ES&S InkaVote Precinct Ballot Counter, Version 1.10
Gateway and EMS Software Products

Voting System Use Procedures

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Voting System Use Procedures

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Preface

The *California Election Procedures* for ES&S Voting Systems contains guidelines for following election procedures adopted by California's Secretary of State according to the state Elections Code sections 19100 and 19205. The procedures for using the ES&S InkaVote Precinct ballot Counter described here constitute a minimum standard of performance are not intended to preclude additional measures implemented by individual election officials to enhance security and reliability for the election process.

About ES&S

Election Systems & Software, Inc. is one of the world's largest and most experienced providers of total election management solutions. The ES&S mission is to support democracy worldwide by providing proven, accurate, and innovative election systems and services to voters and election officials.

The ES&S vision is to continuously improve and grow our integrated total election solutions that provide "Better Elections Every Day." We will accomplish this vision with an uncompromising commitment to customer satisfaction and integrity within the election process.

ES&S has exclusive worldwide license to manufacture and sell the InkaVote Precinct Ballot Counter ("PBC") and any related systems and software developed by Unisyn.

About Unisyn

Unisyn Voting Solutions is a wholly owned subsidiary of International Lottery & Totalizator Systems (ILTS), a leading supplier of computerized transaction processing systems to government sanctioned lotteries and racing organizations worldwide. Unisyn was formed following the 2000 election to utilize ILTS' secure transaction processing expertise to improve the process by which votes are collected and tabulated.

About the ES&S InkaVote PBC

In developing the InkaVote PBC system for ES&S, Unisyn brings security, operational excellence, and transaction processing expertise from the lottery industry to improve the process by which votes are collected and tabulated. The paper-based system retains the familiar elements of traditional voting systems while providing increased management and control of ballot tabulation at the precinct level. Most importantly, the PBC meets all HAVA requirements including an audible ballot for visually impaired voters, and ballot validation at the precinct, as well as a voter verifiable paper audit trail.

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1. Introduction to the System

The *ES&S InkaVote PBC Voting System Use Procedures* contain guidelines for following election procedures adopted by California's Secretary of State according to the state Elections Code sections 19200 and 19205 and govern the use of the ES&S InkaVote Precinct Ballot Counter (PBC) systems at all elections governed by the California Elections Code. Use the information in the *California Election Procedures* to conduct all elections governed by the California Elections Code when you use ES&S InkaVote PBC systems.

Follow the guidelines included in this guide along with all other statutory and regulatory requirements. Whenever possible, perform all of the procedures described in this manual in the full view of the public.

The procedures contained in this manual shall be effective beginning **03/10/2006** and shall be used in conjunction with all other statutory and regulatory requirements. Should there be a conflict with current or future provisions of the Elections Code, such provisions shall take precedence. Insofar as feasible, all procedures prescribed herein shall be carried out in full view of the public.

The procedures described here constitute a minimum standard of performance and are not intended to preclude additional measures implemented by individual election officials to enhance security and reliability for the election process.

Consult the California Elections Code for the exact election requirements in your jurisdiction. Contact California's Secretary of State or go online to www.leginfo.ca.gov/cgi-bin/calawquery?codesection=elec&codebody=&hits=20 for a copy of the California Elections Code.

1.1 System Description and Components

The ES&S InkaVote Precinct Ballot Counter (PBC), **version 1.10**, provides optical mark scanning and audio voting at voting precincts. The system is supported by Unisyn Election Management System (EMS) and Gateway components, **version 1.1**.

1.1.1 Precinct Voting System Hardware and Software

Designed for easy setup at the polls, the PBC is rolled into the poll location in a wheeled case and wheeled ballot box. The audio component is carried in a case. The unit is assembled by setting the main PBC unit on top of the ballot box, and setting up the audio ballot booth provided in the audio case, as described in the *InkaVote PBC Setup Sheets*. There is a single multi-purpose cable that connects the audio booth to the main PBC unit, and there is a single power cable from the PBC unit that powers all components.

Figure 1: PBC Main Unit / Audio Ballot Case

The PBC is preconfigured with software, and the jurisdiction needs only to make sure a Transport Media (USB memory device) is inserted and to load the Election.

For the InkaVote PBC Version 1.10, a PC component integrated into the PBC case includes preinstalled Linux operating system firmware, as outlined in Section 3.3.1. Other pre-installed and pre-configured hardware components in the PBC case include a

ballot reader (optical scanner), a color touch-screen monitor, a report printer, the Transport Media, and a single power cable to power all internal components.

The accompanying audio ballot case includes headphones, a 5-key keyboard and an audio ballot printer.

1.1.1.1 Basic Voting Functionality

Voters mark their selections on a 312 position optical scan card and then insert the ballot card into the ballot reader slot on the PBC unit. An operator monitors the PBC touch screen at the other side of the unit.

Figure 2: InkaVote PBC System Installed

A green light on the ballot reader slot indicates when a voter can insert a card, and a red light indicates when the reader is not yet ready. A Braille label next to the reader slot guides visually impaired voters. When the voter inserts the ballot, the ballot reader mechanism draws in the ballot, scans preprinted marks on the card to determine the ballot style (precinct), then scans and validates the marked vote selections.

If a contest has too many selection marks (overvoted) or, optionally, not enough selections (undervoted), the reader ejects the ballot card back to the voter and the PBC prints a "Ballot Alert" that lists the overvoted (and/or undervoted) contests.

The voter then has the opportunity to correct the ballot (spoil the ballot and start a new one) or tell the operator he/she would like to "override" the errors. When the ballot is inserted and accepted (either there are no errors or the operator has selected "override"), the PBC uses the coded precinct ballot style to record the voter's ballot selections and stores the ballot image in an encrypted "vote file" on the system. The cast ballot event is logged, and the PBC's Public and Protective Counts are incremented. After the ballot has been processed, the ballot reader light turns from red to green, and another voter can insert a ballot.

1.1.1.2 Audio Voting Functionality

Voters may continue to insert, validate and cast their ballots at the PBC while a voter is using the audio ballot booth. To initialize the correct audio ballot for a voter, the PBC operator selects the audio voter's precinct, language, and party (as necessary) using the touch screen. The operator is always able to monitor ballot reader status in the upper portion of the PBC screen. When the voter is ready at the audio booth, the operator starts the audio narrative. The audio ballot proceeds independently of ballot reading at the PBC unit.

The voter at the audio booth hears an audio narrative through the headphones, beginning with instructions in the voter's language. The voter may use this time to adjust the sound or request help. The voter controls exactly when the ballot begins and the first contest is read. The voter may back up and change votes at any time or request the operator to restart the ballot. The operator can press a Cancel button to stop the ballot and restart it for the voter at any time.

The ballot is not cast electronically from the Audio Ballot booth; instead, a paper audio ballot slip is printed at the audio booth. In the privacy of the booth, the voter inserts the audio ballot slip into a secrecy envelope (sleeve) that allows easy insertion into the ballot reader slot. A poll worker may then assist the voter in inserting the audio ballot slip into the ballot reader slot. The ballot is cast and counted after being read by the PBC.

1.1.1.3 Delivery of Precinct Results

When voting is closed, the PBC operator closes voting on the system. The PBC tallies results at this time, and an Election Summary report automatically prints, showing results by precinct recorded at the PBC. After switching off the PBC, the poll worker removes the seal covering the PBC front door lock and transcribes the seal number on the provided precinct envelope. The poll worker then removes the assigned key from the precinct envelope, unlocks the front compartment door of the PBC, and removes the Transport Media (USB memory device) from the interior PC. The Transport Media and Election Summary report are delivered with other poll materials to a central count location for consolidated tabulation.

1.1.2 Supporting EMS Software Components

ES&S provides supporting EMS and "Gateway" programs to prepare ballot data for an election, tabulate votes and produce reports accumulated on the PBCs following an election. The EMS **Version 1.1** components are described in these *Procedures.* All PBC system components are shown in gray in the diagram below.

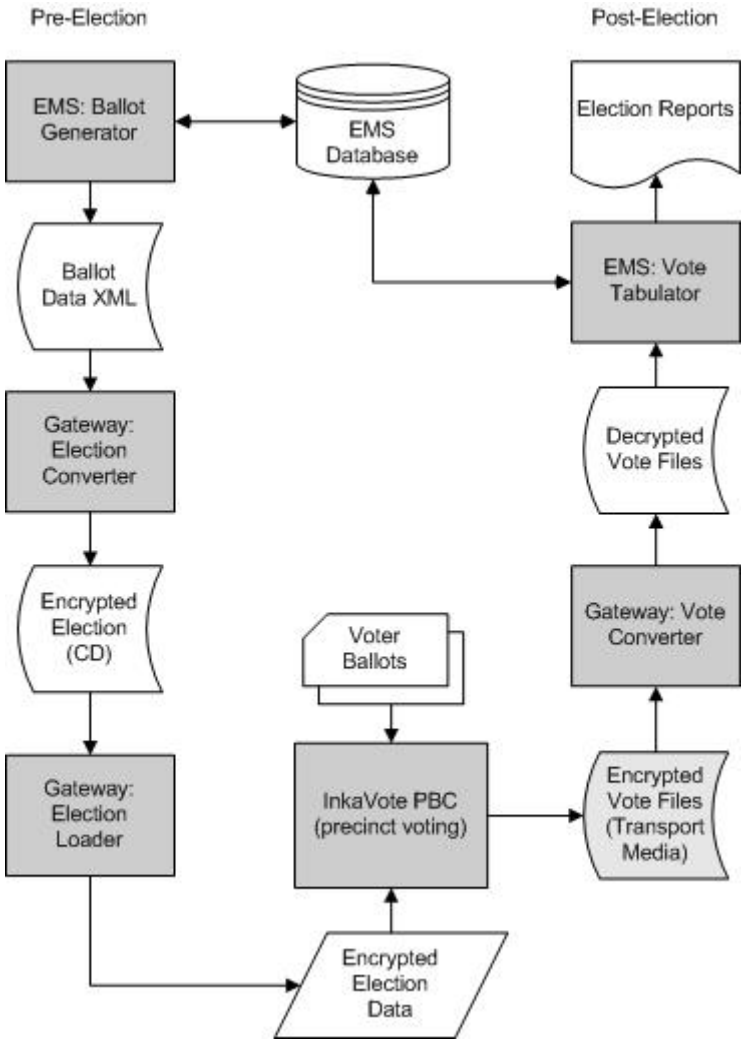


Figure 3: Voting System Data Flow

The EMS supporting components run on a Windows XP operating system, are software-only, and are installed on jurisdiction-owned PCs that meet minimum requirements. No separate installation / setup of third-party applications is required. The third-party software that is integrated and supplied as part the ES&S software installation is listed in Section 3.3.3.2. The components of the EMS Version 1.1 software are described below.

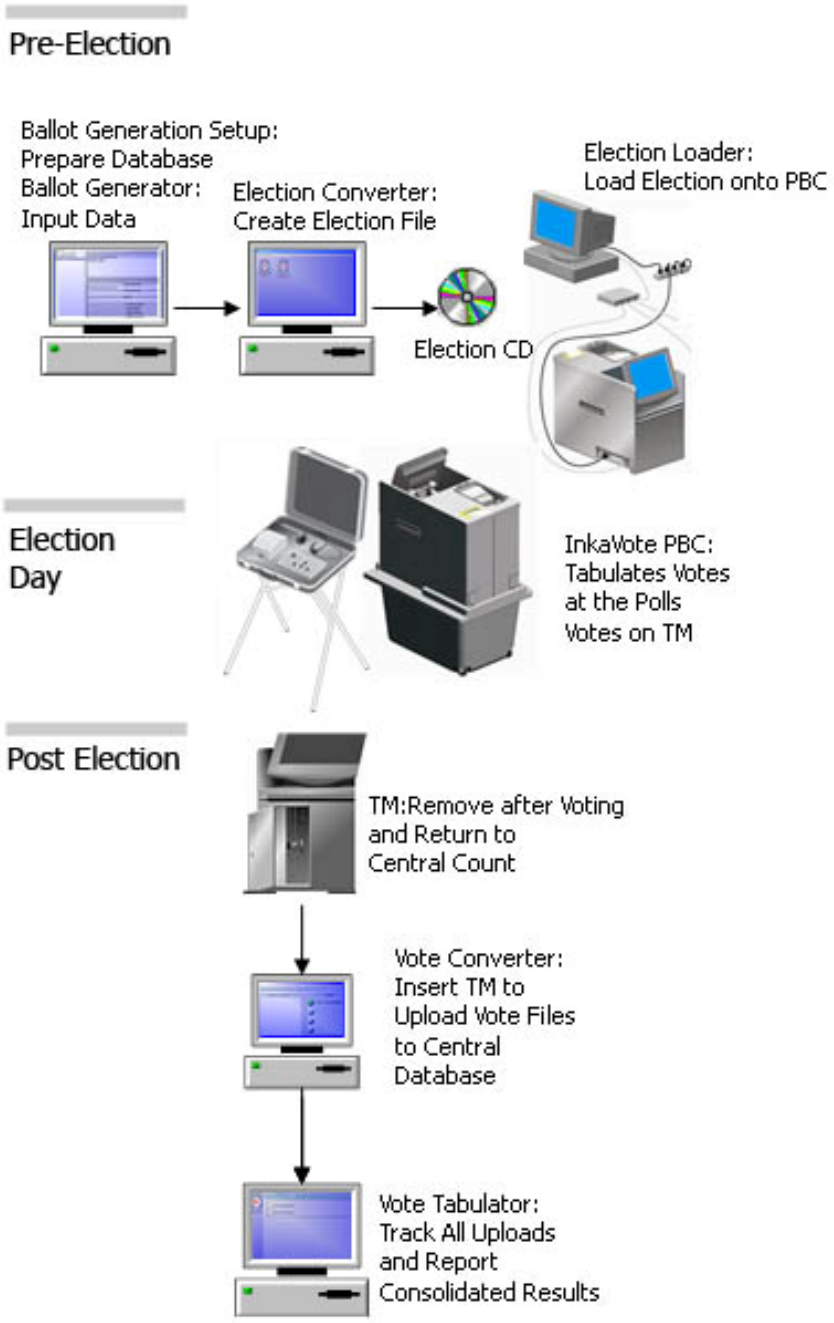


Figure 4: Voting System Process

A recommended configuration uses one computer for EMS components (Ballot Generation Setup, Ballot Generator, Vote Tabulator, EMS Database) and the Election Converter, a separate laptop for Election Loader, and a computer for Vote Converter uploading. A dedicated, local area network is required to load elections and to upload votes to the central database.

1.1.3 Ballot Generation Setup

The Ballot Generation Setup application allows the jurisdiction to specify district types (federal, state, assembly, etc.), parties and their rules (straight-ticket voting, primary elections, "Decline to State" ballots), and languages that will be used. This Setup prepares the EMS database for Ballot Generation.

1.1.4 Ballot Generation

An EMS Ballot Generator application is provided for input of district, precinct, and election data into an EMS database. The Ballot Generator also provides the means to input translations of general election text and contests. The Ballot Generator produces:

- Superuser and Admin accounts for login to the Ballot Generator, Election Converter, and Vote Tabulator
- Formatted ballot files to deliver to a printer
- Sample ballots
- Ballot style assignment report (showing punch codes for party/precincts)
- Audio Script report, including all translations, that can be used to produced sound files for the audio ballot
- An encrypted Election XML file for use with Election Converter
- A self-auditing Application Log file

The EMS Ballot Generator software is installed with the Vote Tabulator, Ballot Generation Setup, and the MySQL-type database they all use. See Section 3.1.2 for complete hardware requirements. A Windows-compatible printer is recommended for printing sample ballots, ballot proofs, and the audio script that will be used to create sound files.

1.1.5 Election Converter

The Election Converter application creates the Election CD that will be used in the Election Loader to load the election onto PBCs. The Election Converter produces:

- The Election password (enables Absentee, Provisional, or Recount tabulating on PBCs), if used
- Maintenance login passwords for use on the Election Loader, PBC, and Vote Converter
- Settings for InkaVote PBC options for this election
- Election files used on InkaVote PBC
- Sound files used on InkaVote PBC
- Encryption, compression, and output of all files to a single directory for easy creation of the Election CD
- Following an election, machine reports and indexing of report codes from uploaded PBC log files

- A self-auditing Application Log file

The Election Converter is installed with its own MySQL-type database on a Windows XP Pro computer system (can be the same as the Ballot Generator PC). Any Windows-compatible CD read-write drive with CD-burning software can be used to create the Election CD.

1.1.6 Election Loader

The Election Loader application requires a valid Election CD (containing files produced by the Election Converter) in order to run. When connected to a PBC, the Election Loader receives an HTTP request for a new election. If a new election is present on the Election Loader CD, the election is loaded onto the PBC. The Election Loader produces:

- Machine Logs that track each PBC receiving an election
- Election Logs that track all election loading activity for an election
- A self-auditing Application Log file.

An Election Loader PC ideally is a laptop with the Election Loader software installed and the Election CD pre-inserted in the CD-ROM drive. Multiple Election Loader PCs can be used to quickly install the encrypted election data onto multiple PBCs over a dedicated cable.

1.1.7 Vote Converter

Following an election, when Transport Media are removed from the PBCs and delivered to a Central Count location, the Vote Converter application is used to automatically upload and decrypt precinct vote files from the Transport Media (TM). An Election CD must be inserted in the Vote Converter PC.

