serial number of the security seal.
- Close the booth.
- Physically lock the booth to prevent unauthorized access to the eSlate.
- Place a serialized tamper-evident seal on the booth where the lid closes over the bottom of the booth to detect any unauthorized access to the equipment inside.
- All seal numbers should be logged and a copy of the appropriate seal numbers included with the precinct supplies for verification prior to the opening of polls.
- A label can be put on the eSlate booth to indicate its polling place destination.



#### 4.8.2.4 DAU eSlate and Booth Preparation

It is not necessary to configure a DAU eSlate or its booth for any particular polling place. Preparation of a DAU eSlate booth for accessible voters in an election involves installing the DAU eSlate and the VBO in the booth. An accessible voting booth has front legs that are shorter than the front legs in standard booths.

In addition to the steps for preparation of the eSlate identified in the previous subsection, the following additional steps must be followed for DAU eSlate preparation:

- Label the DAU eSlate booth with a RED strip on the handle-side to indicate it is an accessible voting booth.
- Install the Audio Card in the DAU eSlate.
- Connect the headphones to the headphone jack in the DAU eSlate.
- Connect the DAU eSlate serial port to the pigtail cable in the booth.
- Lock the DAU eSlate into place in the booth.
- Tuck the headphones into the storage compartment.

## 5 Polling Place Procedures

### 5.1 Precinct Supplies, Delivery, and Inspection

The jurisdiction provides, delivers, and inspects precinct supplies according to their procedures. Hart InterCivic can supply blank forms that can be customized by the jurisdiction for managing the polling place.

The Hart InterCivic polling place desk references contain instructions for ensuring polling place security:

- *eSlate Polling Place System Early Voting Desk Reference 6300-131 62A*
- *eSlate Polling Place System Election Day Desk Reference 6300-132 62A*
- *The Hart Voting System Early Voting Desk Reference 6400-113 6.1C*

- *The Hart Voting System Election Day Desk Reference 6400-114 6.1C*

The Hart InterCivic *Hart Voting System Support Procedures Training Manual 6300-006 62C* contains instructions for:

- Polling place equipment acceptance.
- Equipment functionality tests.
- Planning for the layout and for the equipment and supplies needed for each polling place.
- Delivery of passwords for access to the Judge's Booth Controller or the eScan.

Immediately upon receipt, all persons receiving precinct equipment and supplies should be required to:

- Inventory and verify the equipment and supplies received.
- Verify the integrity of the exterior tamper-evident seals and the serial numbers on those seals.
- Sign for receipt of the equipment and supplies.

### **5.1.1 JBC/eSlate Polling Place Equipment and Supplies**

Equipment for each precinct at a JBC/eSlate polling place include:

- Booths with an eSlate and a VBO
- Accessible booth(s) with a DAU eSlate and Audio card, a VBO, tactile input switches, headphones
- Judge's Booth Controller(s) with the Election MBB
- Power strip(s)/Surge protector(s)

Supplies for each precinct at a JBC/eSlate polling place include:

- A record of the serial numbers for all tamper-evident seals that secure the voting equipment.
  - Instructions for verifying the integrity of each seal during setup and prior to opening the polls, periodically throughout Election Day, and upon close of the polls.
  - Instructions for handling and reporting the situation if there is damage to one of the tamper-evident seals.
- Instruction manuals.
- Logs and envelopes for managing records collected during voting.

### **5.1.2 eScan and JBC/eSlate Polling Place Equipment and Supplies**

In addition to the equipment and supplies listed in Section 5.1.1 for a JBC/eSlate polling place, the equipment and supplies required for using eScans are:

- Booths with a pen for marking paper ballots
- eScan device with the Election MBB
- eScan ballot box
- paper ballots for each ballot style in the polling place

## **5.2 Polling Place Setup**

### **5.2.1 JBC/eSlate Polling Place Setup**

The eSlate System voting equipment for a polling place includes an MBB installed in a JBC and one to twelve booths containing VBOs and eSlates or DAUs. During voting day, the JBC is used to communicate with the eSlates and print Access Code tickets for voters. The following documents that contain poll worker instructions from Hart InterCivic are provided to each polling place:

- *eSlate Polling Place System Early Voting Desk Reference 6300-131 62A*
- *eSlate Polling Place System Election Day Desk Reference 6300-132 62A*

These desk references provide specific instructions for polling place security, troubleshooting problems, and serving voters with disabilities, and definitions of terms.

In general, polling place setup includes the following steps:

1. The integrity of the tamper-evident seals and their serial numbers must be verified and witnessed by at least two poll workers prior to opening each case containing voting equipment or ballots. After opening each case, the integrity and serial number of each security seal on each piece of voting equipment must be verified and witnessed by at least two poll workers. If it is determined there has been a breach of any security seal, the poll workers must immediately notify the jurisdiction's chief election official in accordance with the jurisdiction's procedures.
2. Equipment must be located in a way that maximizes traffic flow, yet allows for clear observation of all equipment by pollworkers. Instructions for assembly and setup of the eSlate and JBC are described in the desk references mentioned above.
3. Display a copy of materials required by the Elections Code in each booth.
4. When multiple eSlates are used in a polling place, the accessible DAU eSlate must be located as the last booth in the "daisy-chain" from the JBC.
5. During setup, the supply of paper in the JBC must be verified in accordance with the vendor's specifications detailed in the desk references mentioned above.

NOTE: Printer paper for the VBO is loaded at the warehouse before the VBO is secured to the voting booth. See the section *Hart Voting System VBO Paper Roll Management* in the *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

6. Basic operational ability for each piece of equipment must be tested and confirmed in accordance with the vendor's instructions detailed in the desk references mentioned above.
7. The Polling Place ID for a polling place must be set on the JBC and verified against the "Polling Place List Election Day Summary" report printed from BOSS (the appropriate precinct(s) have been assigned to the polling places in BOSS). See the *Hart InterCivic Ballot Origination Software System Operations Manual 6100-019 Rev. 43-62B*.  

NOTE: Entry of the correct Polling Place ID is required to configure the JBC for the precincts that are allowed to vote in the polling place.
8. A zero tape must be printed for the JBC and the eScan. The zero tape(s) must be verified and signed by all poll workers and secured with other polling place records prior to the opening of the polls.
9. The Oath of Office and Declaration of Intention forms must be completed pursuant to California Election Code §12321.

### **5.2.2 eScan Polling Place Setup**

The eScan System voting equipment for a polling place includes an MBB installed in an eScan and one to twelve voting booths. During voting day, the voters mark their paper ballots in the booths, then scan their ballot in the eScan. The following documents that contain poll worker instructions from Hart InterCivic are provided to each polling place:

- *The Hart Voting System Early Voting Desk Reference 6400-113 6.1C*
- *The Hart Voting System Election Day Desk Reference 6400-114 6.1C*

These desk references provide specific instructions for polling place security, troubleshooting problems, and serving voters with disabilities, and definitions of terms.

In general, polling place setup includes the following steps:

1. The integrity of the tamper-evident seals and their serial numbers must be verified and witnessed by at least two poll workers prior to opening each case containing voting equipment or ballots. The integrity and serial number of each security seal on each eScan must be verified and witnessed by at least two poll workers. If it is determined there has been a breach of any security seal, the poll workers must immediately notify the jurisdiction's chief election official in accordance with the jurisdiction's procedures.
2. Equipment must be located in a way that maximizes traffic flow, yet allows for clear observation of all equipment by pollworkers. Instructions for assembly and setup of the eScan are described in the desk references mentioned above.
3. Display a copy of materials required by the Elections Code in each booth.
4. During setup, the supply of paper in the eScan must be verified in accordance with the vendor's specifications detailed in the desk references mentioned above.
5. The metal plate covering the emergency ballot receptacle inside the ballot box must be in the open position.
6. The ballot box door must be closed and locked, and the ballot box key stored in a secure location known to the pollworker.
7. Basic operational ability for each eScan must be tested and confirmed in accordance with the vendor's instructions detailed in the desk references mentioned above.
8. The Polling Place ID for a polling place must be set on the eScan and verified against the "Polling Place List Election Day Summary" report printed from BOSS (the appropriate precinct(s) have been assigned to the polling places in BOSS). See the Hart InterCivic *Ballot Origination Software System Operations Manual 6100-019 Rev. 43-62B*.
9. A zero tape must be printed for the JBC and the eScan. The zero tape(s) must be verified and signed by all poll workers and secured with other polling place records prior to the opening of the polls.
10. The Oath of Office and Declaration of Intention forms must be completed pursuant to California Election Code §12321.

### 5.3 Opening the Polls

#### 5.3.1 JBC/eSlate Opening the Polls

The polls can be opened when the Open Polls choice on the Ready To Open Polls screen appears on the JBC.

- One minute before the polls are scheduled to open, a poll worker must press Open Polls, then enter the password.
- After the printer prints the Polls Opened report, the printer tape should be torn off and stored in the polling place records envelope.
- Poll workers should then announce that the polls are open.