The Vote Converter communicates directly with the Vote Tabulator. The Vote Converter determines whether an inserted TM is valid and whether the election data on the TM are for the election run currently active on the Vote Tabulator. If the data files are valid, it uploads the votes. The Vote Converter produces:

- Decrypted, uncompressed vote files for database use at a specific location
- Notification to the Vote Tabulator that files have been uploaded
- An Application Log file for audit purposes

The Vote Converter requires a Windows XP system with a CD-ROM and USB port.

1.1.8 Tabulation and Reporting

ES&S provides an EMS Vote Tabulator to consolidate election results from the counted PBC ballots. The system resides on the same PC as the Ballot Generator and accesses the same election database. The Tabulator uses the database to store votes, and creates reports from the vote files for the election. The Tabulator includes a “Run Session” mode

that determines whether voting files being uploaded should be for a Demo Election, a Logic Test, or an actual Election. The Vote Converter uploads voting data based on the Tabulator's active session.

As precinct results are uploaded, the Vote Converter notifies the Vote Tabulator. The Vote Tabulator generates and updates reports for viewing, saving, and printing during and after uploading. The Vote Tabulator produces:

- Upload Status Reports
- A consolidated Election Summary (by precinct)
- Machine Summaries (for each PBC)
- Statement of Vote (by contest and candidate)
- Voter Turnout report
- An Application Log for audit purposes

A Supplement to the Statement of Vote report can be produced via a "Reports" user account that allows direct, read-only access to the EMS database.

1.2 Terms and Definitions

The terms listed in alphabetical order below are used in following sections of this document to describe the various parts of the complete InkaVote PBC voting system.

Administrative Log. The PBC creates a sequential record of all significant actions performed on and by the system.

Application Log. The EMS software components log startup and actions occurring within the application. The encrypted Application Log can be viewed from the Help menu of each EMS software component.

Audio Ballot. A recording (sound files) of a particular ballot style, allowing a voter to listen to a narration of the ballot and make selections using a special keyboard.

Audio Ballot Components. The audio ballot hardware that is part of the InkaVote PBC includes headphones, a keyboard with large keys that the voter uses to navigate through and make selections in the ballot, and a thermal receipt printer (Ballot Printer) that prints the voter's selections on completion of the ballot.

Audio Ballot Slip. The pre-printed paper slip on which an Audio Ballot voter's selections are printed at the audio ballot booth.

Audit Trail. Voting data stored by the InkaVote PBC at the precinct. The PBC system records all votes cast (ballot images) for all contests in this file at the polling location. Also known as "Vote File" or "Ballot Image."

Ballot (card). The InkaVote PBC is a paper-based voting system that uses ink-marked ballot cards. Cards are pre-marked for precinct and, if applicable, party. Voter marks are scanned from the card and interpreted by the PBC based on precinct/party ballot information.

Ballot (electronic form). The electronic form of each ballot stored in the PBC system and used to record, tally, and report on the paper ballots read by the ballot reader. The ballot includes a list of contests and all available options for each contest. The ballot reader scans marked selections on the ballot card and matches them to positions on the electronic ballot. Recorded selections from a ballot are a "cast vote."

Ballot Alert. A receipt printed by the PBC Report Printer component when overvoted (and optionally undervoted) contests are detected by the PBC. The report lists the contests where the error occurred and, if desired, the voter may correct or redo the ballot before submitting it again. May appear in multiple languages.

Ballot Card. The paper, marksense ballot on which voters mark their selections using an appropriate marking device to indicate selections in available voting positions. The ballot card has detachable serialized stubs. The voter inserts a completed ballot card into the InkaVote PBC Ballot Reader Slot to cast a vote.

Ballot Pages. The printed pages of a ballot inserted into a vote recorder that guide voters to mark candidate selections on the ballot card. May appear in multiple languages.

Ballot Generator. A software application that allows an authorized user to add district, precinct, registered voter, party, rotation, and contest and candidate data to the EMS database.

Ballot Printer. Part of the InkaVote PBC system, a printer in the Audio Ballot Booth that prints an audio ballot slip with vote selections when a voter has completed the audio ballot.

Ballot Reader. Reader hardware (scanner) that reads the selections marked on the ballot card and delivers them to be recorded by the PBC system.

Ballot Style. The combination of offices, candidates, and measures to be voted on by voters of a specific geographic area and/or party. Ballot styles may differ in content, order and method of presentation (e.g., audio).

Baseline Software. Baseline software is the version of software that has passed ITA (with FEC number) and state certification and is initially installed on the customer's system. Versioning, approval procedures and documentation provide the base-lining method for software owned by a jurisdiction.

Cast Vote. When a voter completes and submits a ballot to be recorded.

Central Count Location. The Election Headquarters or other location where PBC votes are consolidated and reports are generated.

Consolidated Precinct. Two or more home precincts with the same ballot style placed together and renumbered as one precinct.

Decline to State. In a Primary Election, a voter that declines to state a party can vote a primary party ballot by "decline to state" (crossover) rules, where select contests are available for voting.

Demo Election. A fictional election, one precinct with a variety of contests, that can be loaded onto InkaVote PBCs for training and testing.

District. An administrative or electoral unit within a geographic area for which candidates (and laws) are elected.

Early Voting. A specified time period before an election, when registered voters from any precinct may go to a specified location to vote.

Election Converter. An application that prepares encrypted election data to be burned onto an Election CD, which is then used in an Election Loader to load the election onto InkaVote PBC systems.

Election CD. CD-ROM media containing encrypted, compressed election data that is loaded onto InkaVote PBCs.

Election Data. Compressed files (encrypted election XML data) specially formatted for the InkaVote PBC, deliverd on an Election CD.

Election Loader. A software that allows InkaVote PBC systems to access Election data delivered by the Election CD.

Election Headquarters. The Election Administration main office or central location where ballot generation, conversion and post-voting tabulation occurs.

Election Summary. A report detailing the results of all votes cast at a precinct polling location.

Election XML (input to Election Converter). A single encrypted XML file in a specific format that can be generated by Unisyn's Ballot Generator.

EMS. Election Management System. In this document, the Unisyn system that prepares and produces Election installation CDs, tabulates election results from all precincts and provides canvass reports.

InkaVote PBC. The precinct ballot counting system provided by Unisyn that includes a precinct controller PC, a ballot reader, a receipt printer, and audio ballot components.

Logic Test. The system includes the ability to test the Election data for logic before an Election.

Marksense Ballot Card. A predefined ballot card format intended for ink mark selection.

Multiple Selection Contest. The system supports contests where the voter is instructed to select from 1 to *n* candidates (*n* being defined in the ballot generation file) for equivalent positions in an office.

Official Canvass. The period starting when unofficial canvass has ended and all votes are consolidated to produce official election results.

Open Primary Election. The system supports a primary election where a voter does not have to declare a party until election day at the polls.

Overvote. The system prevents over-voting in an audio ballot, and the ballot reader ejects a ballot card back to the voter when overvotes appear on a card. An overvote occurs when more selections are made for a contest than are allowed by law. The InkaVote PBC operator may override the overvote for the voter and accept the ballot as is (overvoted selections are not counted). Overvote information is stored with the ballot data in the Audit Trail.

Poll Location. Where voting takes place. One poll location may serve one or more precincts.

Precinct. The system supports any number of administrative divisions of a contiguous geographic area in which voters cast ballots at the same polling place. As defined by the system, each precinct belongs to one poll location.

Precinct ID. The system reads a 4-digit precinct ID from the ballot card (or as operator input for an audio ballot) in order to retrieve the correct ballot style for the precinct.

Precinct Controller PC. The hardware/software component (computer with touch screen display) that runs the PBC client-server software and manages all system components.

Proposition Contest. The system supports any Yes/No or For/Against contest, also known as a measure, referendum or initiative.

Protective Count. The system tracks the number of votes (ballots) cast on a physical PBC system over its lifetime: a voting odometer. A second, Public, count is also maintained.

Provisional Voter. A voter not present in the Registration Roster who requests to vote (may be qualified to vote Presidential Only or as a New Resident). Ballots from these voters are not read, but are placed in a secrecy envelope which is inserted in the Secondary Ballot Slot to handled separately by poll officials.

Public Count. In addition to the Protective Count, the system tracks the number of votes cast (ballots) during an election session at a particular PBC.

Recall Contest. The system supports a Yes/No contest for the removal of an incumbent from an office, optionally followed by a replacement contest.

Report Printer. The PBC thermal printer component that prints Transaction Receipts, Election Summaries, Ballot Alerts, and other reports.

Retention Contest. The system supports a Yes/No contest for retaining or removing certain judges.

Run-off Election. An election where one or more offices must be presented to voters following an election where no person got a majority is supported by the system.

Single Selection Contest. A contest in which the voter is allowed to select only one candidate. Failure to vote for a candidate results in an under-vote situation.

Split Precinct. Precincts (geographic areas) that require more than one ballot format due to election district boundaries crossing and splitting the area. The system allows definition of splits from "parent" precincts for ballot generation and consolidation of voting results from splits for reporting purposes.

Tally File. Also called Election Summary report. On close of voting, the PBC creates a file that totals the votes cast during precinct voting. The tally results separate precinct results by ID and count write-ins (if applicable) as a group, but do not include Provisional votes (processed manually).

Transport Media. The system uses a USB storage device (memory stick) to physically transport precinct-voting data to headquarters for tabulation.

Undervote. The system supports an option to alert the voter when the maximum allowed selections for a contest have not been made. Undervotes can be tracked for tabulation reporting.

Unofficial Canvass. The period starting at close of polls on Election Night when precinct votes, absentee and provisional votes are uploaded, recorded and tabulated.

Vote Converter. An application that uploads and converts data from Transport Media following an election to send to a central count system.

Vote File. Also called Audit Trail. Stores voter selections for each ballot cast on the PBC system.

Vote Recorder. A physical holder with attached marker stylus that holds the ballot pages and ballot card. The voter uses the ink stylus to mark positions on the ballot card.

Write-in Candidate. The Precinct Ballot Counter supports a vote cast for an individual not listed on the ballot. The voter may mark a write-in position in addition to writing a name in a portion of the printed ballot card reserved for write-ins.

XML. The system processes files containing *Extensible Markup Language* (XML), a specification that allows creation of customized tags to define, transmit, validate and interpret data between applications and between organizations.

2. Ballot Definition

The ES&S InkaVote PBC system provides end-to-end handling of paper ballots, including generation of ballot styles for precincts, printing of ballots, and counting and tabulation of ballots.

2.1 Overview

The ES&S EMS Ballot Generator assigns ballot styles for each precinct (based on the district contests selected for the election) and prepares print-ready ballot page files in the form of high quality PDF files. ES&S works with the jurisdiction to specify and order the pre-printed optical scan ballot cards from a certified California Ballot Printer. Refer to the *Ballot Generator User Guide* for instructions on producing printer-ready ballots.

For voting, the voter is given a ballot and ballot card appropriate for precinct and, as applicable, party. The card is inserted in a vote recorder and the voter marks desired positions. Following voting, the voter inserts the marked card, top or bottom first, upside down or right side up, into the ballot reader slot of the PBC.

2.2 Paper and Printing Specifications

The jurisdiction may use any State Certified Printer to produce cards with appropriate machine-readable marks on paper stock. The 312-position cards must be printed to specification for scanning and processing by the InkaVote PBC ballot reader.

In accordance with California Elections Code §13002, all ballots must be tinted and watermarked or overprinted with the designated tint and design specified by the Secretary of State for each election.

2.2.1 Ballot Paper and Ink Specifications

Paper requirements for the InkaVote PBC ballot reader are as follows. Paper stock can be color coded for special purposes (provisional, absentee, etc).

- Paper stock has 75% minimum reflectance in red to near infrared (500-700 nm) region

- Porosity of 10 - 15 using the Gurley Test Method
  Smoothness 100 – 200 using the Sheffield Method, cut grain long, tear resistance of 40 – 70 grams
- Card width is 3.25 +/- 0.010 inches
- Cards length can be up to 12.0 inches
- Paper thickness is from 0.0034 to 0.0100 inches
- In the active data section, print is red reflective (minimum 70%) such as PMS 177, or black non-reflective (maximum 5%) ink
- Ballot cards have perforated, detachable stubs:
  (1) A half-inch stub with serial number at the top that remains with the poll official
  (2) An inch-and-a-half stub to use as a voter receipt
  (3) A two-and-a-half inch detachable stub for write-ins, which remains on the ballot
  The three detachable stubs are followed by the ballot card.

2.2.2 Punch Code

A punch code determines which ballot style the InkaVote PBC will use to interpret a marked ballot. The PBC is configured for precinct ballot styles based on the currently loaded election, according to an assignment designated by the Ballot Generator. To obtain these codes for an election, use the Ballot Generator's Election Ballotstyle Assignment report.

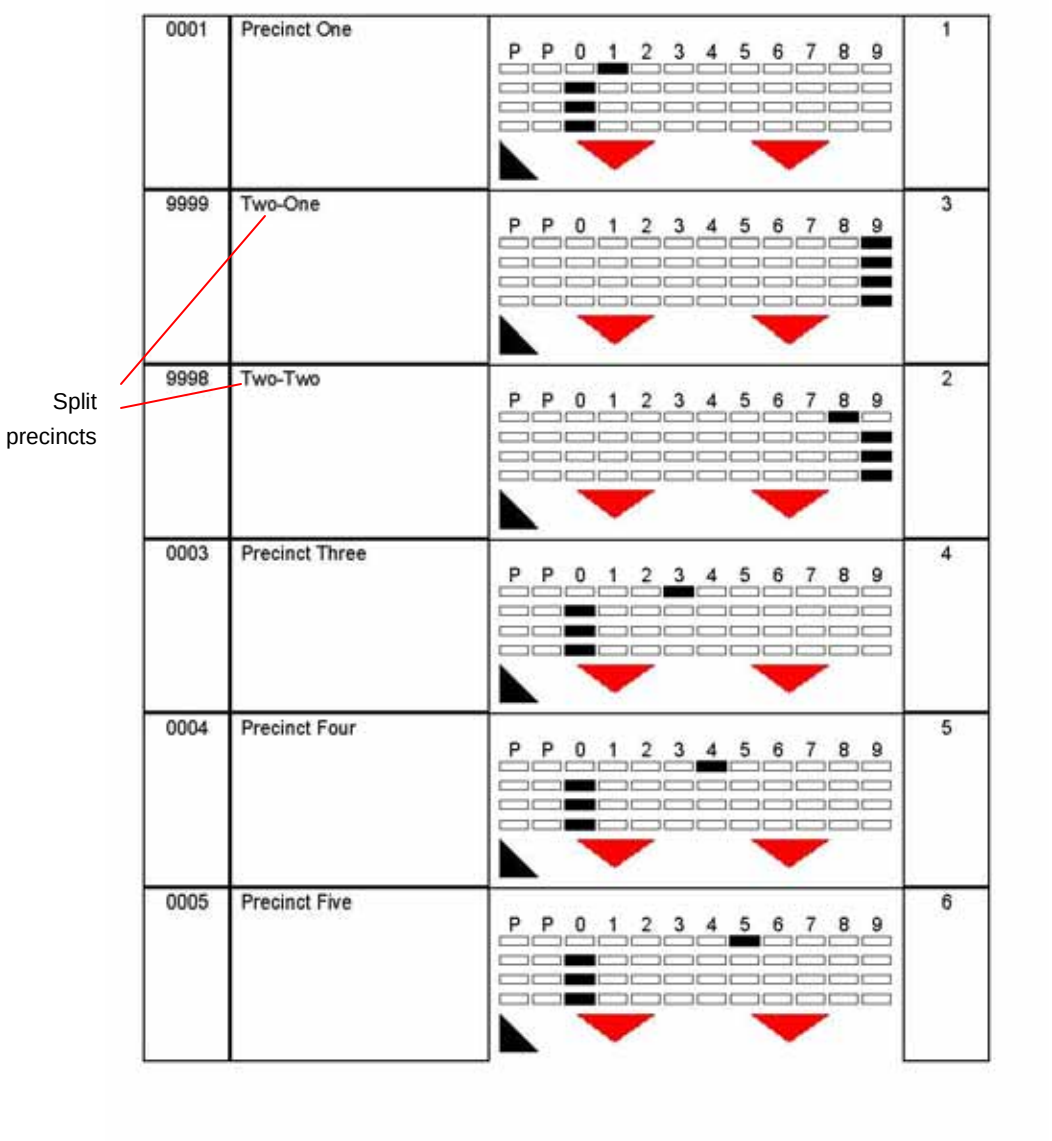


Figure 5: Election BallotStyle Assignment Report

The punch codes specified to the printer to produce the paper ballots must match the PBC configuration for the election. Party code (for Primary Elections) are preconfigured according to jurisdiction needs.

- A 4-column keypunch code at the leading columns on the voting ballot identifies each precinct. Precinct punch codes allow the PBC to scan and map vote marks to the correct candidate position for any given ballot style.
- The first rows of the keypunch code area are used to specify party for a Primary. See Figure 6.

- Two bits on the first rows of the card are reserved for Audio and Absentee ballots, allowing the system to immediately identify and appropriately process these ballot types. See Figure 5.