#### 5.3.2 eScan Opening the Polls

- The polls can be opened when the Open Polls choice on the Ready to Open Polls screen appears on the eScan.
- After the printer prints the Polls Opened report, the printer tape should be torn off and stored in the polling place records envelope.
- Poll workers should then announce that the polls are open.

## 5.4 Polling Place Procedures

A poll worker must attend the JBC at all times while the JBC is in the “polls opened” state to monitor booth status lights on the JBC and to issue Access Codes..

### 5.4.1 Voters voting on the eSlate

Each voter needs an Access Code to access one of the eSlates.

After a voter has signed in and the election judge has verified the voter is registered to vote within the polling place, the judge issues an Access Code from the JBC in accordance with the vendor instructions. The voter is then given the Access Code and directed to a booth whose status light on the JBC is GREEN.

### 5.4.2 Voters Voting on Paper ballots and Using the eScan

Each voter needs a paper ballot.

After a voter has signed in and the election judge has verified the voter is registered to vote within the polling place, the judge issues them their paper ballot for their precinct and directs them to a voting booth.

The voter scans their own ballot in the eScan.

### 5.4.3 Handling a “Fleeing Voter”

A “fleeing voter” is a voter who leaves the voting booth and polling place without finalizing and casting his or her ballot. On the JBC, such a situation can be identified by the fact that the particular booth indicator light on the JBC is RED and there is no voter in the booth.

The California Secretary of State Uniform Vote Counting Standards, section VII B specifies that once the pollworkers have determined that the voter has indeed left the polling place without casting the ballot, a pollworker should cast the ballot as it had been voted up to that point without examining how any of the vote choices had been recorded by that voter.

## 5.5 Special Needs Voters

A voter with special needs may optionally use the DAU eSlate voting unit to cast a ballot. This unit shall be configured and equipped to support such voters in the following manners:

- High contrast and large fonts for the screen display;
- Audio ballot instruction in all required languages via headphones;
- Binary tactile switches (‘jelly switches’) for ballot navigation and voting; and
- Interface for voter supplied sip-puff devices.

Finally, the DAU eSlate may be disconnected from the JBC/eSlate chain to provide curbside voting.

The following documents from Hart InterCivic provide instructions to the poll worker for serving voters with disabilities:

- *eSlate Polling Place System Early Voting Desk Reference 6300-131 62A*
- *eSlate Polling Place System Election Day Desk Reference 6300-132 62A*

### 5.5.1 Accessible Voting Booth Guidelines

In accordance with the jurisdiction policies, the pollworker may provide assistance to the special needs voter in setting up and initializing the eSlate for voting as required or as requested by the voter.

The poll workers are responsible for insuring that special needs voters are able to vote unobserved by others.

## 5.5.2 Curbside Voting

Curbside voting with the eSlate requires an entire voting booth be disconnected and transported out to the voter. Only the last eSlate on the JBC network can be used in this manner.

Exact instructions for providing curbside voting can be found in the section titled *curbside voting* in the Hart InterCivic polling place desk references: *eSlate Polling Place System Early Voting Desk Reference 6300-131 62A* and *eSlate Polling Place System Election Day Desk Reference 6300-132 62A*.

An Access Code must be issued and input into the eSlate by the poll worker *before* it is disconnected from the JBC network.

After the voter has completed and cast his ballot curbside, the poll worker is required to reconnect the eSlate and verify the ballot has been successfully recorded.

## 5.6 Provisional Voters

### 5.6.1 In Precinct

#### 5.6.1.1 eSlate System Provisional Ballots

The eSlate System supports the contested voter situation that may arise at a polling place while the polls are open. If a voter's eligibility to vote cannot be verified, the voter is allowed to vote a ballot provisionally and a determination as to their eligibility is made after some investigation following the close of the polls.

In this situation, the pollworker issues a provisional ballot Access Code ticket from the JBC in accordance with Hart operating instructions in the section titled *adding provisional voters* in the *eSlate Polling Place System Early Voting Desk Reference 6300-131 62A* and the *eSlate Polling Place System Election Day Desk Reference 6300-132 62A*. This ticket includes a Provisional Voter Stub that the voter must sign. This stub is retained by the poll worker, together with any other provisional ballot documentation required by the jurisdiction. Finally, the provisional voter must be provided instructions to determine after the election whether their ballot was counted or not, and, if not, the reason it wasn't counted.

#### 5.6.1.2 eScan System Provisional Ballots

A provisional voter can use an eScan System's paper ballot. For a provisional paper ballot, the poll worker must:

- Fill out the documentation required by the jurisdiction for a provisional paper ballot and give the provisional voter any required documentation.
- Instruct the voter that they cannot be allowed to scan their paper ballot in the eScan, but must return their ballot in its privacy envelope to the poll worker.
- File the provisional ballot with its documentation in a secure ballot box.
- Finally, the provisional voter must be provided instructions to determine after the election whether their ballot was counted or not, and, if not, the reason it wasn't counted.

During the official canvass, when the voter's eligibility to vote is determined, the provisional ballot can be prepared for scanning through Ballot Now.

### 5.6.2 Extended Voting Time

If the poll closing is extended beyond the normal closing time by court order, all voters who are allowed to vote during that period must vote a provisional ballot, in accordance with California Election Code §14402.5. In such instances, the procedures outlined in Section 5.6.1, above, must be followed.

## 5.7 Closing the Polls and Vote Reporting

### 5.7.1 General

In accordance with California Election Code §14400 – 14402 of the Elections Code, at the closing of the polls, all members of the precinct board must be present. Promptly, at the official closing time:

- A member of the precinct board must announce loudly, “The polls are now closed.”
- Any eligible voters that are in the process of voting at the time of closing shall be allowed to complete their ballot.
- If there are eligible voters in line to vote at the time of the poll closing, these voters shall be allowed to vote a normal ballot.
- Any voters arriving after the polls have closed shall not be allowed to vote.

### 5.7.2 Closing the Polls on the JBC/eSlates

At the end of an Early Voting day or on Election Day after all the voters have finished voting:

- Press the CLOSE POLLS button located below the JBC screen.
- Enter the Close Polls password.
  - For Early Voting, the polls are suspended and can be re-opened on the next Early Voting day.
  - For Election Day voting, the polls are closed.

### 5.7.3 Closing the Polls on the eScan

At the end of an Early Voting day or on Election Day after all the voters have finished voting:

- Press the red PW button located on the back of the eScan.
- Enter the PollWorker password.
- Press the button next to CLOSE POLLS.
- Enter the Close Polls password.
  - For Early Voting, the polls are suspended and can be re-opened on the next Early Voting day.
  - For Election Day voting, the polls are closed.

### 5.7.4 Printing Polling Place Reports

#### 5.7.4.1 Early Voting Reports

When the polls are suspended, the JBC automatically prints out the reports for the day. The poll worker tears off the reports, completes their reconciliation log form, and files them in the appropriate envelope. The poll worker prints the Polls Suspended Report and leaves that report on the JBC or the eScan.

#### 5.7.4.2 JBC Tally Report

For Election Day voting, the Polls Closed screen on the JBC includes the capability for printing the Tally Report and the Access Code Report. A copy of the Tally Report shall be printed and posted outside the polling place for public inspection.

The precinct board shall:

- Select the Access Code Report command on the JBC. Tear off the Access Code Report and retain it in the polling place records envelope.
- Select the Print Tally command and print the Tally Report. This should be done three times to print three copies of the Tally Report:
  - One report must be posted outside the polling place.

- One must be retained in the polling place records envelope.
- The third report shall be left on the JBC for transport with the JBC.

#### **5.7.4.3 eScan Tally Report**

For Election Day voting, the Polls Closed screen on the eScan includes the capability for printing the Tally Report. A copy of the Tally Report shall be printed and posted outside the polling place for public inspection.

The precinct board shall:

- Select the Print Tally command and print the Tally Report. This should be done three times to print three copies of the Tally Report:
  - One report must be posted outside the polling place.
  - One must be retained in the polling place records envelope.
  - The third report shall be left on the JBC for transport with the JBC.

### **5.8 Securing Audit Logs and Backup Records**

Jurisdictional procedures may require that the entire JBC or eScan device be returned to Election Headquarters, or require that the MBB be removed from the JBC or eScan, so that only the MBB is transported to Election Headquarters on Election Day.

#### **5.8.1 Printed Reports Transport**

All reports printed from the JBC or eScan (Open Polls Report, Close Polls Report, Suspend Polls Report, Access Code Report for the JBC, Tally Report), all reconciliation logs, all Provisional Ballot Stubs from eSlate voting, all provisional paper ballots and associated documents from an eScan polling place, and any other jurisdiction documents from the polling place must be sealed in a tamper evident container and transported to Election Headquarters in the possession of more than one member of the precinct board.

#### **5.8.2 MBB Transport**

If the instructions are to remove the MBB from the JBC or eScan at the end of the day:

- The MBB must be placed in a secure container that is either serialized and tamper-evident, or secured with a serialized, tamper-evident seal.
- The MBB must never be in the sole custody of one person until the vote results are captured from it.

To remove the MBB from the device:

- Record the number on the security seal for the MBB.
- Remove the Security Seal over the MBB slot on the device.
- Take the MBB out of the slot and place in its MBB transfer container.
- Secure the transfer container with a serialized, tamper-evident seal and log the serial number.
- Return the MBB to Election Headquarters.

#### **5.8.3 JBC Transport**

If the instructions require that the entire JBC be transported to Election Headquarters, without removing the MBB, the JBC must never be in the sole custody of one person until the vote results are captured from its MBB.

- Unplug the JBC and disconnect it from the eSlate.
- With multiple members of the precinct board, inspect the integrity of the seal on the MBB door and verify the serial number with the serial number log.

- Return the JBC to Election Headquarters.

#### 5.8.4 eScan Transport

If the instructions require that the entire eScan device be transported to Election Headquarters, without removing the MBB, the eScan must never be in the sole custody of one person until the vote results are captured from its MBB.

- Unplug the eScan from power.
- With multiple members of the precinct board, inspect the integrity of the seal on the MBB door and verify the serial number with the serial number log.
- Secure the eScan ballot box with a serialized, tamper-evident seal and log the serial number.
- Return the eScan and ballot box to Election Headquarters.

### 5.9 Troubleshooting and Problem Resolution

Polling place supplies must include a clear reference document on the eSlate/eScan error codes. This document should include the error number, the meaning and cause of the error, the approved means for resolution, and the status of the ballot (whether the ballot has been recorded). Troubleshooting instructions should include:

- How to handle VBO paper jams (including the requirement that the VBO is never opened in a polling place).
- How to clear ballot jams in the eScan (including prohibition of opening the ballot box while the polls are open).
- How to handle unknown errors, including prohibition on rebooting equipment to resolve such errors.

This document should be made available for review of any voter who encounters a cryptic error message that is not clear and easy to understand.

#### 5.9.1 JBC/eSlate Polling Place Troubleshooting

Detailed trouble shooting and problem resolution information is provided in the following Hart InterCivic documents:

- *eSlate Polling Place System Early Voting Desk Reference 6300-131 62A*
- *eSlate Polling Place System Election Day Desk Reference 6300-132 62A*

If the VBO stops printing because of a paper jam, the entire VBO device must be removed from the voting booth and replaced with another VBO device and security seals, or the booth containing the non-functioning VBO must be closed for use by voters. A VBO device is never opened in a polling place.

#### 5.9.2 eScan Polling Place Troubleshooting

Detailed troubleshooting and problem resolution information is provided in the following Hart InterCivic documents:

- *The Hart Voting System Early Voting Desk Reference 6400-113 6.1C*
- *The Hart Voting System Election Day Desk Reference 6400-114 6.1C*

If a paper jam occurs in the eScan, do not unlock and open the eScan ballot box. To expose the jammed ballot, open the scanner covers by lifting the black external scanner cover (up by the feeder slot on the left side of the eScan), then lifting the internal scanner cover. To clear the paper jam, pull the ballot out of the scanner path, then close the scanner covers. If the ballot is not damaged, try scanning it again. If the ballot is damaged, spoil the ballot according to local instructions and issue a replacement ballot to the voter.

## 6 Absentee/Mail Ballot Procedures (Central Tabulation)

Paper ballots for absentee/mail are printed and processed for CVRs by the Ballot Now application.

Ballot Now is designed to support paper-based voting solutions, either as a stand-alone system for smaller entities or to complement the Hart Voting System suite of products. Ballot Now manages a print-on-demand capability to print ballots for testing, sample ballots, and official ballots for delivery to the voter. The same information used to print the ballot is used to define a digital scanning template for processing ballots upon their return. Once the voter returns their marked ballot, Ballot Now uses a high-speed scanner for creating electronic images of the paper ballot, and then applies voting logic to the digital image and extracts the cast vote record. Ballot Now provides functionality to:

- Apply voting logic to preview and resolve overvoted and undervoted ballots, and write-ins
- Electronically store election records
- Manage the process of writing Cast Vote Records (CVRs) into the MBB for transfer to Tally for tabulation
- Supply a variety of reports about the ballot processing and related activities that can be viewed and printed at any time

Ballot Now is to be used only as central processing application and is not to be deployed to remote locations outside of central jurisdiction election headquarters.

## 6.1 System Startup and Pre-Tabulation Report Procedures

Ballot Now receives data from BOSS via the Ballot Now MBB and delivers data to Tally via the Ballot Now MBB. The system receives input from the user and scanned ballots, and provides the user with reports. The ballot content and layout for all electronic and paper ballots for an election are defined and proofed in BOSS. When paper ballot templates are selected for generating the ballot styles, BOSS automatically adds a polling place named Ballot Now so that at the time of tabulation in the Tally application, Tally will read MBBs that contain CVRs processed by the Ballot Now application. At least one MBB is reserved for use with Ballot Now.

### 6.1.1 Printing Paper Ballots

Detailed instructions for printing ballots from Ballot Now are described in the Hart InterCivic *Ballot Now Operations Manual 6100-067 Rev. 33-62B* and the *Ballot Now Software Training Manual 6200-003 62A*. Brief steps are presented below.

- An election database is created in Ballot Now by reading an Election mode MBB from the election and providing the password for the signing key carried on the eCM installed in the Ballot Now PC.
- The election database is opened in Ballot Now and the following printing options are defined from Ballot Printing tab:
  - The check box for Enable Ballot Serial Numbers on Ballot must be de-selected
  - Print Duplex Ballot – for printing both sides of the paper
  - Include and Set Up Ballot Stub (if ballot stubs are used)
- To print Election ballots for a precinct, the following selections are made in the Print Ballots window:
  - The precinct is selected
  - The Election ballot type is selected
  - The language is selected
  - The political party is selected if the election is a primary election
  - The number of copies is selected

### 6.1.2 Pre-Tabulation Reports

Before voted ballots are scanned by Ballot Now, the following reports should be generated, printed and retained for the record as the zero count reports for Ballot Now.

- Election Report

The Election report lists the election name, status of the Ballot Now database, jurisdiction, election date, MBB serial numbers for Ballot Now MBBs, public counter, Ballot Now private counter, and total number of scan batches in the Ballot Now database.

- Printed Ballots By Precinct Report

The Printed Ballots By Precinct report lists for each printing session, the precinct name and the date, time, user ID, starting serial number, ballot style, language, and number of ballots printed. The report is sorted by precinct name.

## 6.2 Tabulation Procedures

### 6.2.1 Scanning Paper Ballots with Ballot Now

Absentee/mail ballots are scanned in batches by Ballot Now to create a CVR for each ballot. After scanning each batch, the count of scanned ballot images must be verified against the actual count of ballots in the batch. If there are any discrepancies in the count, the entire batch must be deleted and rescanned.

NOTE: The scanner heads should be cleaned prior to the start of scanning ballots (see the scanner manufacturer's instructions), then the scanned ballot images should be monitored continuously during scanning for indication that additional cleaning is required.

Ballot Now flags ballots with contests that have overvotes, undervotes, and write-ins as needing to be resolved. Blank and damaged ballots are also flagged as needing to be resolved. For tabulation of absentee ballots prior to and during the semi-final official canvass, Ballot Now can and should be set to automatically resolve/accept undervotes and overvotes. Write-in votes must be resolved manually on a vote-by-vote basis. No actual tally of votes may be performed during this process.

NOTE: All such ballots *must* be resolved in Ballot Now before the CVRs can be written to the Ballot Now MBBs. This ballot resolution process can begin as soon as absentee ballot scanning begins in Ballot Now, on or after the seventh day prior to the election.

Ballot Now can be run on a server and multiple clients for resolving voted ballots. Communication between the Ballot Now server and a client is protected by security certificates through SSL. Each network of a Ballot Now server and its clients must be physically separate.

When all ballots in all scan batches have been resolved, the CVRs must be written to the Ballot Now MBB and the Ballot Now election database status must be set to closed. The Ballot Now MBB is then delivered to Tally where it is read and tabulated for results.

#### 6.2.1.1 Certified Write-In Candidate Definitions in Ballot Now

For each contest in the election that has a write-in option(s), the certified candidate write-in names must be added to the Ballot Now election database so that votes can be assigned to the write-in candidates.

The procedure for adding certified write-in candidate names to the Ballot Now election database is given in the *Define Write-In Names and Aliases* chapter of the Hart InterCivic *Ballot Now Operations Manual 6100-67 Rev. 33-62B*. The steps, in brief, are:

- From the Election menu, select Add Write-in Candidates. The Add Write-in Candidates window appears.
- From the Select Contest list box, select the contest you want to work with. Write-in candidate names already defined for that contest appear in the Authorized Write-In Candidates list.
- Define the name of the write-in candidate you want to add.
- Click the Add button. The write-in candidate appears in the Authorized Write-In Candidates list.
- Click the Done button in the Add Write-in Candidates window. The name will now be available for resolving write-ins in that contest.