2.2.3 Report Thermal Paper

The report printer integrated into the InkaVote PBC case is used to print Election Summary (tallies) reports, Ballot Alert reports, and optionally voter receipts. The printer requires a thermal paper roll with the following specifications:

- Paper width: 80mm default
- Paper thickness: 0.065 – 0.085mm
- Roll diameter: maximum 90mm
- Drop-in loading

Printed report paper should be stored at relative humidity between 45-65% and temperatures below 77º F (25º C).

2.2.4 Audio Ballot Slips

Instead of marking a paper ballot card, the audio ballot voter inputs vote selections via a keyboard. When the voter chooses, the PBC automatically prints an audio ballot slip on the ballot printer in the audio booth. The ballot paper is preprinted to match the specifications of the ballot cards, using printed marks instead of punch codes and including the Audio type code. The ballot slip is read by the ballot reader in exactly the same way as a ballot card, conforming to precinct, party, and vote selection positioning.

The ballot printer uses a drop-in, thermal paper roll. An audio ballot slip roll specification is available to be used to acquire from any California Certified Ballot Printer. The paper follows these specifications:

- Thermal roll paper
- Thickness 0.065 – 0.150mm; stock, caliper of 5.3 (.0053”)
- Paper width: 82.5 ± 0.5 mm
- 300 dpi resolution
- C2S for high quality print, high image resistance
- Image life of 10 years
- Roll diameter: 100mm or less
- Black mark printed on paper *back* (top of form delineator) every 11 inches

Software-controlled top-of-form positioning is on pre-printed ballot form paper (to match the preprinted ballot cards). ES&S or any State Certified Printer can provide thermal paper rolls printed with 25 ballots per roll to facilitate tracking of ballots, in colors customized to state specifications.

A complete description of requirements for ballot slip paper rolls and printing is provided in the *InkaVote PBC Accessible Ballot Slip Paper Roll Specifications*. See Appendix A.

The ballot printer has a locking strap making the paper inaccessible to the voter during voting. The printer partially cuts the paper so that the voter can grasp it and remove it to place in a secrecy envelope.

Note: PBC reports and audio ballot slips printed on thermal paper have an expected legible lifetime of 5-7 years. Store printed audio ballot slips at relative humidity between 45-65% and temperatures below 77º F (25º C)

2.3 Ballot Card Layout Requirements

The InkaVote PBC ballot reading mechanism requires the following layout for printing on the paper ballot:

- Card contains up to 12 data channels per side (running the length of the ballot).
- Card contains up to 80 vertical columns with corresponding timing mark on the bottom edge of the card.
- The ballot reader requires a minimum of three inches feeding distance to transport the card.
- The leading edge of the form requires a minimum white space area (no readable marks) of ¼ inch. The first timing mark is a minimum of 0.250 inches from the leading edge of the card.
- The last timing mark should be at least 0.220 inches form the trailing edge of the card.
- Strobe array: range of 3 – 80 strobe marks with a maximum width of 0.3 inches. The strobe mark is a minimum of 0.030 inches wide.

The following diagram shows the 312 position ballot specification, including precinct punch area and timing marks.

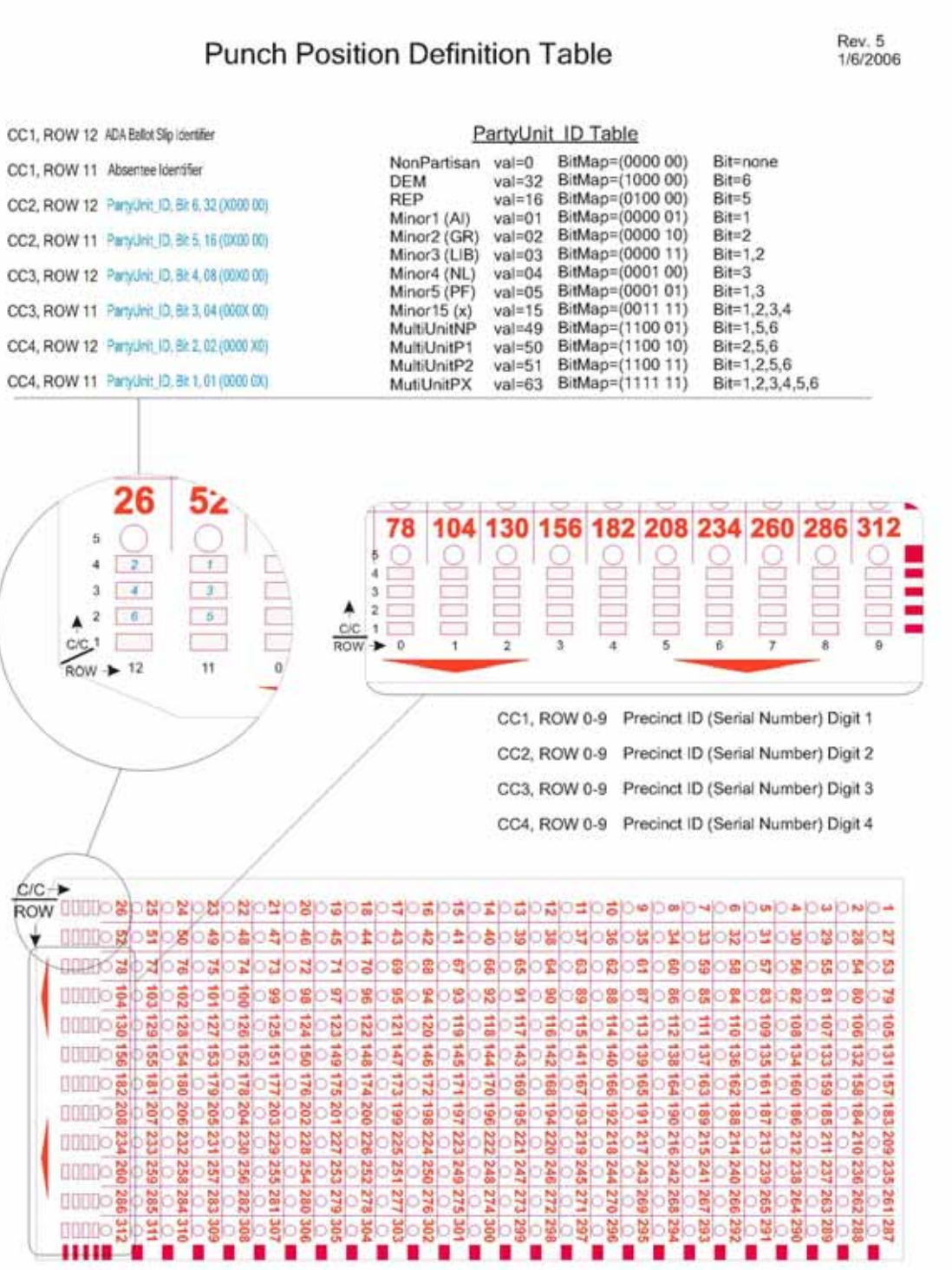


Figure 6: Pre-printed 312 Position Ballot Card

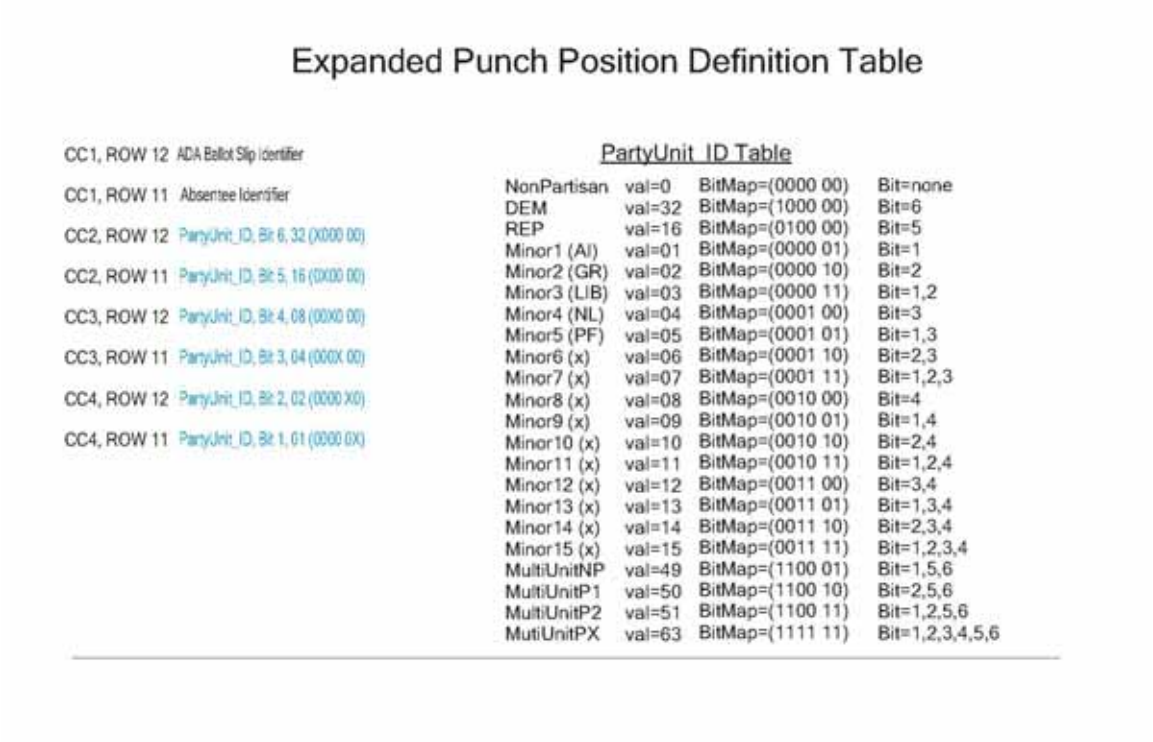


Figure 7: Party ID Punch Position Possibilities

3. System Installation and Configuration

ES&S provides full-service installation and configuration support for preparing the PBC and for the EMS software. When the jurisdiction receives any component of the system or an update to a component of the system, the voting system package release contains:

- Software release forms from ES&S
- A packing list
- Hardware components (as applicable) with quality audit sticker(s) applied
- Proof of federal qualification
- Proof of state certification
- Acceptance Test procedures
- User guides
- Demo CD-ROM
- Other materials as requested

3.1 Hardware Requirements and Specification

InkaVote PBC voting system hardware is preinstalled and preconfigured, requiring only simple setup steps by poll officials. EMS software components require standard PC Windows machines.

3.1.1 InkaVote PBC Hardware

All Precinct Ballot Counter (PBC) unit components are pre-installed in a single case. The electronic components connect to an interior power source and are supplied by a single exterior power cable. A local area network (LAN) cable port is available for loading the election, but is deactivated during voting on Election Day.

Two people can set up the unit in a few easy steps, and the audio component connects to the main unit by means of a single cable. Setup instructions for the PBC are included in the case for Warehouse Technicians and Poll Workers (see *Setup Sheets*).

Figure 8: PBC Case Hardware Revealed

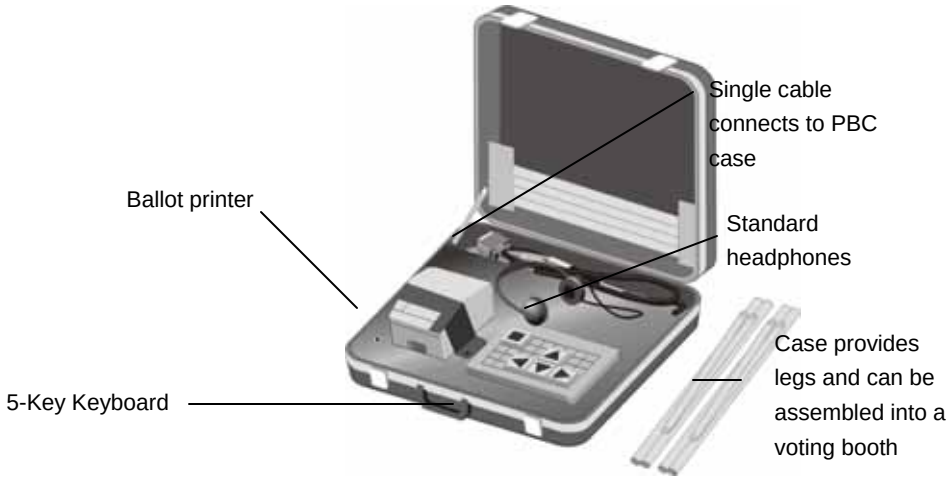


Figure 9: PBC Audio Hardware

The only time the PBC is networked is pre-election, in the Election Warehouse, to the Election Loader laptop for the purpose of downloading a new election.

3.1.2 EMS Hardware Specifications and Requirements

The jurisdiction provides the hardware for the EMS supporting software. .

Component	Location / Purpose	Hardware Required
Ballot Generator	Election Headquarters; generates printed ballots, audio script, and Election XML	PC* Computer with: 80 GB Hard drive, 1 GB RAM 4 USB Ports LAN Card CD-RW Printer*
Election Converter	Election Headquarters; processes Election XML, allows sound uploads, and creates the Election CD	PC Computer with: 80 GB Hard drive, 1 GB RAM 4 USB Ports LAN Card CD-RW drive USB drives CD media*
Election Loader	Election Warehouse; loads Election CD onto multiple PBC voting systems	PC computer (laptop) with: Pentium grade processor 128 MB RAM CD-ROM drive Networking capability 10 GB of storage available Network hub* Election CD
Vote Converter	Election Central Count Location; uploads, decrypts and notifies the Vote Tabulator that results from PBC Transport Media have been uploaded	PC computer with: Pentium grade processor 128 MB RAM CD-ROM drive Networking capability One or more USB ports supporting USB 1.1 or better Transport Media from PBC systems
Vote Tabulator	Election Central Count Location; stores voting results in the EMS database, provides real-time reports on Election Night that can be used for unofficial and official results	PC Computer with: 80 GB Hard drive, 1 GB RAM 4 USB Ports LAN Card CD-RW Printer

3.2 Hardware/Network Setup and Configuration

The complete system uses two networks: Both are defined as secure, dedicated, and physically isolated local networks. No machine on the network should be connected to a wider network or include Internet access.

- Election loading: the PBC unit is networked to an Election Loader PC in the warehouse.
- Vote upload and tabulation: the Vote Converter PC is networked to a Vote Tabulator at the Central Count location.

These configurations use the networking features available in the Windows XP OS software. The jurisdiction provides standard CAT-5 LAN cable and a network hub. No special operating system or network configuration is necessary.

3.3 Software Installation and Configuration

The jurisdiction is not responsible for installing or configuring the ES&S InkaVote PBC. EMS software components are installed from a Setup CD (or other media) and provide all configuration automatically as part of the installation procedure.

3.3.1 PBC Operating System and Firmware

The Precinct Ballot Counter (PBC) computer component is pre-installed with an ES&S custom configuration of the Red Hat Linux Operating System. Over this system, ES&S pre-installs the voting system firmware. The pre-installed system is fully tested, federally qualified, and certified by the state.

The PBC requires no installation or configuration steps to be performed by the jurisdiction. The jurisdiction only needs to load the election. Any custom default settings required by the jurisdiction will be included with the delivered firmware configuration.

ES&S will not install any firmware that has not been certified by the Secretary of State for use in California.

To verify version of the firmware:

Start up the PBC; the startup screen sequence includes the version of the firmware. In addition, the **About** function available from the Administrative and Maintenance menus displays a screen showing the currently installed firmware, ballot casting counts, and election versions.

3.3.1.1 PBC Applications

Two applications are installed on the PBC's precinct controller: a Maintenance Application that can be accessed only by authorized technicians (Maintenance password) and an Election Application that can be accessed on Election Day by poll officials or (if allowed) by using an Election password on a non-Election day for Absentee tabulating or (after the election) for Provisional tabulating or Recount purposes. Operation of these applications are described in the *InkaVote PBC Warehouse Technician's Guide* (04-00293) and in the *InkaVote PBC Election Day Operator's Guide* (04-00288).

3.3.1.2 PBC Files Produced

Files created and stored on the PC hard drive, on the Transport Media and on a backup memory device are:

- Audit Trail (vote file, images of each voter's ballot)
- Administrative Log (a complete log of PBC machine activities and errors)
- Election Summary (precinct results created on close voting)

The Transport Media containing these files are delivered from the precincts to a central count location where the files are uploaded, decrypted, and stored.

3.3.1.3 PBC Reports Produced

The following reports are printed on the PBC report printer:

- Zero Count report is printed as ballot header cards are inserted to initialize each voting precinct (automatically produced on start of Absentee, Provisional, or Recount processing)
- Ballot Alert report is printed during voting when overvotes and optionally undervotes are detected
- Election Summary report is printed on close of voting
- Administrative Log report showing activity on the PBC can be accessed and printed with a Maintenance password at any time
- Audit Trail Report displays a randomized sequence of ballot images cast on the PBC and can be accessed only with a Maintenance password for printing after voting is closed

3.3.2 EMS Windows XP Pro Operating System Requirements

The EMS software applications require a PC running on the Windows XP Professional Operating System. Before running the EMS software, ensure security of the EMS system by adjusting the Windows XP Services, Network, and Security settings as recommended in Appendix C of this document.

3.3.3 EMS Software Installation

EMS software is installed from media by the customer. Any necessary installation instructions are provided with the User Guides, in Release Notes and in a Readme file. Software always comes with updated release notes and user guides. For EMS version 1.1, the installation is completely automatic. There are no user options for installation of any of the software components. All election and software operation parameters are set by the jurisdiction from within the software applications themselves.