### 6.2.2 Certified Write-In Candidate Definitions in Tally

For each contest in the election that has a write-in option(s), the certified candidate write-in names must be added to the Tally election database so that votes can be assigned to the write-in candidates.

The procedure for adding certified write-in candidate names to the Tally election database is given in the *Write-In Resolution* chapter of the Hart InterCivic *Tally Operations Manual 6100-049 Rev. 43-62C*. The steps, in brief, are:

- From the View menu, select Write-In Resolution to display the Write-In Resolution tab in the Tally window.
- From the Select a Contest with Write-Ins list box, select the contest you want to work with. Write-in candidate names already defined for that contest appear in the Candidates/Aliases list.
- Click the Add button in the Candidates/Aliases pane. The Add Write-In Candidate window appears.
- Define the name of the write-in candidate you want to add, and define the aliases for the name, if any.
- Click the Save button in the Add Write-In Candidate window. The name appears in the Candidates/Aliases list for the contest.

### 6.3 Post Tabulation Report and Shutdown Procedures

Tally reads the CVRs from Ballot Now MBBs as “Absentee” votes and allows reports to be generated that:

- Keep Absentee votes separate from Early Voting votes and from Election Day votes.
- Combine Absentee and Early Voting votes, and keep Election Day votes separate.
- Combine Absentee, Early Voting, and Election Day votes.

#### 6.3.1 Post-Election Reports from Ballot Now

The following reports must be generated in Ballot Now, printed and retained as part of the election records.

- Election report — Election name, Ballot Now state (Opened, Closed), jurisdiction, date, MBB serial number, public counter, Ballot Now private counter, and total number of scan batches
- Election MBBs report — list of MBBs in the Election.
- Scan Batch Report — for each page of the ballots in a scan batch, lists whether Ballot Now accepted or rejected the page.
- Deleted Batches report — list of deleted batches.
- Scan Batch Summary report — summary information for each batch of ballots.
- Printed Ballots by Precinct report — for each printing session, the precinct name and the date, time, user ID, starting serial number, ballot type, language, and number of ballots printed; sorted by precinct.
- Scanned Ballots by Precinct report — for each precinct, the scan batch IDs and numbers of scanned ballots that are unresolved, resolved, written to the MBB, and not yet processed by BNIP; sorted by precinct.
- Scanned Ballots by Batch report — for each scan batch, the scan batch ID, the user ID, date and time associated with the scan batch, and numbers of scanned ballots that are unresolved, resolved, written to the MBB, and not yet processed by BNIP; sorted by scan batch number.
- Resolve Status Report — for each scan batch, the scan batch ID, the user ID, date and time associated with the scan batch, number of ballots unresolved, resolved, and not yet processed by BNIP; sorted by scan batch.
- Deleted Ballots report — list of deleted ballots.
- Certified Write-Ins report — list of certified write-ins entered for all write-in contests.

## 7 Semi-Official Canvass Tabulation and Reporting

### 7.1 System Startup and Pre-Tabulation Reports

#### 7.1.1 Tally Zero Count Reports

The Cumulative Report must be printed from the Tally election database to acquire zero counts before cast vote records from MBBs are read into Tally. The instructions for printing Tally reports are given in the Hart InterCivic *Tally Operations Manual 6100-049 Rev. 43-62C* and *Hart Voting System Support Procedures Training Manual 6300-006 62C*. This report must be retained as part of the election records.

#### 7.1.2 Rally Zero Count Reports

The MBB Processing Report and Internal Audit Report must be printed from Rally at each Rally station to acquire zero counts before cast vote records from MBBs are read into Rally for transfer to the Tally database. The instructions for printing Rally reports are given in the Hart InterCivic *Rally Operations Manual 6100-114 Rev. 23-62A* and *Tally Training Manual 6300-005 62A*. These reports must be retained as part of the election records.

### 7.2 Processing Vote Reports

Election results are tabulated and reports are generated in Tally. Optionally, jurisdictions may use Rally at remote reporting sites to read MBBs from precincts.

Instructions for using Tally and Rally are described in the following documents from Hart InterCivic:

- *Tally Operations Manual 6100-049 Rev. 43-62C*
- *Tally Training Manual 6300-005 62A*
- *Rally Operations Manual 6100-114 Rev. 23-62A*

#### 7.2.1 Precinct Tabulation

The MBBs in the precinct JBCs and eScans contain the record of all votes cast on the eSlates and/or captured by the eScan.

After closing the polls, jurisdictions may chose one of two methods for returning the vote record to the jurisdiction for tabulation:

Return all polling place equipment to the jurisdiction on Election Day with the MBBs sealed inside equipment.

Remove the MBBs from the equipment and seal them in a secure, tamper-evident sealed container. (This process must be performed under the observation of the entire precinct board.) After removal, the equipment must also be re-secured with serialized, tamper-evident seals under the observation of the entire precinct board. The serial number of the seals must be recorded and countersigned by all members of the precinct board, and that record must be included in the precinct records returned on Election Day.

All other precinct records (e.g., poll books, unused and spoiled ballots, voted ballots, ballot accounting, zero-tapes, etc), must be returned on Election Day in a secure container. That container must be sealed with a serialized, tamper-evident seal under the observation of the entire precinct board, and be countersigned by all precinct board members.

All equipment and precinct records must be transported to the jurisdiction in the custody of multiple members of the precinct board.

Upon receipt, the jurisdiction must verify the chain of custody and the integrity of all tamper-evident seals (including the serial numbers). If the integrity of any seal has been breached, or if there is any violation of the chain-of-custody, the jurisdiction's chief election official shall be notified immediately and that precinct

shall be flagged and all precinct votes shall be subject to a full recount during the official canvass. (See Section 8 below.)

Precinct records and voting equipment may be returned directly to the jurisdiction's central tabulation for tabulation directly into Tally, or may optionally be returned to a remote facility for verification and recording into Rally.

### **7.2.2 Central Tabulation**

As soon as the polls have opened on Election Day, MBBs from Early Voting and closed MBBs from Ballot Now absentee paper ballots can be read into Tally, but not tabulated until the poll have closed.

When all the polls have closed, the MBBs from the polling sites are read into the Tally System or Rally station(s).

The MBBs from the Rally station(s) are delivered to Central Tabulation for retention. Since the CVRs from the MBBs read at the Rally station(s) are uploaded to Tally via an intranet or dial-up connection, they do not need to be read again into the Tally System. The unique serial number in the MBBs is used to prevent duplicate storage of the information in the MBB if an MBB from a Rally station is inadvertently read directly into Tally.

This must continue uninterrupted until the results from all precincts have been imported and tabulated into Tally. Any problems or interruptions in this process must be *immediately reported to the Secretary of State*.

In accordance with E.C. §15151, tabulated vote results must be reported to the Secretary of State in the manner prescribed by the Secretary of State, at intervals not to exceed two hours following the close of the polls until all precincts have been reported.

## **7.3 Integration with County Systems and Calvoter**

Custom reports for precincts can be generated in Tally and exported from Tally in a delimited text file for use by the county and for reporting to the State.

## **8 Official Canvass and Post-Election Procedures**

### **8.1 Election Observer Panel**

Each candidate and each side in the case of a ballot measure, shall be allowed not more than two observers for each election results board, in accordance with the jurisdiction procedures that must established and published prior to the election. Observers may not touch or handle the transport media, ballots or voting equipment. All questions must be directed to the elections official in charge of the election results.

### **8.2 Canvassing Precinct Returns**

The Tally Canvass Report provides precinct returns.

For each precinct, the jurisdiction must perform a full-reconciliation of the ballots voted, spoiled or voided against the ballots supplied and the pollbook.

During the official canvass, all precincts for which there has been a violation of the chain-of-custody (including breach of a tamper-evident seal) must be subjected to a full recount of the ballots over and above the 1% Manual Recount prescribed by law. For votes cast on the eSlate/JBC, this recount must be performed off the VBO paper audit trail. For paper ballots cast and counted on the eScan, the recount may be either retabulated on another eScan for which there is a secure chain-of-custody on the device and its MBB, or may be performed by a manual hand count of the paper ballots.

### **8.3 Canvassing Absentee Ballots**

The Tally Canvass Report provides absentee returns.

Absentee ballots submitted at the polling places on Election Day must be verified for eligibility before they are tabulated. When such ballots are collected at a polling place, they should be labeled as provisional and retained in a secure envelope for delivery to election headquarters. After the jurisdiction determines the eligibility of the those ballots, and before the Ballot Now election database is closed, they can be scanned into Ballot Now so that their CVRs will be written to the Ballot Now MBB for delivery to Tally. A separate BOSS unused MBB for the election can be used in Ballot Now to collect the CVRs from such ballots if desired, or such ballots can be scanned together in a batch.

#### **8.4 Canvassing Provisional Ballots**

Provisional ballots shall be verified and tabulated in accordance with E.C. §14310. Votes cast as Provisional ballots are accepted or rejected in the Tally system and reported with normal vote counts in the Tally reports.