At no time shall any software, other than approved commercial off-the-shelf applications, be installed that has not been certified by the Secretary of State.

3.3.3.1 EMS Applications

The following applications comprise the supporting EMS for the ES&S InkaVote PBC and are installed on PC hardware as specified in the table above:

- EMS Ballot Generator version 1.1 and Ballot Generation Setup 1.1 (with MySQL database)
- EMS Election Converter 1.1 (with MySQL database)
- EMS Election Loader 1.1
- EMS Vote Converter 1.1
- EMS Vote Tabulator 1.1 (uses Ballot Generation MySQL database)

The appropriate databases are installed and configured as part of the Ballot Generator and Election Converter installations.

3.3.3.2 Third Party Software

The following third-party software is installed as part of this process:

- MySQL 4.1 database configured for the EMS
- Java JRE 1.4
- JavaHelp
- Jasper 1.0.0 (for reporting)
- Adobe Acrobat Reader 7.0

Virus protection is not required because the InkaVote PBC components do not use any Internet connection, and the recommendation is to use PC's that never go "online" to the Internet. However, the jurisdiction may install virus protection of their choice, at their own discretion.

The jurisdiction provides the CD-burning software to create the Election CD, software if required to convert sound files to MP3, and any alternative software interface to access the MySQL data directly from the EMS database and generate a Supplemental Statement of Vote report, if the provided SSOV report program is not used.

3.3.3.3 EMS Files Produced

The EMS software produces these files:

- The Ballot Generator produces an encrypted election XML file to be loaded onto the Election Converter.
- The Ballot Generator also produces formatted PDF files for each ballot style to be used for printing the ballot pages and sample ballots.
- The Election Converter produces encrypted election files to be copied onto an Election CD and installed on the PBC.
- Each application maintains an Application Log for self-auditing purposes that records all logins and application activity.

3.3.3.4 EMS Reports Produced

The EMS software produces the following reports:

- Audio Ballot Script (Ballot Generator)
- Ballot Proofs (Ballot Generator)
- Election Ballot Style Assignments (Ballot Generator)
- PBC Machine Log (Election Loader)
- Election Log (Election Loader)
- Consolidated Election Summary (Vote Tabulator)
- PBC Machine Summaries (Vote Tabulator)
- Voter Turnout Report (Vote Tabulator)
- Statement of Vote (Vote Tabulator)
- Supplement to the Statement of Vote (third-party access to the database)
- Application Logs (all applications – the audit log)

3.4 Acceptance Testing

The jurisdiction performs testing upon system delivery by ES&S. An Acceptance Test script with detailed instructions is provided with the release materials. Acceptance testing confirms:

- The system version delivered is the specific system qualified by NASED and certified by the State of California
- The delivered units conform to both the system characteristics specified in the procurement documentation, and those demonstrated in the qualification and certification tests
- A “baseline” for any future required audits of the system

3.4.1 Voting Hardware Acceptance

The Acceptance Test script for the PBC generally establishes that:

- All components are correct manufacturer's correct model
- Components have an ES&S installation / test approval seal
- Power cords are provided with components
- Components start up as described in the documentation

The Acceptance Test procedures and the minimum requirements to pass each test are listed in the tables in Appendix B. .

3.4.2 EMS Software Acceptance

The Acceptance Test script for EMS components uses test ballot data, as determined by agreement between the jurisdiction and ES&S. Testing follows a sequence similar to this.

Using Ballot Generation Setup
- Configure the database with district types, political parties, and languages

Ballot Generator:
- Input precinct and district data
- Input election and candidate data
- Sample printed ballot pages
- Sample printed ballot cards
- Storage and retention of data in EMS database
- Election XML file with different precincts (ballot styles) defined verified.

Using the Election Converter:
- Load the Election XML file provided from the Ballot Generator
- Define a Superuser and Admin user account
- Verify that default parameters (Election options) are set according to jurisdiction preferences
- Upload and accept Sound files (sound files provided with acceptance Election)
- Define Maintenance Technician users
- Export a Demo Election
- Burn an Election CD

Using the Election Loader:
- Load the Election (using the Election CD) onto at least three InkaVote PBCs

Using the InkaVote PBC:
- Run the Demo election
- Insert a minimum of 25 ballots

Using the Vote Converter:
- Upload TM data from InkaVote PBCs to Vote Converter.

Using the Vote Tabulator:

- Request and print reports from the Tabulator.
- Verify Election results from Tabulator against Election Summary reports from PBC.
- Verify that jurisdiction backup and storage procedures work with Unisyn data and data files.

Using the Election Converter:

- Upload and view PBC audit files
- Clean files from Transport Media (post election maintenance)

Maintenance and upgrade releases follow the same basic procedure as a new product release and require acceptance testing.

3.5 Software and Firmware Upgrades

When a product or product upgrade is released to the customer by ES&S, in addition to Release Notes, ES&S will provide detailed instruction for installation and use of the upgrade in addition to the other release materials listed at the beginning of this section. Only versions of software and firmware that have been certified by the Secretary of State may be installed.

ES&S will pretest and obtain federal approval and state certification for all upgrades to the InkaVote PBC firmware and EMS software. No updates will require Internet or network connection. ES&S technicians perform firmware upgrades to the PBC voting system installing from approved and certified "builds" on media (CD-ROM or USB memory drive). The jurisdiction may install EMS software component upgrades from approved and certified software installation programs provided on media.

For each upgrade, repeat the Acceptance Tests provided in Appendix B of this document.

Virus protection software is not included with the software components and must be procured and tested by the jurisdiction.

4. Election Setup and Definition Procedures

To prepare for an election, the jurisdiction needs to input precinct, district, and contest data, all translations, and then test the ballot data and hardware systems. The tasks shown in the following table accomplish the minimum preparation required and are explained in the following sections. Detailed instructions are provided in these provided guides:

- *Ballot Generator User's Guide*
- *Election Converter User's Guide*
- *Election Loader User's Guide*
- *Warehouse Technician's Guide*

Use a folder to collect all Election Audit Reports. When a report is generated and filed, use a checklist such as the one in Section 10.5.1 to log creation of files and generated reports. Instructions for printing the Application Log for all software EMS components are provided in Section 0.

Task	Application to Use	Output Files	Election Audit Reports
Database Setup	Ballot Generation Setup	*none*	Application Log Translations report
Administrative Setup	Ballot Generator	*none*	Application Log District List District Contest List Precinct List
Election Setup	Ballot Generator	Ballot PDF files Election.enc file	Application Log Audio Ballot Script report Election Proof report Sample Ballots
Election CD Production	Election Converter	Election CD directory contents	Application Log
Program PBC for Election	Election Loader	*none*	Election Log Machine Log Application Log PBC Zero Count Reports
Hardware Accuracy Test	PBC Diagnostics	*none*	PBC Administrative Log

Task	Application to Use	Output Files	Election Audit Reports
Logic Test	PBC Logic Test Option	TM files; Tally File Ballot Images Machine Log	PBC Administrative Log Logic Test Election Summary Reports Logic Test Tabulation Reports
Prepare PBC for Delivery		*none*	Technician's List

Note that PBC testing does not necessarily rely on the data and tabulation proofing until it's time for PBC election loading and verification. Hardware diagnostics and accuracy testing can take place simultaneously with EMS data proofing.

4.1 Programming and Configuration of the EMS

This section outlines procedures to program and configure the Election Management System in preparation for elections. Complete procedures are provided in the *EMS Complete System Guide* and in the *Ballot Generator User Guide* and *Election Converter User Guide*.

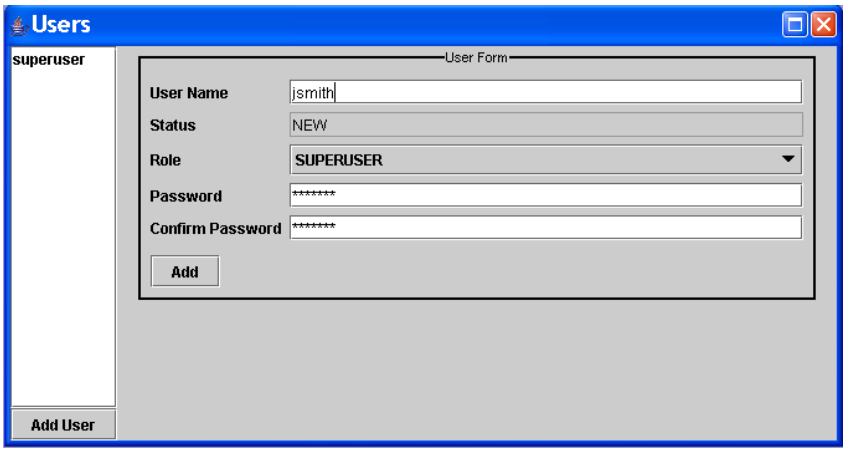
4.1.1 Ballot Generation Setup: Database Setup

This initial setup step prepares the EMS database for future elections. Changes should only be made to this portion of the database when there are no elections "in progress." Set up the database using the Ballot Generation Setup application, as described in the *Ballot Generator User Guide*.

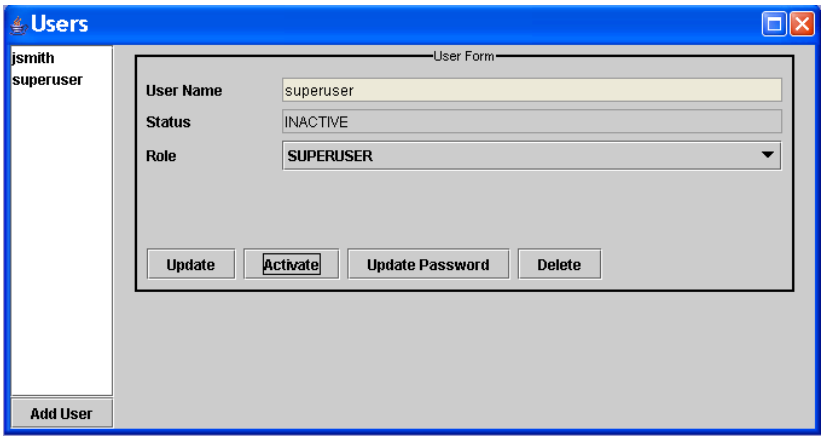
For security purposes, you should not begin building your EMS database using the Superuser login account provided with the software. Use the Ballot Generator to change the initial login account.

To create a new "Superuser" account and delete the initial account:

1. Open the Ballot Generation application and login using the initial "Superuser" name and password.
2. In the Ballot Generator, open the **Edit** menu and select **Users**.
3. Click **Add New User** at the bottom of the left user list.
4. Fill in the new user form with a username and password for the new Superuser account. Use a password that contains at least one letter and one digit, preferably 8 or more characters. Click **Add**.



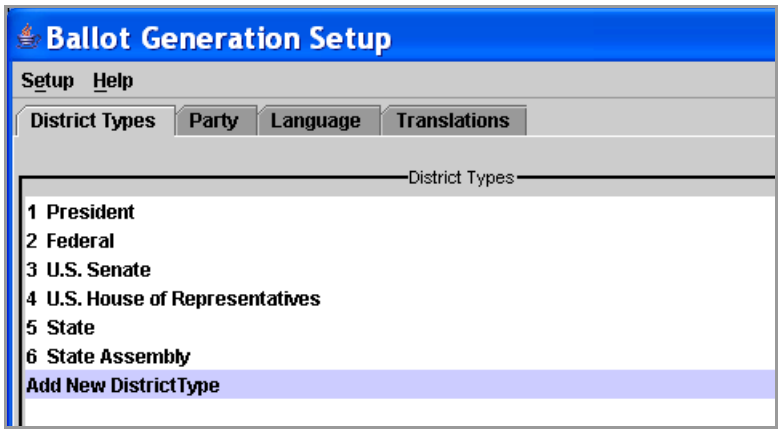
3. Select the initial **superuser** account. Click **Deactivate**.



4. When the account is “INACTIVE” you can click **Delete**.
5. Close the Ballot Generator.

To set up the Database:

Open the Ballot Generation Setup application using your new Superuser password. Use the tabbed panels as described in the *Ballot Generator User Guide* to set up the following:



- Set general district types (federal, state senate, state assembly, etc.).
- Set consistent order of contests by arranging district types in order.
- Define the political parties (up to 64) used in elections: party name, unique party code, and abbreviation.
- Determine which parties allow straight-ticket voting.
- Determine which parties have Primary ballots (up to 11 parties plus Non-Partisan).
- Determine which parties allow "Decline to State" (DTS) ballots in a Primary and provide a unique DTS party code.
- Provide a graphical icon for each party, as desired.
- Define the languages used by the jurisdiction (in any election).
- Provide translations to be used for audio ballot "common sounds" used in all elections

To proof the database setup:

- Check the District Types on screen. Drag-and-drop district types to correct the order. Contests will follow the District Types order on the ballot. Obtain a screen shot of the list to prove correct setup (Shift+Prnt Scrn).
- Check the Parties on screen. These parties will be available to assign to candidates in contests and for primary ballots, if "Has Primary" is checked. Obtain a screen shot of the left column list to prove correct setup.
- Check the Languages on screen. The "Assigned" list of languages will be available for translation on election ballots. Obtain a screen shot of the list to prove setup.
- Check translations. Press Ctrl+A to select the entire Translations table. Press Ctrl+C. Open a Microsoft Excel or other document and press Ctrl+V. Save the document as your "Common Translations." These translations apply to common words and phrases used on the printed ballot and/or in the audio ballot. Print a hard copy of the table for detailed proofing and corrections.
- Print the Application Log as described at the beginning of this section. All changes to the data are recorded in the log.

Check	Election Audit Reports
☐	Common Translations report printed and filed
☐	Setup Application Log printed and filed

4.1.2 Ballot Generator: Administrative Setup

Use the Ballot Generator to populate the EMS database with district and data and settings. Follow the instructions provided in the *Ballot Generator User Guide*.

To set up districts and precincts: :

- Define geographical districts and their contests for office
- Turn on rotation for specific district contests
- Define precincts and split precincts
- Set rotation order for precincts
- Associate precincts and splits with their districts

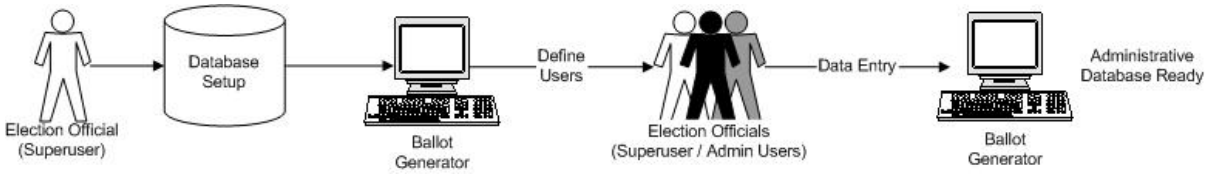


Figure 10: Administrative Setup Procedures

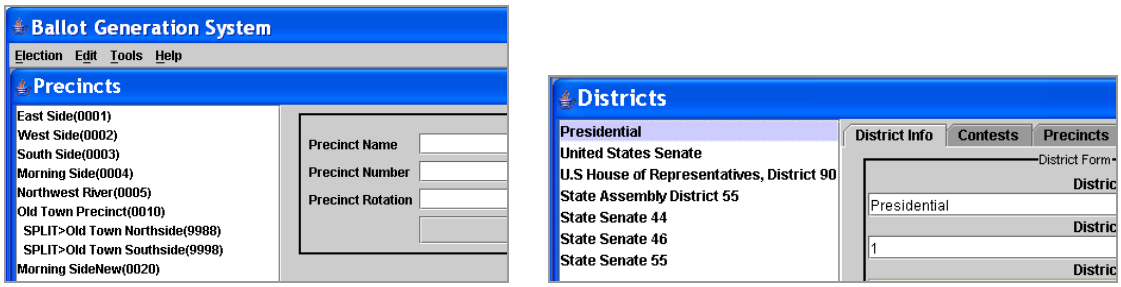


Figure 11: Precinct and District Lists in Ballot Generator

To proof the district and precinct setup:

- Check the Districts on screen. Obtain a screen shot of the left-column Districts list to prove correct setup.
- Check the Precincts on screen. Obtain a screen shot of the left-column Precincts list to prove correct setup.
- For each District, check the Contests and the Precincts tab to ensure that the contests are defined correctly and that precincts are assigned to the correct districts. Obtain screen shots to prove correct setup.
- Print the Ballot Generator Application Log as described at the beginning of this section. The Application log contains record of all changes to the database.

Check	Election Audit Reports
☐	District list screenshot
☐	District contest list screenshots
☐	Precinct list screenshot
☐	Ballot Generator Application Log printed and filed

4.1.3 Election Setup

Election setup is the process of providing a name and date for the election, assigning district contests to the election, adding candidates for office, and defining measures (associated with districts). This step determines the content of the ballots produced and needs to be done before every election. The process involves one or more top election officials (at least one Superuser) and possibly a data entry clerk. Follow the instructions in the *Ballot Generator User Guide.*

To set up the election:

- Create a new election
- Choose district contests for the election
- Add candidates to the contests (up to 150 per office)
- Set order of candidates to determines the base for rotation
- Add measures by district to the ballot
- Add a recall associated with a contest
- Specify whether straight-ticket voting will be allowed in the election for parties that allow it
- Specify whether write-in positions will be used on the ballots
- Translate the election title, contests, and candidate descriptions, as needed
- Generate primary contests by party if needed (ballots will only be produced for each party that “Has Primary” and its “Decline to State” counterpart, as set in Ballot Generation Setup)
- Build the ballots (generates ballots for all precincts, parties as applicable, and in all languages)
- Produce reports: Ballot proofs, Audio Ballot Script, Election Ballot style Assignments

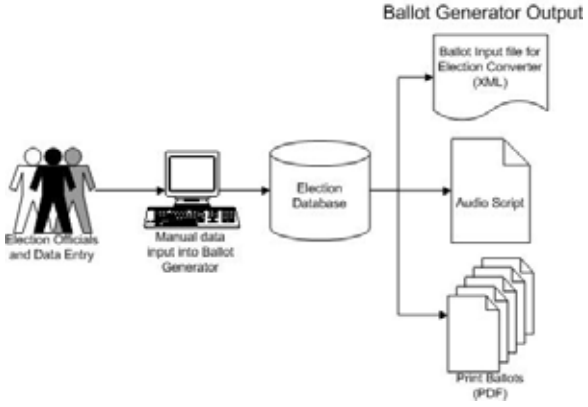


Figure 12: Election and Ballot Data Setup

When you have completed all tasks in this section, make sure the following reports are filed in the Election Audit Reports folder and that the electronic files are available.

Check	Election Audit Reports
☐	Audio Ballot Script report
☐	Election Proof report
☐	Sample ballots in all languages
☐	Ballot Generator Application Log printed and filed

Check	Election Files
☐	Print-ready Ballot PDF files in all languages (to deliver to printer)
☐	Election XML and encrypted election .ENC files (for use with Election Converter)

4.1.3.1 Inspect Printed Ballots Proofs

Generate the Election Proof Report as described in the Ballot Generator User Guide. If corrections are needed, return to the Ballot Generator and make corrections. Reproduce the Election Proof report. When the Election Proof is correct, print and inspect ballot PDF files for each precinct in all languages.

To proof the election, check:

- Geographical districts and precincts are properly defined and associated.
- Districts have correct offices, and offices are correctly defined.
- Precincts have the correct ballot style.
- Each ballot style displays the correct ballot content.
- Candidate rotation occurs as desired.
- Primary partisan ballots, if applicable appear in the correct ballot styles.
- Required languages are present.
- Contest wording and any translations of the wording is correct.
- Contest candidates, their parties and descriptions are correct.
- Measures are worded correctly and translations are correct.
- Measures are associated with the correct district.
- All valid political parties are present.
- Translations of parties and candidate descriptions are correct.
- Option for write-in candidates and other options have been set as required by the jurisdiction.

- Vote limits are correctly defined.

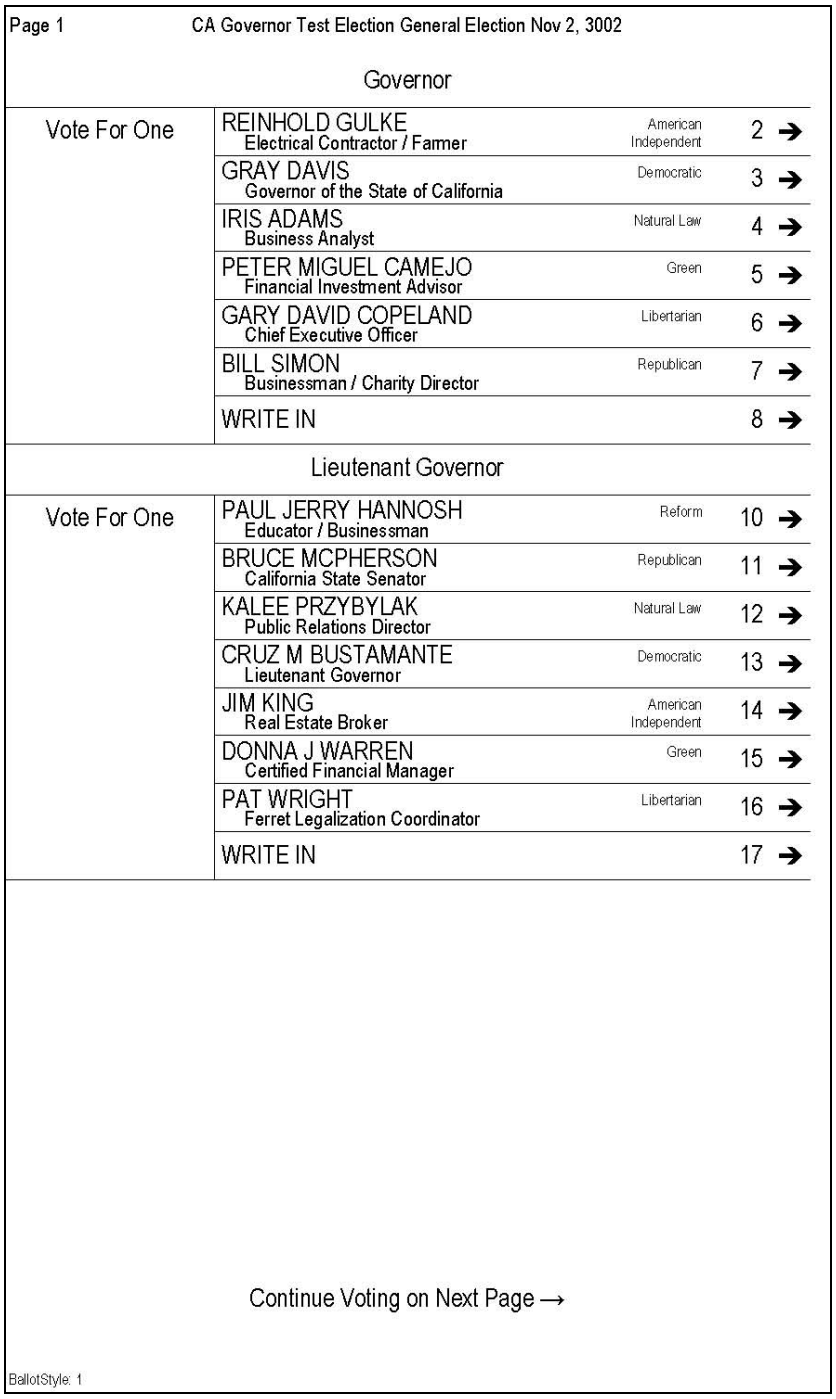
4.1.3.2 Language Translations

The Ballot Generator allows the jurisdiction to input translations for all contests, parties and candidate descriptions. Translations are keyed in at each data form in the Ballot Generator. Produce and print ballot PDF files or the audio ballot script to verify the translations.

4.1.3.3 Produce the Printed Ballots

The jurisdiction may wish to assign an official to manage the print production of sample ballots, ballot pages, and ballot cards. This person takes steps to ensure that the ballot PDF files created by the Ballot Generator can be printed according to the jurisdiction's specifications.

The printer runs samples from the provided PDF files and these are inspected for accuracy and format by the jurisdiction. If the samples are satisfactory, the ballots and sample ballots are printed.


Page 1 CA Governor Test Election General Election Nov 2, 3002

Governor

Vote For One	REINHOLD GULKE Electrical Contractor / Farmer	American Independent	2 →
	GRAY DAVIS Governor of the State of California	Democratic	3 →
	IRIS ADAMS Business Analyst	Natural Law	4 →
	PETER MIGUEL CAMEJO Financial Investment Advisor	Green	5 →
	GARY DAVID COPELAND Chief Executive Officer	Libertarian	6 →
	BILL SIMON Businessman / Charity Director	Republican	7 →
	WRITE IN		8 →

Lieutenant Governor

Vote For One	PAUL JERRY HANNOSH Educator / Businessman	Reform	10 →
	BRUCE MCPHERSON California State Senator	Republican	11 →
	KALEE PRZYBYLAK Public Relations Director	Natural Law	12 →
	CRUZ M BUSTAMANTE Lieutenant Governor	Democratic	13 →
	JIM KING Real Estate Broker	American Independent	14 →
	DONNA J WARREN Certified Financial Manager	Green	15 →
	PAT WRIGHT Ferret Legalization Coordinator	Libertarian	16 →
	WRITE IN		17 →

Continue Voting on Next Page →

BallotStyle: 1

Figure 13: Example of a Ballot Page (PDF)

4.1.3.4 Produce Ballot Cards

Ballot cards for each precinct are printed and cut to meet the card and punch code specifications as described in Section 2.2.2. A California Certified Printer provides the ballot cards, which are verified for:

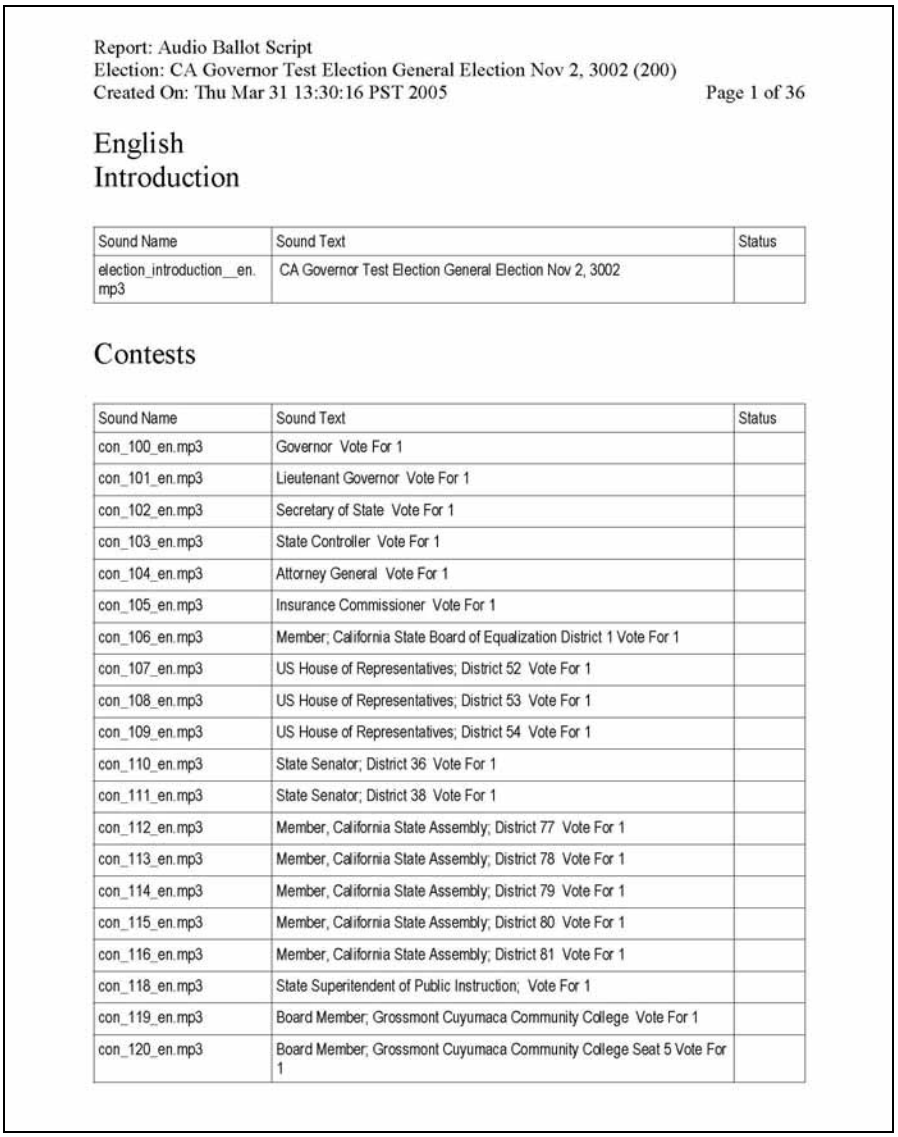
- Correct strobe marks and mark spacing
- Vote target size and spacing
- Precinct and party data punch codes
- Paper stock suitability and usability with the system
- Paper stock color for distinction by party
- Absentee code appears on absentee-specified stock

Ballot Printer thermal receipt paper (for audio ballot slips) are preprinted with markings that make it look similar to the ballot cards. When a voter completes the ballot the audio ballot printer will print the required strobe marks and ballot data with the voter selections with or without these background markings.

4.1.3.5 Produce the Audio Ballot Script

The Ballot Generator produces an audio script based on the ballots and the language translations entered. Proof the script carefully and make sure all translations needed have been supplied for the required languages. Decide whether to use the pre-recorded common sounds or produce your own sounds. ES&S or any state-certified sound studio can produce all sound files from the audio ballot script for an election.

ES&S returns high-quality, “human voice” in the MP3 file format required by the Election Converter. All filenames and content adhere to the election audio script, with translations for each script segment in separate language-identified files (for example, con_1_en.mp3 is English and con_1_es.mp3 is Spanish).



Report: Audio Ballot Script
Election: CA Governor Test Election General Election Nov 2, 3002 (200)
Created On: Thu Mar 31 13:30:16 PST 2005 Page 1 of 36

English
Introduction

Sound Name	Sound Text	Status
election_introduction__en.mp3	CA Governor Test Election General Election Nov 2, 3002	

Contests

Sound Name	Sound Text	Status
con_100_en.mp3	Governor Vote For 1	
con_101_en.mp3	Lieutenant Governor Vote For 1	
con_102_en.mp3	Secretary of State Vote For 1	
con_103_en.mp3	State Controller Vote For 1	
con_104_en.mp3	Attorney General Vote For 1	
con_105_en.mp3	Insurance Commissioner Vote For 1	
con_106_en.mp3	Member; California State Board of Equalization District 1 Vote For 1	
con_107_en.mp3	US House of Representatives; District 52 Vote For 1	
con_108_en.mp3	US House of Representatives; District 53 Vote For 1	
con_109_en.mp3	US House of Representatives; District 54 Vote For 1	
con_110_en.mp3	State Senator; District 36 Vote For 1	
con_111_en.mp3	State Senator; District 38 Vote For 1	
con_112_en.mp3	Member, California State Assembly; District 77 Vote For 1	
con_113_en.mp3	Member, California State Assembly; District 78 Vote For 1	
con_114_en.mp3	Member, California State Assembly; District 79 Vote For 1	
con_115_en.mp3	Member, California State Assembly; District 80 Vote For 1	
con_116_en.mp3	Member, California State Assembly; District 81 Vote For 1	
con_118_en.mp3	State Superitendent of Public Instruction; Vote For 1	
con_119_en.mp3	Board Member; Grossmont Cuyumaca Community College Vote For 1	
con_120_en.mp3	Board Member; Grossmont Cuyumaca Community College Seat 5 Vote For 1	

Figure 14: Example of a Page from an Audio Script

4.1.3.6 Produce and Deliver Absentee Voter Ballots

The jurisdiction uses the printed ballot materials and cards to assemble and deliver absentee voter packets, following their own standards and procedures.

4.1.4 Election CD Production

Election conversion is the process of loading the encrypted ballot XML file (provided by the Ballot Generator) into the Election Converter PC program in order to create an Election CD. This software program is owned and operated by the jurisdiction. See the *Election Converter User Guide* for additional instruction.

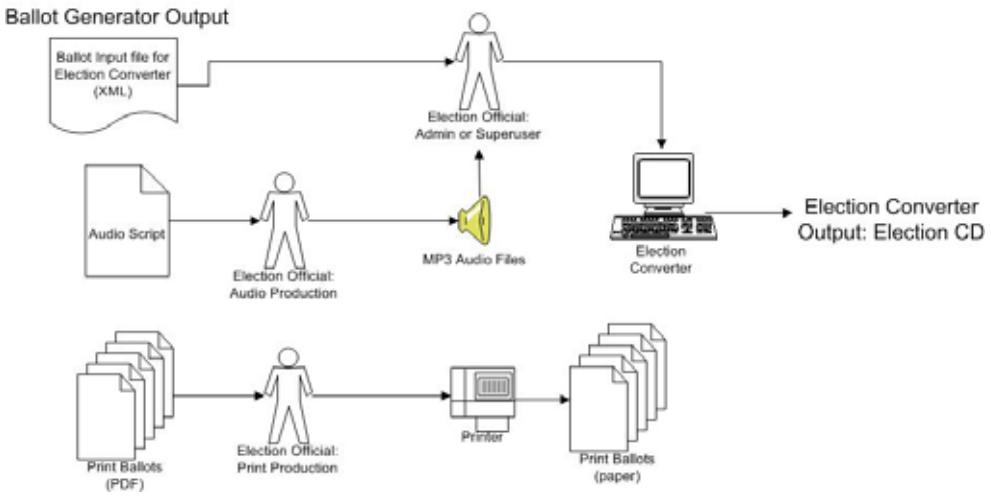


Figure 15: Election CD / Ballot Preparation Procedures

To create an Election CD, follow these steps:

1. If the Ballot Generator is on the same PC as the Election Converter, skip to step 2. If the Ballot Generator is on a separate PC, a Superuser follows these procedures:

   a) Copy only the encrypted Election.enc file from the election folder in the C:\EMSoutput folder to CD media and burn a CD-ROM. Note the date and time the CD was created on an election log.

   b) Insert the CD-ROM in the Election Converter PC. Log in to the Election Converter, open the Election menu, select New, and navigate to the Election.enc file on the CD-ROM. Load the election.

2. Open the Election Converter. From the **Election** menu select **New**. Navigate to and select the Ballot Generator **election.enc** output file from the EMSOutput folder or the folder where it resides. A new election icon appears on the Election Converter desktop.