After the jurisdiction determines the eligibility of each voter who cast a provisional ballot, those ballots eligible for counting are processed to be included in results through Tally's Provisional Ballots screen. Using the Ballot Code from a provisional ballot's paperwork, the Tally operator locates the ballot in the list. The operator must then mark the ballot as "Included" and select the precinct that was determined as the precinct the voter was eligible to vote in. Based on that precinct assignment, Tally automatically determines and records the valid vote choices for which the voter was entitled to vote and discards all invalid vote choices.

Provisional ballots cast on the eSlate/JBC are tracked automatically when the MBBs are read into Tally. Provisional paper ballots voted at an eScan polling place should not be scanned in the eScan, but should be labeled as provisional and inserted into the eScan ballot box's Emergency Ballot Slot (on the side of the eScan). After the jurisdiction determines the eligibility of the paper provisional ballots, those ballots can be scanned into Ballot Now so that their CVRs will be written to the Ballot Now MBB for delivery to Tally.

Detailed instructions for processing provisional ballots in Tally are provided in the Hart InterCivic *Tally Operations Manual 6100-049 Rev. 43-62C* and *Tally Training Manual 6300-005 62A*.

#### **8.5 Canvassing Write-In Votes**

The names of certified write-ins for each contest must be entered into Tally prior to Election Day.

On eSlates, contests with write-in names are recorded as text in the Cast Vote Records written to the MBB, and to the eSlate and JBC flash memories. Tally automatically assigns the certified write-ins from the eSlate System's MBBs to those definitions.

On eScans, contests with write-in names are recorded as images in the Cast Vote Records written to the MBB and to the eScan flash memory. The Tally operator uses the Resolve Images functions in Tally's Write-In Resolution window to view images of write-ins from the paper ballots so that the corresponding certified write-in can be assigned to each image.

On paper ballots scanned by Ballot Now, contests with write-in names are assigned or rejected during central count using Tally. The procedure for resolving write-ins in Ballot Now are described in the Hart InterCivic *Ballot Now Operations Manual 6100-067 33-62B* and *Ballot Now Software Training Manual 6300-003 62A*. Tally automatically assigns the certified write-ins from the Ballot Now MBBs to the certified write-in definitions set up in Tally. The jurisdiction must be sure to resolve any remaining unresolved write-in votes in Tally *after* all provisional ballots and remaining absentee ballots are processed in the canvass.

Detailed instructions for processing write-in votes in Tally, including the creation of spelling variations for a write-in, are provided in the Hart InterCivic *Tally Operations Manual 6100-049 Rev. 43-62C* and *Tally Training Manual 6300-005 62A*.

#### **8.6 1% Manual Recount Procedures**

In accordance with California Election Code §15360, for the purpose of validating the accuracy of the computer count, within fifteen days after every election, a public manual recount of the ballots cast in at least one percent of the precincts, chosen at random, shall be conducted as to all candidates and ballot measures voted on in each of the precincts. If the random selection of precincts results in an office or ballot measure not being manually

recounted, as many additional precincts as necessary shall be selected and manually recounted as to any office or ballot measure not recounted in the original sample.

The date and time for selection of random precincts should be publicly noticed prior to the election, and should be observable by interested parties, based on established jurisdiction procedures. Further the method for selection of the precincts must be observably random.

The actual manual recount shall be conducted in accordance with California Election Code §15360, §19253 and the prevailing Uniform Vote Counting Standards established by the Secretary of State. The recount of votes cast on paper ballots shall be based on the actual paper ballots. The recount of votes cast on eSlates shall be based on the VBO paper audit trail.

If there is a discrepancy between the automated tally and the manual recount tally, the record from the paper ballots or the VBO paper audit trails shall prevail. (California Election Code §19253)

## 8.7 Handling Ballot Exceptions

In general, all ballot exceptions shall be resolved in accordance with the prevailing Uniform Vote Counting Standards established by the Secretary of State.

### 8.7.1 Undervotes

The eScans can be set in BOSS to require the voter's approval for scanning a blank ballot or a ballot with undervotes. In such a case, if the voter scans a ballot with undervotes, the ballot is returned to the feeder tray and a message appears on the eScan screen explaining what is wrong with the ballot. The voter can:

- 1) Remove the ballot from the feeder tray, make changes to the ballot, then re-scan the ballot, or
- 2) Press the command button to cast the ballot as marked.

Undervotes on eSlates are highlighted on the Ballot Summary page of the eSlate screen and the VBO printout of a Ballot Summary page as "No Selection". The voter can choose to cast a ballot with undervotes.

On ballots scanned by Ballot Now, undervoted contests are resolved as undervotes. The procedure for resolving undervoted contests in Ballot Now are described in the Hart InterCivic *Ballot Now Operations Manual 6100-067 33-62B* and *Ballot Now Software Training Manual 6300-003 62A*.

Undervote counts should be included in Tally reports.

### 8.7.2 Overvotes

Over-voting is prevented on the eSlate.

The eScans must be set in BOSS to initially return the ballot to the feeder tray and to present a message to the voter advising of the overvote(s). The voter may choose to either (a) cast the ballot as voted, or (b) remove the ballot and re-vote it. In the latter case, the poll workers must spoil the original incorrect ballot and supply the voter with a new blank ballot, in accordance with California Election Code §14288 & 14290.

If the eScan is programmed so that the poll worker must take action on over-voted ballots (such as when there are two or more sheets to the ballot), the poll worker must inform the voter of the over-vote, explain the consequences of casting an over-voted ballot and explain the voter's options to cast the ballot as voted or to spoil the over-voted ballot and re-vote a new ballot. The poll worker shall then take appropriate action to cast or spoil the ballot based on the voter's preference.

On Ballot Now, during review of scanned ballots, all over-voted contests shall be accepted and resolved as an over-vote, unless a valid vote choice can be determined based on voter intent in accordance with the prevailing Uniform Vote Counting Standards established by the Secretary of State.

### 8.7.3 Torn and Damaged Ballots

Ballots that are torn or otherwise damaged so that they cannot be read by either Ballot Now or the eScan, shall be remade in accordance with California Election Code §15210.

## 8.8 Post Election Logic and Accuracy Testing

Due to the ballot imaging technology employed in the eScan, a traditional post election logic and accuracy test is not required for the eScan. Nor is one required for the eSlate/JBCs, since all ballots cast are printed and voter-verified on the VBO paper audit trail.

A full logic and accuracy test must be performed post-election all Ballot Now scanners. This test should conform to the procedures for such testing detailed previously in Section 4.5 above.

Instructions for performing the logic and accuracy testing for the eSlates and eScans are described in the Hart InterCivic *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

## 8.9 Final Reporting of Official Canvass

The data for final reporting of the Official Canvass is derived from Tally. Before the data for the election is considered final in Tally:

- All MBBs for the election must have been read into Tally.
- All MBB data must have been tabulated by Tally.
- All provisional ballots must be assigned or rejected.
- All write-in votes must be assigned or rejected.
- The Tally election database must be finalized to label reports as "Official."

The Canvass Report can then be generated to serve as the Official Canvass for the election from the Canvass Report item in the Reporting tab.

- The Canvass Report must be printed from Tally. Use the "Total" canvass type to include all Absentee, Early, and Election Day results.
- Tally marks the Canvass Report as "Official" if it is printed after the Tally database is finalized.
- The Tally Custom Report Wizard can be used to generate subsets of the Canvass Report.
- The Tally Export Wizard can also be used to export results to a delimited text file.

## 8.10 Backup and Retention of Election Material

### 8.10.1 Archiving

At the close of the election, all data from the election is to be archived. Archiving of data is a simple process of copying information to a CD. The Tally application stores the complete record of the election. The BOSS database is used to initiate Tally, and when the MBBs are read into Tally, all CVRs and PVS audit data are stored by Tally. By copying the Tally database to CD you have archived the entire election. Data stored by the Rally stations must also be archived. It is recommended to archive the BOSS database separately, as well, so that both ends of the election cycle are distinct datasets. This will aid any subsequent review process that may be required. The data is copied to a CD-R disc (a read-only CD) using the CD-writing software on the Election computer.

#### 8.10.1.1 BOSS Database Backup

To backup and archive the BOSS database, navigate to the BOSS database folder and copy the entire numbered folder to CD, or use the Archive function in the Open Database window. The Archive function

saves only the original BOSS database (BossData.db) and database configuration (BossData.cfg) files to a new location, not the entire numbered folder.

Back up the numbered BOSS database folder (or use the Archive function in BOSS), and export all data:

- Immediately before exporting text for translation
- After importing translated text and audio
- After completing all proofreading and before generating the ballot
- After generating the ballot and writing media, but before finalizing the database
- After finalizing the database.

#### **8.10.1.2 Rally Database Backup**

To backup and archive all Rally databases, backup the "Database" folder (or use the Archive function in Rally) on each Rally station.

Back up the Rally database:

- After processing all MBBs and printing and exporting final reports and before resetting the Rally database (including before resetting the Rally database as an emergency procedure).

#### **8.10.1.3 Ballot Now Database Backup**

When backing up a Ballot Now database to CD, refer to the database "Election ID" in the Select Election window. This ID number is also viewable in the "Election Report". Follow the directory path to the folder with this Election ID (C:\Program Files\Hart Intercivic\Ballot Now\###). Back up the entire folder. In addition, back up the BNsecurity.db and BNsecurity.cfg files in the "Ballot Now" folder. Ballot Now does not include a "backup" or "archive" function within the application.

Back up the numbered Ballot Now database folder and BNsecurity.db and BNsecurity.cfg files:

- At any time before closing the election (optional)
- After closing the election.

#### **8.10.1.4 Tally Database Backup**

To backup and archive the Tally database by navigating to the Tally database folder and copying the entire folder to CD, or by using the Backup function in Tally. The Backup function saves the original Tally database file (TallyData.db) and configuration file (TallyData.cfg) to a new location. Hart InterCivic recommends that Tally databases be backed up frequently during live election tabulation.

Back up the numbered Tally database folder (or use the Backup function in Tally):

- After each instance of creating printed and exported reports for public use (e.g., media outlets)
- After processing absentee by-mail MBBs on Election Day
- After processing Early Voting MBBs
- After each instance of creating printed and exported reports for public use (e.g., media outlets) on Election Day
- After processing absentee by-mail late mail MBBs after Election Day
- Before resolving write-in votes
- Before resolving provisional ballots
- Before finalizing
- After finalizing
- Immediately after Canvassing.

#### **8.10.1.5 JBC, eSlate, eScan Backup**

The Cast Vote Records and the audit log data from all eSlates, JBC, and eScans used in the election are downloaded into a database using the SERVO application. Separate "Events" are created in SERVO for downloading of Absentee, Early, and Election Day CVRs and audit logs. Once these records are backed up from all devices, the SERVO database must also be backed up to CD. The procedures for creating this backup data for an election in SERVO and for archiving the SERVO database are described in the Hart InterCivic *SERVO Operations Manual 6100-102 Rev. 42-62B* and the *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

#### **8.10.2 Retention**

All reports printed from JBCs and eScans shall be retained in a secure location.

Master copies of all data identified above in this section shall be retained in a secure location designated by the local election official and separate from the location of working copies:

- For as long after the election as required by law; or
- By order of a court or directive of the Secretary of State.

After certification of the election results, any changes to the central tabulating software or the ballot results sets shall be completely documented in the central system internal audit log. Upon certification of the election results, California Election Code § 17300 - 17306 and 17501 through 17506 apply to the handling, security and disposition of elections materials, including unused materials.

##### **8.10.2.1 Database Backups**

Backups made on CDs (read-only compact discs) of the election's databases from the BOSS, Ballot Now, Tally, Rally, and SERVO applications shall be retained in a secure location. The procedures for backing up databases to CD are described in the Hart InterCivic *Hart Voting System Support Procedures Training Manual 6300-006 62C* and in the Operations Manual for each software application.

##### **8.10.2.2 Record Logs from Polling Places**

All record logs from pre-election equipment preparation and from polling places shall be retained in a secure location. Record logs include:

- Ballot Seal and Certificate Logs
- Device Serial Number Logs
- Canceled Booth Log (JBC/eSlate only)
- Spoiled Ballot Log (eScan only)
- Replacement Paper Ballots Log & Envelope (eScan only)
- Help Desk Call Log
- Reconciliation Logs

##### **8.10.2.3 JBC Reports**

JBC reports print out on the JBC printer. For each JBC used in the election, the following reports must be retained as part of the election record:

- Device Power Up Report
- Election Identification Report
- Network Configuration Report
- Zero Tape Report
- By Contest Tally Report
- By Precinct Tally Report
- Polls Open Report

- Access Code Report
- Access Code Status Report
- Aborted Access Codes
- Recovered Access Codes
- Daily Summary (early voting only)
- Cumulative Summary (early voting only)
- Polls Suspended Report (early voting only)
- Polls Suspended Daily Detail Report (early voting only)
- Polls Closed Report
- Tally Report
- Write In Report

#### **8.10.2.4 eScan Reports**

eScan reports print out on the eScan printer. For each eScan used in the election, the following reports must be retained as part of the election record:

- Device Power Up Report
- Election Identification Report
- Network Configuration Report
- Zero Tape Report
- By Contest Tally Report
- By Precinct Tally Report
- Polls Open Report
- Daily Summary (early voting only)
- Cumulative Summary (early voting only)
- Polls Suspended Report (early voting only)
- Polls Suspended Daily Detail Report (early voting only)
- Polls Closed Report
- Tally Report
- Write In Report

## **9 Manual Recount Procedures**

### **9.1 Request for Recount and Conduct of Recount**

A request for a recount and the conduct of the recount shall be made in accordance with the Division 15, Chapter 9 of the CA Elections Code.

### **9.2 Recount Methods**

California Election Code §15627 specifies that the person who requests the recount may specify whether the recount shall be conducted manually, or by means of the voting system used originally, or both. For this HART system, there are three possible methods for conducting the recount in California. The requestor must specify which method is to be used:

- **Fully Automated** – A Recount MBB is generated by SERVO that contains all the Cast Vote Records (CVRs) for every eScan and eSlate used in the election. A Recovery MBB is generated by Ballot Now that contains the CVRs for all ballots recorded by Ballot Now. The vote results are re-tabulated in from these new MBBs.

- **Partially Automated** – Paper Ballots originally scanned through eScans are re-scanned through an eScan with an unused MBB from the Election. Paper Ballots originally scanned through Ballot Now are re-scanned in Ballot Now with a new MBB. For votes cast on eSlates, the CVRs for each eSlate are printed from SERVO and manually tabulated.
- **Manual** – All paper ballots are manually tabulated. The votes cast on eSlates are manually tabulated from the eSlate VBO paper audit trails.

For recount of contests that span multiple jurisdictions using this voting system, each jurisdiction must use the same method for conducting the recount of that contest.

### 9.3 Observer Panels

Each candidate in a challenged contest and, in the case of a ballot measure, each side, shall be allowed not more than two observers for each recount board. No observer may touch or handle the transport media or any ballots. All questions must be directed to the elections official in charge of the recount.

### 9.4 Ballot Resolution

Ballot resolution, including resolution of write-ins, in both Ballot Now and Tally, must be conducted in such a manner that a complete observer panel has full view of the ballot image and the actual resolution decisions made for each ballot.

All ballot resolution decisions must conform with the prevailing Uniform Vote Counting Standards established by the Secretary of State.

If there is a discrepancy between the original tally and the recount tally, the recount tally shall prevail.

### 9.5 Hours of Operation

Prior to the beginning of the recount, all parties will be notified of the hours of operation.

### 9.6 Ballot Supervision/Breaks

At least two people will attend ballots at all times during the recount, including breaks and lunch periods.

Recount boards will be permitted break periods in the morning and afternoon, in addition to a lunch break. They will not stop for a break or for lunch while recounting a precinct.

## 10 Security

### 10.1 Physical Security of System and Components

#### 10.1.1 Controlled Access to Election Computers

The Election Management computers and servers should be kept in a room for which access is physically limited to only authorized personnel. The room should be locked except during working hours. Access to the computer room should be logged and monitored. If the room cannot be sealed during non-work hours such that any off-hours access to the room is readily detectable, the access logs for the room should be regularly reviewed (at least monthly) for unauthorized entry.

Computers should be locked to a desk, table, or stanchion. The housing of a computer should be locked to prevent access to the inside of the computer.

#### 10.1.2 eCMs (eSlate Cryptographic Modules)

eCMs written for the election should be kept in a secure location that will prevent unauthorized access to the eCMs. Removal and use of the eCMs should be logged, witnessed and monitored.

### 10.1.3 Voting Devices Used In the Polling Place

#### 10.1.3.1 Security Seals

JBCs, eSlates, VBOs and eScans shall be secured with one or more serialized, tamper-evident seals once programmed and prepared for Election Day, such that the product case cannot be opened undetected for access to the internal parts/components of the device. The MBB compartment on each JBC and the eScan must be sealed and the serial number logged. The VBO must be secured to the voting booth with a seal and the serial number logged. See sections 4.8.2.1 JBC and eScan Preparation, 4.8.2.2 VBO Preparation, and 4.8.2.3 eSlate and Booth Preparation.

Further, if the JBCs or eScans are shipped with the MBB inserted, the compartment containing the MBB must be secured with a serialized, tamper-evident seal immediately after insertion. If the MBBs are shipped to the precinct separately (not sealed inside a JBC or eScan), the MBB must be shipped within a secure container that is either serialized and tamper-evident, or secured with a serialized, tamper-evident seal. Once the MBB is inserted into the device on Election Day, the MBB compartment must be sealed with a serialized, tamper-evident seal.

Finally, the integrity of all seals should be inspected, verified, and logged by multiple members of the precinct board prior to the opening polls, on a regular basis throughout election day, just after closing the polls, and upon receipt of the equipment at the Jurisdiction's central headquarters.