3. Add Maintenance users. At least one Maintenance user is required to login to the PBC.

4. Set election options.

5. Upload, test and accept sound files.
6. Export the election to a folder ready to be copied to CD. These steps are described in detail below.
7. Produce the Election CD.

When all tasks in this section are completed, make sure the following reports have been filed and the following files have been produced.

Check	Election Audit Reports
☐	Election Converter Application Log printed and filed

Check	Election Files
☐	Election CD directory contents (Sounds.zip, Election.zip, Checksum, and logos, if used) to burn onto the Election CD.

4.1.4.1 Election Versions

Any content errors in the election or ballots must be corrected in the Ballot Generation step and reloaded in the Election Converter. The Election Converter increments the Election Version number each time the Election file is loaded, each time Election Converter options are changed and saved, and each time sound files are uploaded.

4.1.4.2 Add Maintenance Technician Users

The InkaVote PBC voting system provides access to three levels of users: Superusers and Admin users can access the EMS Ballot Generator, Vote Tabulator and Election Converter applications. Maintenance Technician Users can access the Election Loader, the Maintenance Application of the PBC and the Vote Converter. You need to define at least one Maintenance Technician user (someone to load the election and upload votes) before you can create an Election CD.

Users are managed from the Election Converter User Management window. Access this window by opening the **Tools** menu and selecting **User Management**. Follow the instructions in Section 10 of the *Election Converter User Guide* to add Maintenance users.

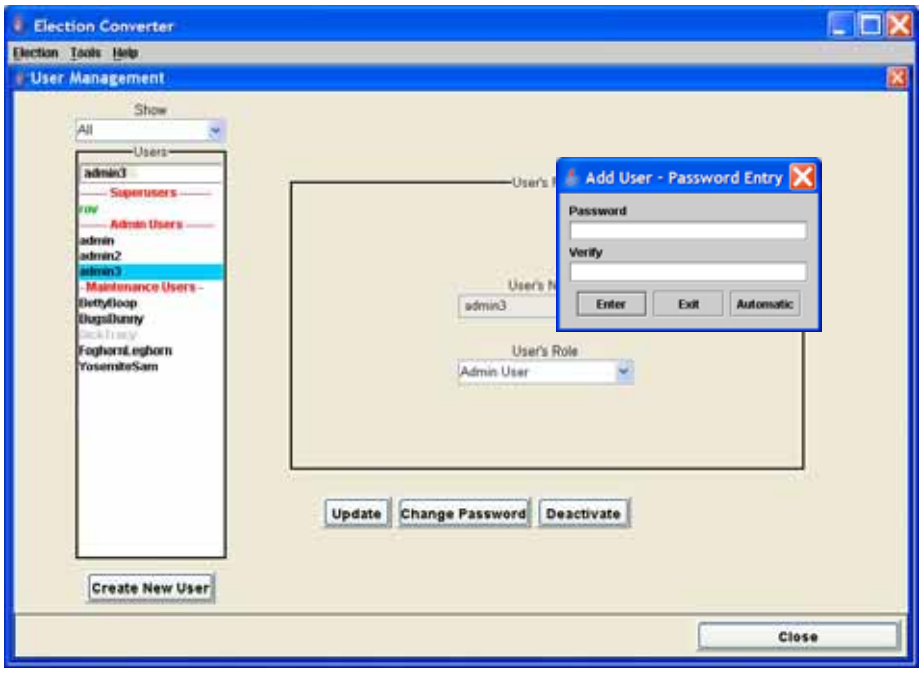


Figure 16: User Management Window

4.1.4.3 Set Election Password

The Election Converter allows the jurisdiction to define a password for the election. This password must be changed for each election. The password is used to start other modes of voting and can be used to start voting on Election Day as well, if it is not **Disabled** in the option settings. The password requires 8 characters; there must be at least one letter and one numeric digit. The Election Converter provides an automatically generated, random password, but the jurisdiction can change this if desired.

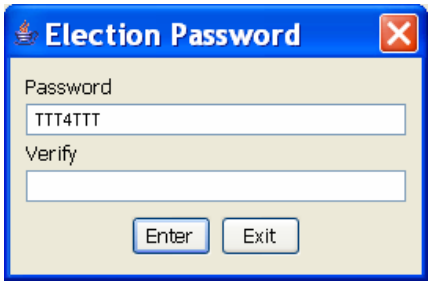


Figure 17: Election Password

4.1.4.4 Set Election Options

The jurisdiction can set additional options for PBC operation at the polls. These are not required steps, because the defaults may be configured as preferred by the jurisdiction. If no setting changes are made, the defaults will be used.

Follow instructions in the *Election Converter User Guide*, Section 3, to set options as needed for the PBC and for the election. ES&S does not recommend to the State of California which options should be set for each Election. Instead, the State or the jurisdiction will make decisions for each election and provide instruction for these settings; whether undervote checks will be performed on certain contests, whether split precincts will be consolidated in the Election Summary reports at the polls, and so on.

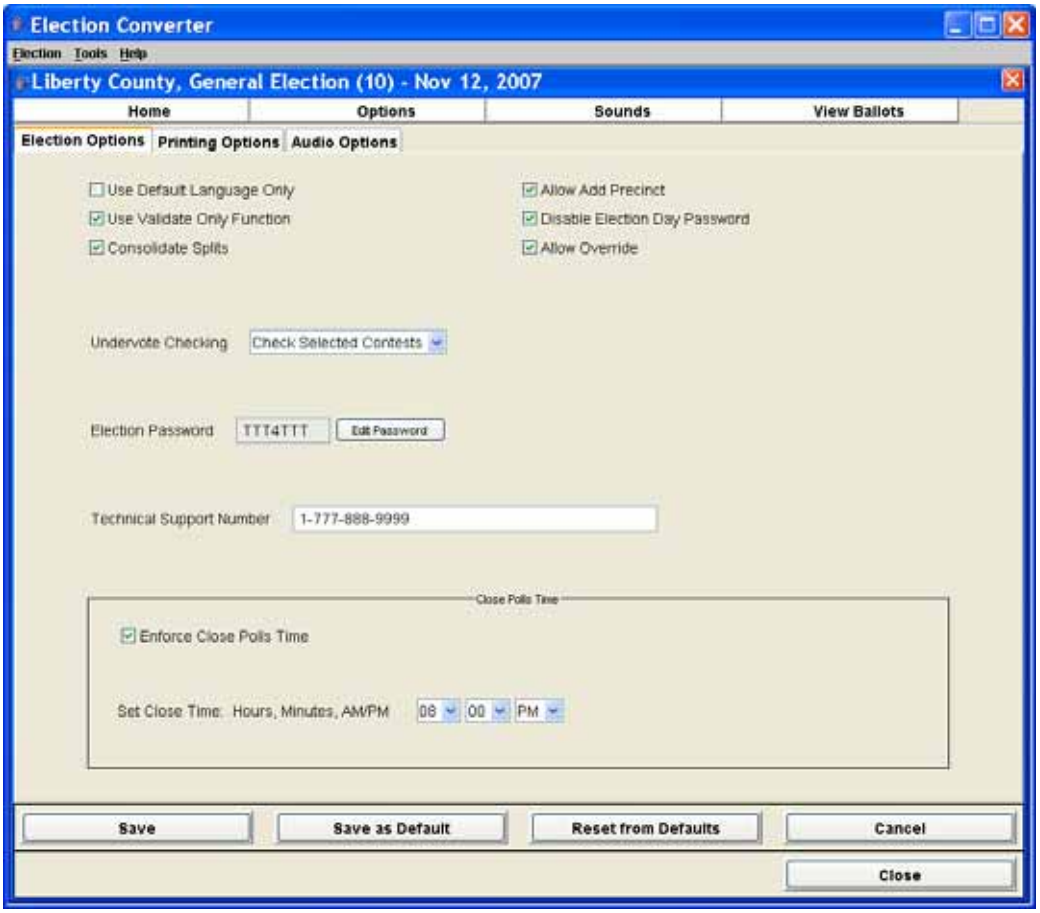


Figure 18: Election Password

- **Use Default Language Only**. If this checkbox is marked, this Election will be in English (or the default language) only. This selection affects (1) the Audio Ballot—only sounds for the default language will need to be uploaded, (2) the printed Ballot Alert reports (indicating overvoted and undervoted contests), and (3) printed voter receipts. Use this option if you are not required to offer voting features in multiple languages.Otherwise, the Election Converter requires sounds and translations for all languages specified by the ballot data to be uploaded before an Export is possible.
- **Use Validate Only Function**. If this checkbox is marked, a **Validate Only** function will appear on the InkaVote PBCs for this Election. When the precinct PBC Operator

selects **Validate Only**, a voter may insert a ballot into the PBC for validation without casting the ballot This may be useful for provisional voters who wish to check their ballots for overvotes and undervotes. If "Use Validate Only Function" is blank (ES&S default), the **Validate Only** option does not appear.

- **Consolidate Splits.** If this checkbox is marked, votes recorded from split precincts will be consolidated under their parent precinct both at the PBC and at EMS Tabulation. This means that there will be only one Election Summary report for the split precinct(s) and its parent; the summary will include all contests required by each precinct. If "Consolidate Splits" is blank (set to FALSE), a separate count of split precinct votes will be maintained at the PBC and at EMS Tabulation. The PBC will provide separate Election Summaries for each split precinct, and Tabulation will include a record of split precincts votes.
- **Allow Add Precinct**. If this checkbox is marked (default ES&S setting), poll officials will be able to insert an additional ballot header card into the PBC and add a precinct at any time after voting is open. If "Allow Add Precinct" is left blank (set to FALSE), the PBC will not accept any more ballot header cards (new precincts with new ballotstyles) once voting is open. Only those precincts initialized on startup will be considered valid.
- **Disable Election Day Password**. If "Disable Election Day Password" is left unchecked, the password in the Election Password field must be used to (a) add a new precinct after voting has already started (Public Count > 0) and (b) start a special voting session (absentee, provisional, or recount). A randomly generated password is provided in the **Election Password** field. If Disable Election Day Password is checked (ES&S default), no password is required on Election Day to start voting.
- **Allow Override**. If this checkbox is marked, an **Override** function will be available on the PBCs. The **Override** function allows the PBC Operator to override the ballot validation so that a voter may insert a ballot with errors (undervotes and/or overvotes) and have it accepted and cast "as is." Overvoted contests will not be counted. If "Allow Override" is blank (set to FALSE), no **Override** function appears on the PBC. The PBC will validate all ballots and accept only ballots with no overvotes or (if undervoting is being checked) undervotes.
- **Undervote Checking**. The InkaVote PBC validates ballots by always checking for overvotes (more candidates than allowed are selected for the contest). It will also validate ballots by checking contests for undervotes (fewer candidates than the maximum allowed are selected), if instructed. Choose one of the following from the drop-down list:

  a) **No Undervote Check:** The PBC will check only for overvotes.

  b) **Check All Contests:** The PBC will check for undervotes in *all* contests on the ballot.

c) **Check Selected Contests:** The PBC will check for undervotes only in the contests selected in "Undervote Checking." The **Undervote Checking** button is not active at the top of the Election Converter window unless you select this option. This option lets you limit undervote checking to high-profile contests; for example, check the Presidential contest, but not in the contest for Water District office.

- **Election Password.** When **"**Disable Election Day Password" is not selected, this is the password to the Election. A randomly generated password is provided, or you can click the **Password** button and enter a password that is 7 characters and is a combination of letters and numbers (at least one number and one letter, no spaces). A Demo password (used only to start the machine if required and add precincts when the Public Count > 0) is always **demo123**.
- **Technical Support Number**. Enter the Technical Support telephone number (up to 30 characters) that will appear on the PBC screen when an error or system failure occurs.
- **Close Polls Time**. If the **Enforce Close Polls Time** option is selected, the PBC operator may not shut down the PBC until the specified time for closing voting at the polls. The time is based on the PBC system clock, which is updated by the Election Loader when a new Election is loaded. Set your Close Time by clicking the drop-down arrows and selecting the hour, minute, and AM or PM of the closing time (the Unisyn default is 8:00 PM). If the **Enforce Close Polls Time** option is not selected, the time setting is ignored, and the PBC operator may close voting and shut down at any time. Note that once voting is closed on a unit, it may not be reopened.

4.1.4.5 Set Printing Options

The second Options tab, **Printing Options** lets you control printing at the PBC. Three printed receipts are available from the PBC:

- Ballot Alert Report: alerts voters to under/overvotes on the ballot
- Voter Receipt**:** printed when the voter's ballot is cast
- Election Summary**:** (Tally) printed when voting is closed

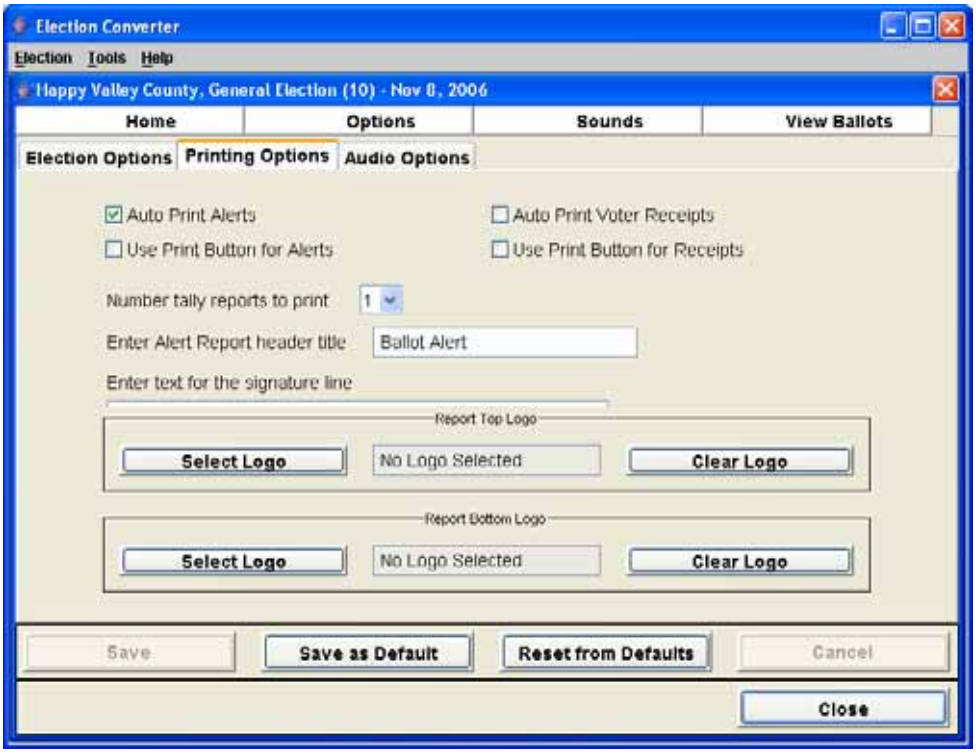


Figure 19: Printing Options

- **Auto Print Alerts**. If checked, the Ballot Alert report automatically prints if the PBC detects overvotes and (optionally) undervotes on a voter's ballot. If unchecked, the report does not print automatically.
- **Use Print Button for Alerts**. If checked, a **Print** button appears on the PBC screen when the PBC detects overvotes and (optionally) undervotes on a voter's ballot. This allows an operator to print the voter's Ballot Alert if Auto Print Alerts is not set.
- **Auto Print Voter Receipts**. If checked, the Voter Receipt prints automatically when the ballot has been accepted. If not, the receipt does not print automatically.
- **Use Print Button for Receipts**. If checked, a **Print** button appears on the PBC screen when the PBC accepts the voter's ballot. This allows an operator to print the Voter Receipt if Auto Print Receipt is not set.
- **Number of Tally Reports to Print.** Use the drop-down list to select the number of Election Summary reports you wish to print automatically when the PBC operator closes voting on the system.
- **Enter Alert Report Header**. Select and replace the existing header in the text box, "Ballot Alert." Type in the text you would like to appear at the top of the list of the voter's Alert Report, up to 18 characters.

- **Enter Text for the Signature Line**. Select and replace the existing header in the text box, "Please Sign Here," with the text you would like to appear at the bottom of the Election Summary report (up to 50 characters), above the lines where poll officials sign.
- **Report Top Logo**. This logo is a graphic that appears at the top of the Voter Receipt and the Election Summary. Use the **Select Logo** button to browse for and select your preferred .bmp file. The file should be no larger than 10K and the X coordinate size of the graphic must be evenly divisible by 8. If you do not wish to use a graphic, simply click **Clear Logo** and leave the field blank.
- **Report Bottom Logo**. This logo is a graphic that appears at the bottom of the Voter Receipt and the Election Summary. Use the **Select Logo** button to browse for and select your preferred .bmp file. The file should be no larger than 10K and the X coordinate size of the graphic must be evenly divisible by 8. If you do not wish to use a graphic, simply click **Clear Logo** and leave the field blank.

4.1.4.6 Set Audio Options

The Audio Options affect how the PBC handles Audio Ballots.