If a breach of a security seal is discovered prior to the opening of the polls on Election Day, the machine should either be removed from service and replaced or reprogrammed and resealed in accordance with these procedures, as determined by the chief election official of the jurisdiction. If a breach of a security seal is discovered after the opening of the polls on Election Day and votes have been cast on that device, the device should be taken out of service and replaced if possible. During the canvass, all ballots scanned or voted on that device must be manually counted and tabulated, in addition to the 1% manual tally required by law.

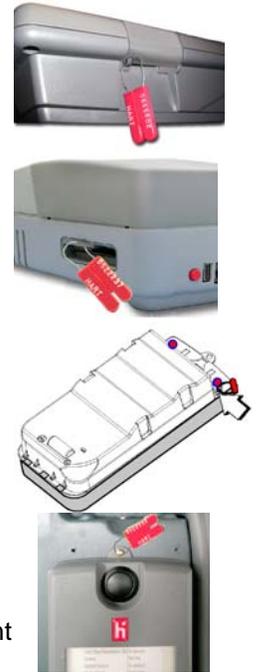
#### 10.1.3.2 Delivery of equipment

If voting equipment and supplies are given to a poll inspector in advance of an election, that poll inspector must have had training and instruction on securing the equipment, and who has been sworn in as an election officer or poll worker. The equipment should be delivered to the poll inspector no earlier than necessary.

- Poll inspectors should be deputized to act as agents of the Registrar of Voters, taking an oath of office from Article 20, Sec. 3a of the Constitution of the state of California and swear to uphold the laws of the United States and the State of California.
- After taking the oath, when the voting supplies and equipment are given to the poll inspector, each inspector must sign a receipt with the date, precinct number, number of ballots, identification or serial number of equipment, etc.

#### 10.1.3.3 Advance delivery of equipment

If voting equipment and supplies are delivered directly to a polling place in advance of the election, the delivery should take place under the observation of a member of the county's elections staff. If the equipments is delivered by a third-party drayage company, the equipment must be secured inside a locked container that is further sealed with an additional tamper evident seal. At the polling place, the equipment must be locked in a secure location that has received prior approval by the election official or deputy, and that will prevent unauthorized access to the equipment. The equipment should be delivered to the polling place no earlier than necessary.



#### **10.1.3.4 Polling Place Equipment After the Close of the Polls**

Jurisdictions have two options for closing the polls and returning equipment and supplies:

- a) All equipment and supplies are returned to the jurisdiction or a designated satellite location on Election Night, or
- b) The MBBs, together with the other precinct supplies are returned on election night, voting equipment is left secured at the polling place for later pickup and return to the jurisdiction.

If all equipment and supplies are returned, the equipment must be transported in the joint custody of two or more pollworkers at all times. The MBBs must be left sealed in the equipment with the serialized, tamper-evident seal intact. Immediately upon return of the equipment, the jurisdiction must verify the integrity of all seals before they are broken and the MBB is removed, read, and tabulated.

If equipment is left in the polling place for later pick-up, the integrity of the tamper evident seals must be verified by multiple poll workers before the tamper-evident seal is broken and the MBB is removed. Once removed, the MBB must immediately be secured in a secure, serialized tamper-evident container, or a secure container that is sealed with a serialized, tamper-evident seal. Further, the compartment that contained the MBB must be re-sealed with a serialized, tamper-evident seal. The polling place supplies that are returned should include a record of the serial numbers of the seals used to secure the MBB compartment on the equipment, as well as the precinct supplies returned. Finally, the equipment must be locked in a secure location that has received prior approval by the election official or deputy, and that will prevent unauthorized access to the equipment.

#### **10.1.4 Storage of Equipment Between Elections.**

Between elections, all voting equipment must be kept in a secure facility where access to the equipment is limited to authorized staff and unauthorized access to the equipment is readily detectable. A tracking mechanism must be used that will allow a county to document all personnel who have entered and exited the storage facility.

### **10.2 Logical Security of System and Components**

Hart Voting System software applications are installed by Hart InterCivic personnel. All computers running Hart System 6.2 applications may be networked with each other, but that network must be physically isolated from any other network and the internet.

#### **10.2.1 Essential and Non-Essential Services and Ports**

The following services must be disabled on the jurisdiction's Election Management System PCs at installation and must remain disabled

- Internet Connection Sharing
- Automatic Updates
- Fax Service
- Messenger
- Outlook
- NetMeeting Remote Desktop Sharing
- Telnet
- Wireless Configuration
- Autorun

The Election Management computer will allow access to:

- CD-writing software
- Text editor software

- System printer

### 10.2.2 User Level Security

The BOSS, Tally, Rally, Ballot Now, and SERVO applications require login and password to start the application. The administrator logins and passwords used by Hart InterCivic personnel during installation of the applications must be deleted immediately after taking acceptance of the system.

The permission levels for users are defined by the jurisdiction when users are added to each software application. Administrative and data entry level users can be defined in all Hart Voting System software applications that require user IDs and passwords.

Permission levels for users and the composition of User IDs and passwords are described in the Operations Manual for each Hart VS application:

- BOSS - *Ballot Origination Software System Operations Manual 6100-019 Rev. 43-62B*
- Ballot Now - *Ballot Now Operations Manual 6100-067 Rev. 33-62B*
- Tally - *Tally Operations Manual 6100-049 Rev. 43-62C*
- Rally - *Rally Operations Manual 6100-114 Rev. 23-62A*
- SERVO - *SERVO Operations Manual 6100-102 Rev. 42-62B*

Suggestions for the composition of User IDs and passwords are given in the section titled *Password Security* in the Hart InterCivic *Hart VS Product Description 6000-060 Rev. 62A* document.

The JBCs and eScans require 6-character passwords for the following functions:

- Start-up
- Open polls
- Close polls

The eScan also requires a Pollworker password for configuration and accepting rejected ballots.

The passwords for JBCs and eScans used in the election must be made available to the pollworkers in a controlled, secure manner. NOTE: The passwords for JBCs are the same for all JBCs used in the election and the passwords for eScans are the same for all eScans used in the election. Therefore, these passwords must be changed for every election.

### 10.2.3 Anti-Virus Protection

Anti-virus software is purchased and licensed by the jurisdiction.

Anti-virus software is only installed and configured by Hart InterCivic personnel.

The jurisdiction is responsible for obtaining and installing signature updates on a weekly basis. Computers running Hart System 6.2 applications may not be connected to external networks or the internet to update anti-virus software and signatures. Instead, this must be done from removable media, such as a CD. (Please contact Hart InterCivic directly for instructions on how this is done for the anti-virus applications installed on your computers.)

### 10.2.4 Procedures for Verifying, Checking, and Installing Essential Updates and Changes

Installation of software and firmware upgrades is performed only by Hart InterCivic personnel if or when necessary. No software or firmware upgrades may be performed unless the upgrade has been certified by the Secretary of State.

#### **10.2.4.1 Audit Records for the Changes**

Hart InterCivic supplies a log to the jurisdiction and keeps its own record of what software or firmware has been upgraded, when it was upgraded, who performed the upgrade, and why the upgrade was performed. These logs must be retained for the life of the Hart Voting System.

#### **10.2.4.2 Installation Procedures for Updates**

Hart InterCivic personnel use standardized procedures for installing updates to Election Management System PCs or eSlate system devices. Installations will only be performed from trusted installation versions obtained directly from the Independent Testing Authority (ITA).

#### **10.2.4.3 Acceptance Testing After the Installation**

Hart InterCivic requires the jurisdiction to formally accept upgrades made to their Election Management System PCs, eSlate System, or eScan System devices.

For upgrades to Election Management System PCs and/or Hart Voting System software, Hart InterCivic personnel will provide a log of software to be upgraded along with a description of changes in the upgraded software, and will install the upgrades certified by the Secretary of State. The versions of upgrade software will be verified by viewing the application version number in the application's About window, accessed from the Help menu.

The equipment acceptance testing will be performed as described in section 3.4 Acceptance Testing.

Formal acceptance of the application software upgrades will consist of dated signatures on the upgrade document by the representative of the jurisdiction and the representative from Hart InterCivic.

### **10.2.5 Cryptography and Digital Signatures**

An eCM (eSlate Cryptographic Module), a physical Spyrus USB security key provided by Hart InterCivic, is required for access to secure functions in the BOSS, Tally, Rally, Ballot Now, and SERVO applications on the jurisdiction's Election Management System PCs. Components for communication with the eCM are installed on the jurisdiction's Election Management System PCs when an Election Management System's application is installed.

A new signing key must be created for every new election using the Hart InterCivic eCM Manager application. The signing key is generated automatically by the eCM Manager application and the PIN is user-defined. The signing key for an election and a PIN are written to an eCM using the eCM Manager application.

The eCMs should be closely managed. The number of eCMs being used for an election and their PIN(s) should be logged in a secure location. eCMs should be labeled with the election name or similar information, but NOT with the eCM Key ID or PIN. eCMs should be stored in a secure location, separate from election MBBs.