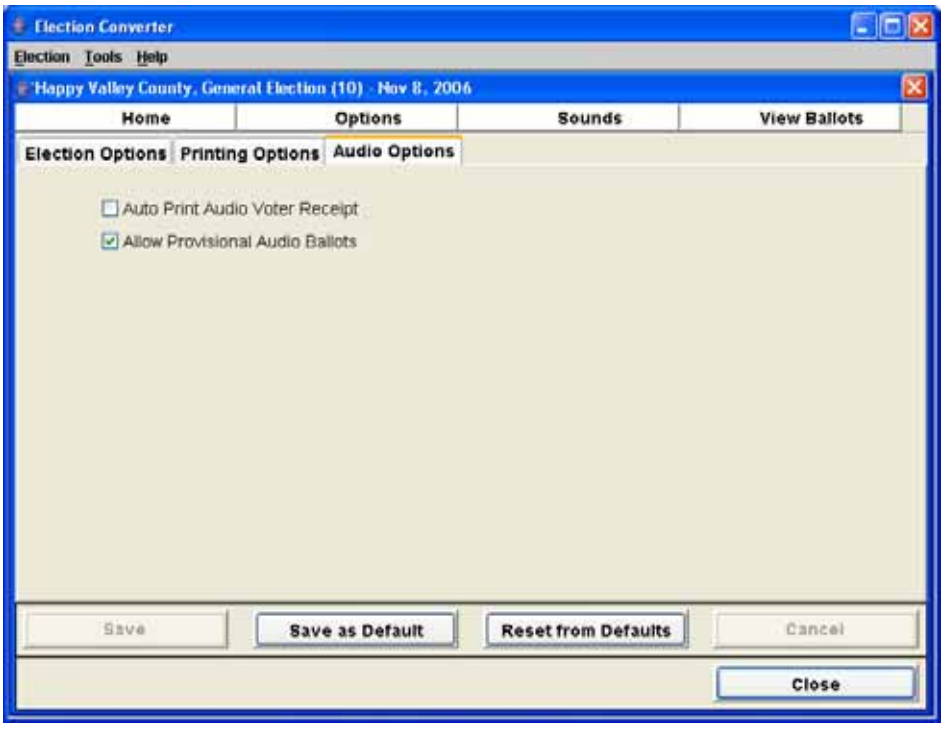


Figure 20: Audio Options

- **Auto Print Audio Voter Receipt**. If selected, a Voter Receipt will automatically print when an Audio Ballot is cast on the PBC (after an audio slip has been inserted into Ballot Reader). If not selected, the receipt does not print.
- **Allow Provisional Audio Ballots**. If this option is checked, the PBC Operator can initialize a ballot for an audio voter who is not on the rosters. The audio ballot slip will be handled at the polls as a provisional ballot.

4.1.4.7 Upload Sounds

Use the Election Converter "Sounds" feature to upload the MP3 sound files produced as described in Section 4.1.3.5. You do not have to load all sounds at once, and you can upload either an entire directory or individual MP3 files. See the *Election Converter User Guide*, Section 4.2.

The uploaded sounds appear on the Sounds window with "Uploaded" status in the Status column (see below). "Missing" sounds are sounds that are still missing or that did not have the correct file name.

To upload sounds:

1. Ensure that the MP3 file name for each excerpt exactly matches the filename listed in the audio script. The file names are case sensitive, so pay attention to upper/lowercase.
2. Collect the MP3 sound files in a directory on the hard drive of the Election Converter PC.
3. On the Sounds panel of the Election Converter, click Upload Sounds.
4. Navigate to the directory containing the MP3 files. Select the entire directory or individual files and click OK. For each file uploaded, the status "Uploaded" replaces the status "Missing."

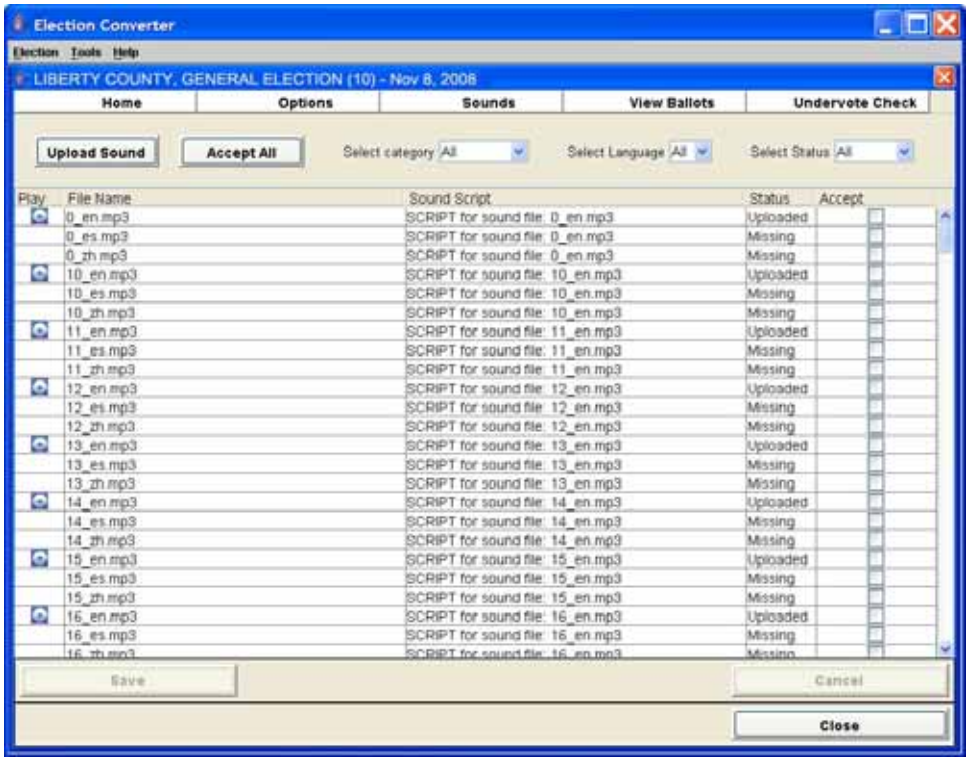


Figure 21: Election Converter Sounds Window

4.1.4.8 Audio Ballot Sound Proofing

Use the Election Converter "Sounds" feature to test, accept and reload corrected sound files for all languages.

To proof the audio:

1. Click the sound icon in the left column to listen to the sound.
2. If the sound is correct, click the Accept box in the right column to change the sound's status to "Accepted."
3. If the sound is incorrect, reproduce it and upload it again.

See the *Election Converter User Guide*, Sections 4.6 and 4.7 for complete instructions.

4.1.4.9 Export the Election to CD

When (1) all necessary audio sounds have been uploaded and accepted, (2) at least one Maintenance Technician user has been defined, and (3) status of the election on the Election Converter home screen is "Election Complete," you can create an Election CD. Complete procedures are described in the *Election Converter User Guide*, Section 7.

To create the Election CD:

1. In the Election Converter, open the **Tools** menu and select **Export**.
2. Insert a writable CD media into the CD-ROM drive.
3. Use any standard CD-ROM burning software to copy the files in the election output folder to the CD. Make sure the CD is "closed" after burning and cannot be written to by any process.
4. Make sure the set of final, encrypted files described in the *Election Converter User Guide,* Section 7.1, appear in the CD folder.
5. Follow these security procedures to deliver the CD to authorized warehouse personnel for use in Election Loaders:
   a) Label the Election CD with the date and Election version
   b) If more than one CD is created, give each a unique number
   b) Create a log, and log each Election CD created and delivered to the warehouse

4.2 Programming and Configuration of PBCs

Prepare the ES&S InkaVote PBC units for scanning ballots and tabulating votes at the polls by loading the election from the Election CD using the Election Loader. The Election Loader is installed on a jurisdiction PC (a laptop is recommended) and several Election Loaders can be used for expedience. Loading an election removes the previously installed election or demo election from the PBC.

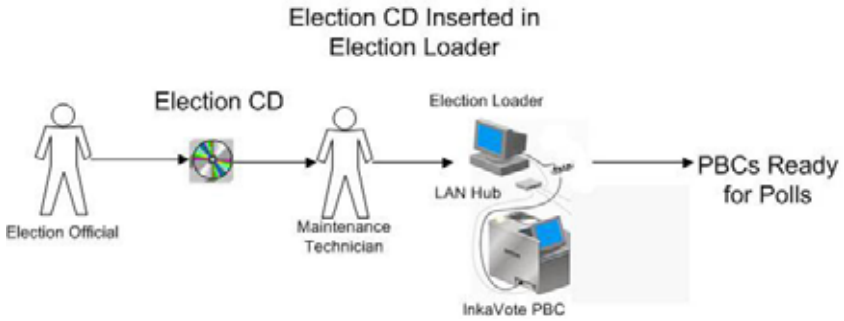


Figure 22: Election CD and Election Loading Procedure

Loading the election requires an Election Loader PC connected in a secure, physically isolated, local area network to a number of InkaVote PBCs. Complete procedures are described in the *Election Loader User Guide* and in the *Warehouse Technician's Guide*, Section 5.

Note: No special setup of the audio ballot components is required prior to an election. All audio ballot programming is included with the election that is loaded via the Election Loader.

In preparation for an election, a Technician's List is maintained for each InkaVote PBC unit, logging all security serial numbers.

Poll Location	Precincts voting at this poll	4-digit Precinct ID			
Happy Valley Elementary	229900	9788			
	229910	9789			
	Security # or Count	Prep. Date	Technician Signature	Rec'd Date	Inspector Signature
PBC Case	1 (#123998)	10/6/04	TW		
TM	1 (#123998)	10/6/04	TW		
PBC Case Seal #1	#100678	10/8/04	TW		
PBC Case Seal #2	#100679	10/8/04	TW		
PBC Front Access Tag	#67949	10/8/04	TW		
PBC Ballot Box Tag	#100773	10/8/04	TW		
Zero Count is Correct	OK	10/6/04	TW		
Ballot Box Delivery Seal	#100682	10/8/04	TW		
Open Protective Count	277	10/6/04	TW		
Open Public Count	0	10/6/04	TW		
Close Protective Count					
Close Public Count					

Election Headquarters can provide Precinct IDs for the precinct or portions voting at your location (as you know them).

The Inspector at the polls writes the Counts at close of voting.

Figure 23: Technician's List

4.2.1 Election Loading Procedure

The Election Loader requires the Election CD in its CD-ROM drive to run.

To load the election:

1. Start the Election Loader and enter the Registration key. The registration key is provided by ILTS personnel to jurisdiction after application has been verified to user

2. Ensure correct system date and time on the Election Loader. This date and time will be automatically loaded onto each PBC.
3. Make sure a Transport Media (removable USB device) is installed in each PBC unit. Open the front door of the PBC unit to check, note the Transport Media security number on the Technician's List for the PBC, then close and lock the door.
4. Start and log into each PBC using a Maintenance Technician password. The Election Loader detects the PBC, and the election automatically loads the election configuration data.

4.2.2 Election Loading Audit Records

The Election Loader Activity screen displays which PBCs have successfully downloaded the election. The Logs menu provides access to logs that track election installations by election and by machine.

- The Election Log maintains a log of all loading activity for a specific election.
- The Machine Log maintains a log of election loading activity for each PBC.

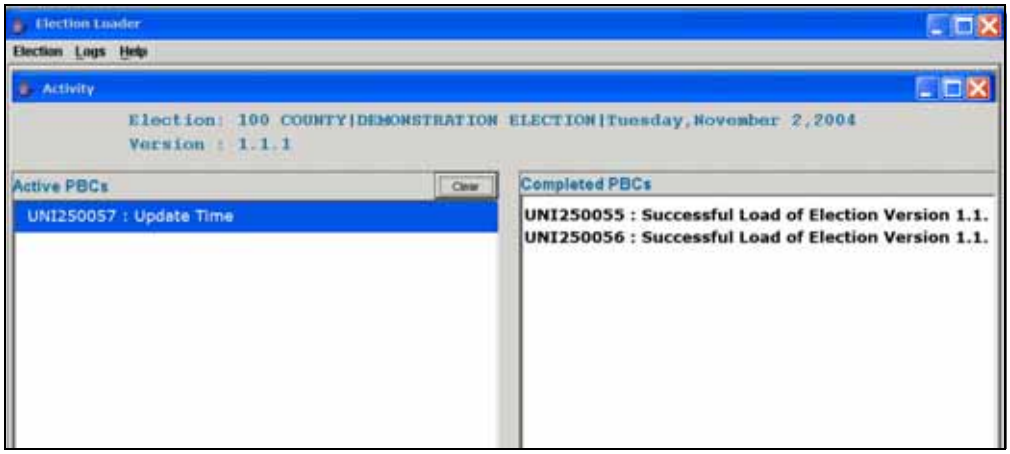


Figure 24: Election Loader Activity Screen

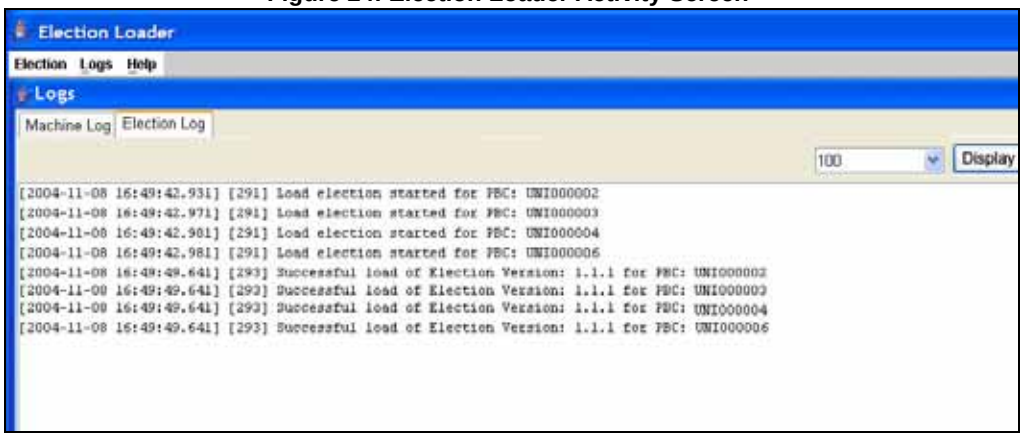


Figure 25: Election Loading Log

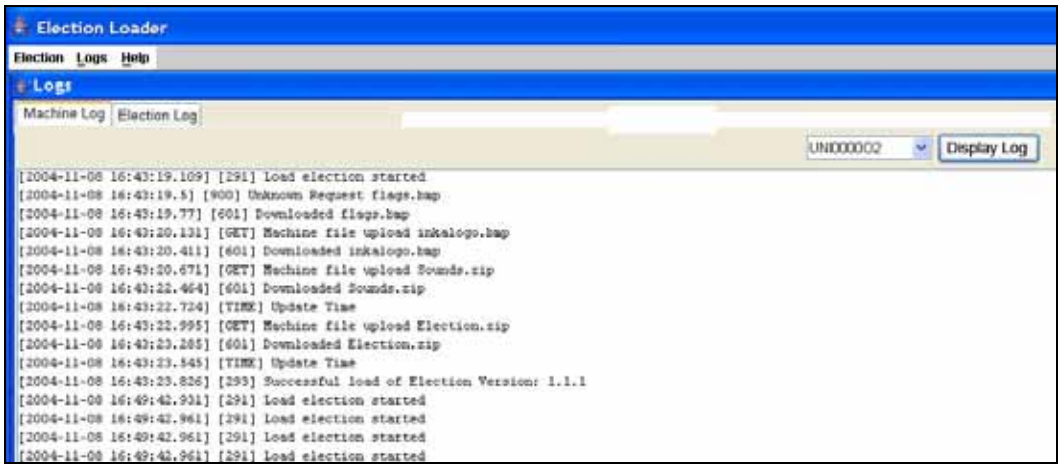


Figure 26: Load Election Machine Log

To print the Election Loader logs:

1. Use the Election Loader to display the log.
2. Swipe across the log contents and press Ctrl+C.
3. Open a document and press Ctrl+V.
4. Use the document's **Print** function to print the log.

4.2.3 New PBC Administrative Log

On loading of a new election, the InkaVote PBC begins a new Administrative Log, which includes startup, read/write and user activities occurring on the system. All PBC Administrative Logs are uploaded to the Election Converter following the election to be retained with the election data. View and print this log from the Maintenance Menu of the PBC. Print the portion of the log that shows the installation of the election to verify that there is no discrepancy between the PBC log and the Election Loader logs. You will print this log again after running the hardware diagnostic tests (Section 4.5.2).

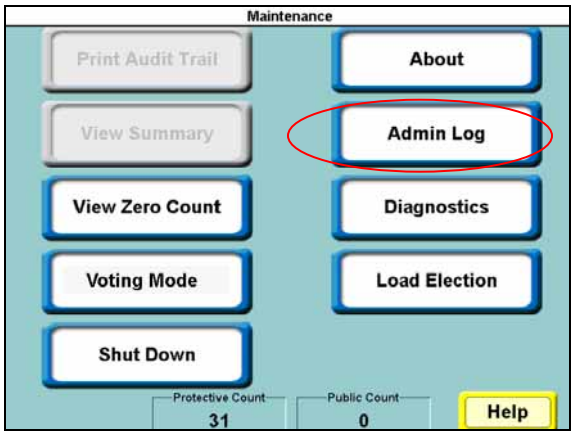


Figure 27: PBC Administrative Log

Administrative Log
11/02/2006 02:19:20 PM

[2006-11-21 11:31:06.88] [317] Maintenance Login, voting open
[2006-11-21 11:31:06.83] [252] Login
[2006-11-21 11:30:42.395] [252] Login
[2006-11-21 11:30:42.385] [102] Cast Ballot, VU: READER
[2006-11-21 11:30:42.375] [370] Record vote
[2006-11-21 11:30:42.375] [258] Issue voter access number SUCCESS
[2006-11-21 11:30:42.374] [260] Issue voter access number
[2006-11-21 09:15:38.273] [102] Cast Ballot, VU: READER
[2006-11-21 09:00:38.273] [101] Record Vote
[2006-11-21 09:08:38.273] [258] Issue voter access number SUCCESS
[2006-11-21 09:00:00.103] [260] Issue voter access number
[2006-11-21 08:59:45.715] [260] Request Ballot READER
[2006-11-21 08:20:45.715] [260] Public Count: 0

Figure 28: PBC Administrative Log Printout

4.2.4 Retention of Audit Records

All EMS Application logs, the Election Loader logs, and PBC Zero Count reports from pre-election should be retained according to jurisdiction procedures.