In a given election, the signing key on the eCM is used by the BOSS application to accept the ballot formats for the election. BOSS writes the Election's signing key to every MBB, along with the Election's ID. A matching signing key must be present in the eCM(s) used in the Ballot Now, Tally, Rally, and SERVO applications.

When the eCM is accessed by the BOSS, Tally, Rally, Ballot Now, or SERVO applications, the operator is required to enter the eCM PIN (a password selected by a jurisdiction administrator before the signing key is written to an eCM for an election).

The JBCs and eScans are reset in SERVO to use the Election's signing key stored in the eCM. When a JBC or eScan is used in an election, the signing key on the device must match the signing key on the MBB.

### **10.3 Security Procedures for Central Processing**

MBB processing and Election Night procedures for Central Processing are described in detail in the *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

MBBs, eSlates, JBCs, and eScans, paper ballots, and their associated logs from the polling places, and from Rally stations if used, are delivered to Central Processing as described in Section 5.8, Securing Audit Logs and Backup Records, and in Section 10.1.3, Voting Devices Used In the Polling Place, above. Only Jurisdiction personnel may have custody of any devices, paper ballots, VBO paper rolls, and documentation from the polling places and Rally stations.

Upon return to the jurisdiction, all equipment is to remain in the custody of one or more persons until secured against undetected tampering.

The MBBs from the Rally station(s) are delivered to Central Tabulation, they are read again into the Tally System. The unique serial number in the MBBs is used to prevent duplicate storage of the information in the MBB.

Public access to Central Processing procedures shall be limited to viewing only. The public, including official observers, shall not be permitted physical access to ballots, MBBs, polling place records, voting equipment or any computer or network running components of this voting system.

A number of Jurisdiction personnel are engaged to remove the MBBs from the JBCs and eScans so they can be read into Tally. To remove the MBB from a JBC or eScan, the integrity of the tamper-evident seals, including the serial number of the security seal is recorded and verified before the security seal is removed, and then the MBB is removed. Different Jurisdiction personnel are engaged to review the reconciliation logs and Tally Reports from the JBCs and eScans from each polling place. Other Jurisdiction personnel use SERVO to back-up the JBCs, eSlates, and eScans, verifying serial numbers for each. Each group of Jurisdiction personnel is responsible for ensuring the security of the devices and documents they manage during these procedures. Additional Jurisdiction personnel retrieve the VBO units from the booths by recording the serial number from each VBO unit security seal, remove the security seal, and take the VBO unit out of the booth. Additional Jurisdiction personnel remove the verified printout rolls from the VBOs by recording the serial number from each paper roll security seal, removing the security seal, opening the VBO unit and removing the printout roll from the VBO unit.

#### 10.4 Security Procedures for Polling Place

Please refer to Section 10.1.3.2 above for procedures and requirement for transport of voting equipment and supplies to the polling place, as well as back to the jurisdiction for tabulation.

During polling place setup and prior to the opening of the polls, the integrity of all security seals, including serial numbers, shall be verified, recorded and countersigned by at least two poll workers at each precinct.

Throughout the day on Election Day, at intervals of no greater than one hour, poll workers shall verify the integrity of all security seals, including serial numbers of the seals.

All voting equipment shall be positioned such that it can be continuously observed by the poll workers.

Polling place records shall remain in the custody of poll workers and shall not ever be accessible to the public.

Voting equipment, ballots and the ballot box, and polling place records shall at no time be in the sole custody of any one person.

The poll workers are required to immediately notify the jurisdiction's chief election official if it is discovered there is a breach of any seal or any other violation of the security procedures in this section.

#### 10.5 Audit Trails

All components of the Hart Voting System create an audit record anytime they are accessed or information is changed. All audit records can be extracted and printed in hard copy. All audit reports must be printed and archived in hard copy and may also be saved electronically to CD-ROM, as needed.

- The BOSS, Tally, Rally, Ballot Now, and SERVO applications create audit logs of actions performed. Tally and Rally audit logs can also be printed in real-time to a line printer or to a file. The audit log reports for the software applications are described in their respective Hart InterCivic Operations Manuals:
  - BOSS - *Ballot Origination Software System Operations Manual 6100-019 Rev. 43-62B*
  - Ballot Now - *Ballot Now Operations Manual 6100-067 Rev. 33-62B*

- Tally - *Tally Operations Manual 6100-049 Rev. 43-62C*
- Rally - *Rally Operations Manual 6100-114 Rev. 23-62A*
- SERVO - *SERVO Operations Manual 6100-102 Rev. 42-62B*

The JBC, eSlate, and eScan devices create audit logs that are stored in the device and on the MBB. These audit logs are readable and can be printed to PDF files through the Device Audit Log reports in SERVO for archiving as part of the Election record.

### 10.5.1 Checklist of Audit Trail Reports

- BOSS
  - Audit Trail Report – Generated from the Audit Trail command in the Reports menu.
- Ballot Now
  - Election Database Audit Log – Generated from the Audit Log – Election command in the Reports menu.
  - Security Database Audit Log – Generated from the Audit Log – Security command in the Reports menu.
- Tally
  - Audit Log – Generated from the Audit Log item in the Reporting tab.
- Rally
  - Rally – Internal Audit Report – Generated by clicking the Application Log quick link in the sidebar or by selecting the Reports command in the File menu to open the Report Selection window, then selecting Internal Audit Report.
- SERVO
  - Device Audit Log – Generated from the Device Audit command in the Reports menu.
  - SERVO Internal Audit Report – Generated from the SERVO Audit command in the Reports menu.

## 11 Biennial Hardware Certification and Notification

California Election Code §19220 requires jurisdictions to examine voting systems every two years and certify the results to the Secretary of State.

### 11.1 eSlate System Test Procedure

The eSlate System test procedure for voting system examination is a combination of portions of the eSlate System acceptance and functionality test procedure and the eSlate System logic and accuracy test procedure described in *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

#### 11.1.1 eSlate System Equipment Test

In brief, the steps for examination of JBCs, eSlates, and VBOs are as follows after the CVRs and audit logs from the previous election have been backed up to Events in the SERVO database.

- Use SERVO and an eCM to write an Election signing key to the JBCs and to clear the CVRs and audit logs from the JBCs and eSlates.
- Set up an election in BOSS and write Test MBBs and Audio cards.
- Install batteries in the JBCs, eSlates, and VBOs.
- Install paper in the JBCs and VBOs.
- Install a Test MBB in each JBC.

- Set up each JBC connected to up to 12 eSlates that are connected to VBO units. One eSlate should be a DAU eSlate equipped with an Audio card, headphones, and tactile input switches.
- Connect the VBO to power.
- Connect the JBC to power.
- Log the success/failure of each of the following conditions:
  - Verify that the JBC and the connected eSlates/VBOs power up and that the JBC printer and the VBO printer print the initialization/power-on reports.
  - Verify that the AC and Battery power messages on the JBC screen indicate "OKAY".
  - Verify that the power supply messages on the eSlate screens indicate "OKAY".

### 11.1.2 eSlate System Logic and Accuracy Test

In brief, the steps for examination of the logic and accuracy of the eSlate System are as follows.

- Print a test deck of ballots from Ballot Now.
- Vote test deck paper ballots.
- Cast matching votes on the eSlates and monitor the accuracy of the ballot summary page printout on the VBO.
- Scan test deck paper ballots in Ballot Now.
- Tabulate MBBs from eScans and JBCs in Tally and verify results.
- Document the logic and accuracy tests.

## 11.2 eScan System Test Procedure

The Scan System test procedure for voting system examination is a combination of portions of the eScan System acceptance and functionality test procedure and the eScan System logic and accuracy test procedure described in *Hart Voting System Support Procedures Training Manual 6300-006 62C*.

### 11.2.1 eScan System Equipment Test

In brief, the steps for examination of eScans are as follows after the CVRs and audit logs from the previous election have been backed up to Events in the SERVO database.

- Use SERVO and an eCM to write an Election signing key to the eScans and to clear the CVRs and audit logs from the eScans.
- Set up an election in BOSS and write Test MBBs and Audio cards.
- Install paper in the eScans.
- Install a Test MBB in each eScan.
- Connect the eScan to power and turn it on.
- Log the success/failure of each of the following conditions:
  - Verify that the eScan powers up and the screen displays the power-up messages.
  - Verify that the eScan printer prints the initialization report.
- Enter the start-up password and open the polls
- Inspect the eScan ballot box and test locking it with the key.
- Inspect the eScan emergency ballot tray inside the ballot box.

### 11.2.2 eScan System Logic and Accuracy Test

In brief, the steps for examination of the logic and accuracy of the eScan System are as follows.

- Print a test deck of ballots from Ballot Now.
- Vote test deck paper ballots.
- Log the success/failure of each of the following conditions:
  - Verify that a blank ballot from the election scans.
  - Verify that a marked ballot from the election scans.
  - Verify that an undervoted ballot from the election scans.
  - Verify that an overvoted ballot from the election scans.
- Tabulate MBBs in Tally and verify the vote results.
- Document the logic and accuracy tests.