Check	Election Audit Reports
☐	Election Loader: Election Log for the election
☐	Election Loader: Machine Logs
☐	Election Loader: Application Log (see the beginning of Section 4 in this document
☐	PBC Zero Count reports

4.3 System Diagnostic Testing Procedures

The InkaVote PBC runs self-diagnostic hardware tests on startup and report the results (pass or fail) on the Zero Count report. Before delivering the PBC units to the polls, make sure the hardware is operating correcting by running the InkaVote PBC diagnostic tests. (Refer to the *InkaVote PBC Warehouse Technician's Guide*, Section 5.3) If any test fails or does not run correctly as described in the *PBC Warehouse Technician's Guide,* contact your ES&S representative for service. These tests do not interfere with any installed election data. From the PBC **Maintenance Menu**, select **Diagnostics**.

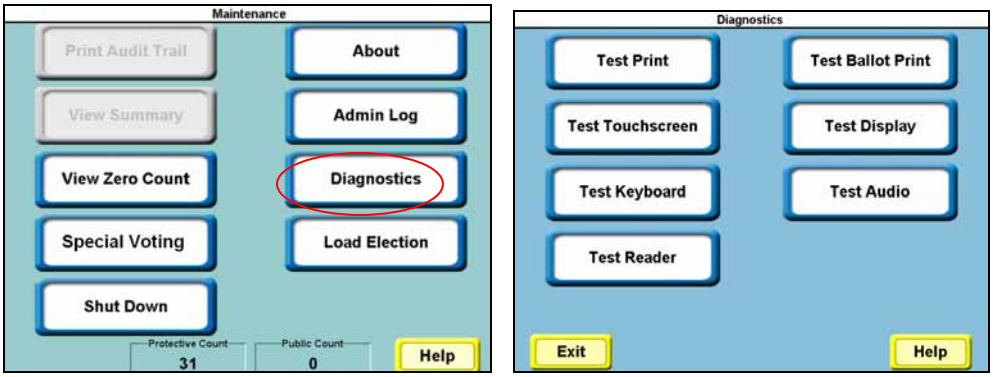


Figure 29: PBC Diagnostics Menu

- Test the report printer.
- Test the touch screen response.
- Test display colors on the monitor.
- Test the ballot reader by feeding a marked card and verifying marks onscreen.
- Test the Audio Ballot keyboard response.
- Test the Audio Ballot sound delivery on the headphones.
- Test the Audio Ballot printer response.

Check	Election Audit Reports
☐	PBC Administrative Log report, showing performance of diagnostic tests

4.4 System Proofing

Because the election includes all ballots, you can proof the election installation for all PBC's on a single PBC by printing a Zero Count for each precinct (ballot style).

To proof the election installation:

1. Select **View Zero Count** from the PBC Maintenance Menu.
2. Insert a precinct initialization card or enter a precinct ID number. The Zero Count report appears on screen.
3. Use the Print function to print the report
4. Exit back to the Maintenance Menu and repeat these steps for all precincts.
5. Verify the contests, order of contests, candidates, candidate rotation, and zero counts for each precinct..If there are problems, re-install the election, or return to the Ballot Generation step and make corrections.
6. Retain the Zero Count reports for the Election Audit Reports folder.

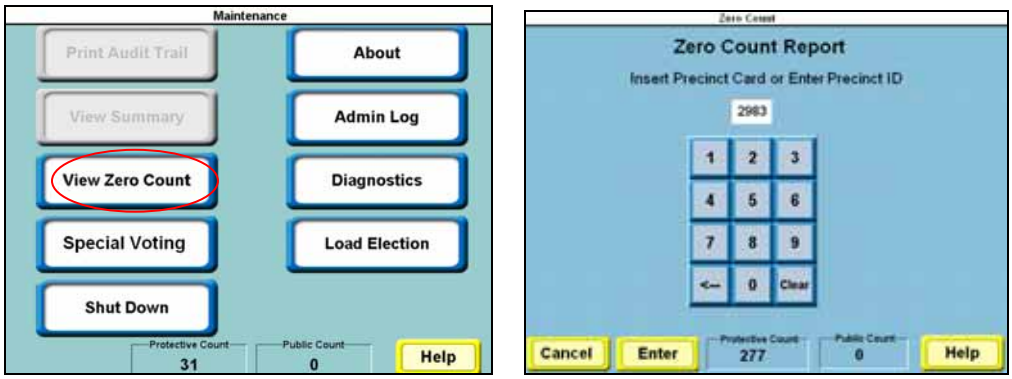
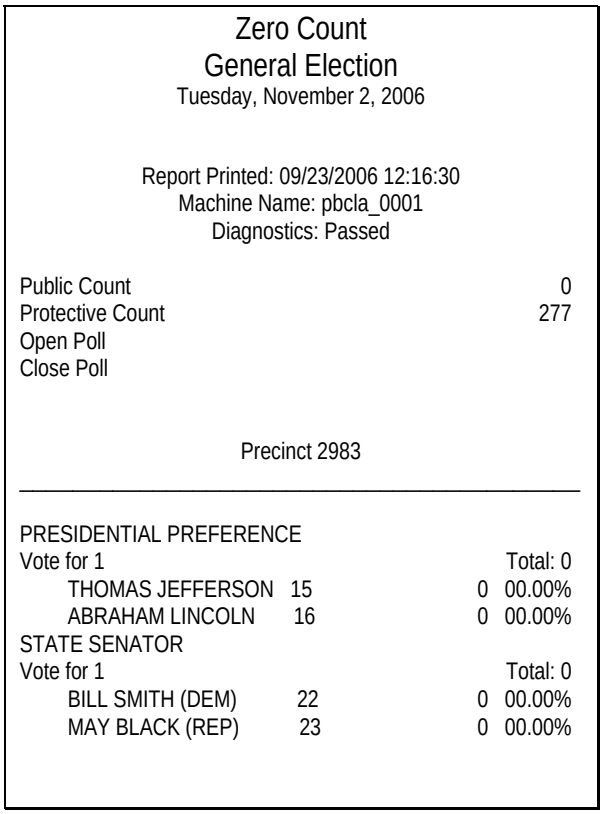


Figure 30: PBC Maintenance Menu / Zero Count Precinct Selection

If there is problem with the installation or with the Election CD data; re-install the Election on the PBC and if necessary contact Election Headquarters to have a new Election CD produced..



Zero Count
General Election
Tuesday, November 2, 2006

Report Printed: 09/23/2006 12:16:30
Machine Name: pbcla_0001
Diagnostics: Passed

Public Count	0
Protective Count	277
Open Poll	
Close Poll	

Precinct 2983

PRESIDENTIAL PREFERENCE
Vote for 1 — Total: 0

THOMAS JEFFERSON	15	0	00.00%
ABRAHAM LINCOLN	16	0	00.00%

STATE SENATOR
Vote for 1 — Total: 0

BILL SMITH (DEM)	22	0	00.00%
MAY BLACK (REP)	23	0	00.00%

Figure 31: Zero Count Report

4.4.1 Retention of Audit Records

Retain the pre-election Zero Count PBC reports with the other pre-election records in the Election Audit Reports folder. The Zero Count report includes documentation of internal diagnostic hardware testing.

Check	Election Audit Reports
☐	One PBC Zero Count report for each precinct, showing election contests, candidates, and zero values.

4.5 Logic and Accuracy Testing of System and Components

Logic and Accuracy testing verifies the readiness of the system for the specific election. Before the election and before PBCs are packed up for delivery to precinct polls, Logic and Accuracy tests are performed using the loaded Election data and including all ballot formats.

4.5.1 Pre-Conditions for Performance of Tests

Pre-conditions for Logic and Accuracy tests are:

- The election being tested is loaded and there are no votes on the system (Public Count = 0).
- It is not Election Day.
- An Accuracy Test card as described below is ready to use.
- A Logic Test card deck as described below is ready to use.

4.5.2 Accuracy Test

The purpose of the Accuracy Test is to test the PBC hardware in reading, scanning, and tabulating votes on repeated cards. The PBC Ballot Reader diagnostic test can be used to test the accuracy of the PBC unit.

4.5.2.1 Accuracy Test Card

ES&S provides an Accuracy Test card with 312 positions, premarked with vote selections leaving a pattern of unmarked positions.

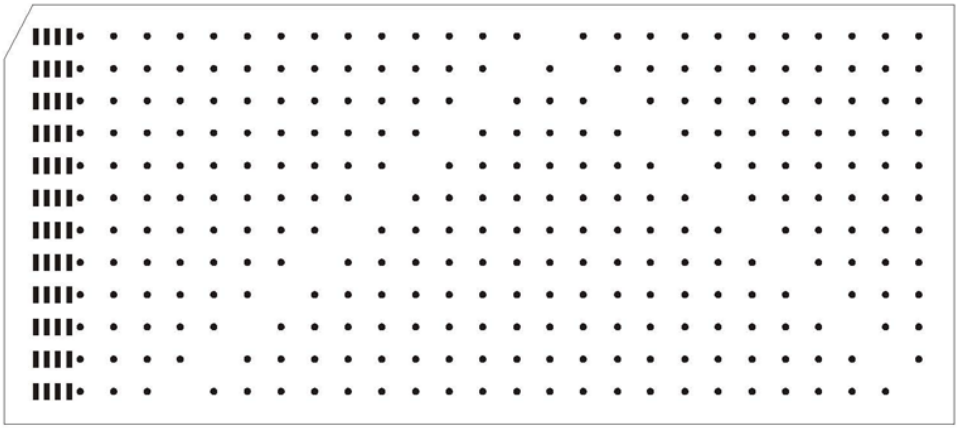


Figure 32: Provided 312-Position Accuracy Test Card

4.5.2.2 Accuracy Test Procedures

Prior to Election Day, a Maintenance user logs into the PBC and selects **Diagnostic Tests** from the Maintenance menu and **Test Reader** from the Diagnostics menu (as described in the *Warehouse Technician's Guide*, Section 5).

To perform the Accuracy Test:

1. At the prompt, insert the Accuracy Test card in the Ballot Reader Slot. The test card's ballot selections are shown onscreen.
2. Make sure the onscreen pattern matches the test card's pattern. The card is ejected back out to you. *All cards inserted after the first, pattern card will be matched against the first card pattern.*
3. Insert the Accuracy Test card repeatedly, at least 25 times. Use every orientation of card insertion: each end and each side.

   All subsequent reads of the card following the first are compared to first pattern, and a match is displayed. The screen reads: "Pattern Matched: Card 2 of 2" for the second card, "Card 3 of 3" for the third, and so on.
4. If a mismatch is found, it is identified on the screen as "Pattern Mismatch" This indicates a problem with the ballot reader. If the card is repeatedly matched, the ballot reader passes the Accuracy Test.
5. Press Exit to leave the test and return to the Diagnostics menu.

4.5.3 Logic Test Procedures

The purpose of Logic Testing is to determine that the programming of the PBC is correct for the election, and that vote uploading and tabulating works, proving the logic of the system from end to end.

4.5.3.1 Logic Test Setup

Complete administrative and election setup using the Ballot Generator as described in previous sections. Program the election to support at least three languages, to meet the California testing requirements. Produce an Election CD and load the Election on a PBC.

Have ballot cards printed and ready sufficient to meet the test requirements (depends on the number of candidates and ballot styles in the election), with at least 20 blank cards available for each ballot style.

4.5.3.2 Logic Test Card Deck

To run the test, the jurisdiction uses a deck of pre-marked, election-specific ballot cards with voting positions marked in the following predetermined pattern.

To mark Logic Test Ballots for a Primary Election:

For each ballot style (unique combination of precinct and political party):

1. The first ballot should be marked for the first candidate in each contest, according to the order specified in the Test Election Definition file, *regardless of actual position on the ballot due to ballot rotation.* For example, if John Smith is the first candidate on the first ballot style in which the contest appears (the base precinct for that contest), then John Smith shall be voted first in each of the other ballot styles where the contest appears.
2. The next two ballots should record a vote for the second candidate in each contest. If Mary Brown is the second candidate in the base ballot style for that contest, then Mary Brown shall be selected for two ballots in each ballot style containing the contest.
3. Then next three ballots should record a vote for the third candidate, if any, in each contest in the same fashion as used for the first and second candidate.
4. Once all the valid candidate positions in a given contest, including any write-in positions, have received the appropriate number of votes, the remaining ballots of that ballot style should be under-voted in that contest. This pattern should continue until the contest with the most ballot positions has a unique vote result for each candidate position, in ascending order.
5. Write-in candidate positions should be treated as any other valid candidate position for receiving votes.
6. For the "vote for two" contest in Precinct 1, the first two candidates should each get one vote, the next two candidates should each get two votes and the third two candidate positions should each get three votes, etc.
7. Once all the valid ballots have been marked for a given ballot style, add two more ballots for that style. One ballot should be over-voted in every contest. The second ballot should be totally blank.

To mark ballots for a General Election:

For each precinct, do the following:

1. The first ballot should be marked for the first candidate in each contest, according to the order specified in the Test Election Definition file, *regardless of actual position on the ballot due to ballot rotation.* For example, if John Smith is the first candidate on the first ballot style in which the contest appears (the base precinct for that contest), then John Smith shall be voted first in each of the other ballot styles where the contest appears.

2. The next two ballots should record a vote for the second candidate in each contest. If Mary Brown is the second candidate in the base ballot style for that contest, then Mary Brown shall be selected for two ballots in each ballot style containing the contest.
3. Then next three ballots should record a vote for the third candidate, if any, in each contest in the same fashion as used for the first and second candidate.
4. Once all the valid candidate positions in a given contest, including any write-in positions, have received the appropriate number of votes, the remaining ballots of that ballot style should be under-voted in that contest. This pattern should continue until the contest with the most ballot positions has a unique vote result for each candidate position, in ascending order.
5. Write-in candidate positions should be treated as any other valid candidate position for receiving votes.
6. Once all the valid ballots have been marked for a given ballot style, add two more ballots for that style. One ballot should be over-voted in every contest. The second ballot should be totally blank.

4.5.3.3 Logic Test Procedure

To run a Logic Test on the PBC:

1. Start up the PBC prior to Election Day.
2. At the Maintenance Password entry prompt, select Logic Test in the lower left corner of the screen.
3. Wait for the system to open and enter the Election password.
4. When prompted, insert ballot header cards as instructed in the *Election Day Operator's Guide*.
5. Insert the Logic Test deck one at a time. All voting functions should be operating as expected, as determined by the Election Converter setup. See the *Election Day Operator's Guide* for more information.
6. When the entire deck has been read, select **Close** voting. An Election Summary report (tally tape) prints for each precinct that was tested.
7. Shut down the PBC.

If marked correctly, the test deck should yield predictable vote results

To upload and tabulate Logic Test results:

1. Unlock the PBC front access door and remove the Transport Media. (Do not restart the PBC with the Logic Test Transport Media still inserted, because all voting data will be cleared and reset for the next session!)
2. If necessary, connect the Vote Converter and Vote Tabulator PCs to communicate with each other.
3. Turn on the Vote Tabulator and open the election being used for the Logic Test. See the *Vote Tabulator User Guide* for complete instructions.
4. Click the **New Run** button and create a "Pre-Election Logic Test" run. Select "Is active" and click **Add**. The Pre-Election Logic Test is now the active election for Tabulation.
5. Switch on the Vote Converter and insert the Transport Media with Logic Test results into a USB port. See the *Vote Converter User Guide* for complete instructions.

   The Vote Converter automatically uploads the votes and notifies the Vote Tabulator, displaying the upload status.

   The Vote Tabulator automatically reports the PBC machine, precinct, and count of ballots being uploaded.
6. Load additional TMs from other PBCs/precincts being tested.
7. Follow instructions in the Vote Tabulator User Guide to view summaries of the consolidated results and create reports on the Logic Test results.
8. Print the reports and match the results to the results expected (based on the test deck and number of PBCs tested).

The Logic Test has all the contests, candidates, rotation schemas, languages, and settings that have been developed for the actual election. Differences are as follows:

- Voting can occur any day except Election Day. For a live election, the PBC system does not allow voting unless the system clock detects that it is Election Day, as defined by the installed election.
- Vote files are cleared when the system is restarted for voting again.
  For Election Day voting, the vote files are retained until the next election is installed; and the system *may not* be restarted for voting.
- All reports are marked "Logic Test" to distinguish the results from actual precinct results. For Election Day voting, only the election type and title is used.
- If there is a power failure, the PBC will not "recover" Logic Test voting data; the vote file is cleared and reset. When the system is shut down, the voting data is cleared, just

as for a Demo election. On Election Day, the PBC always recovers voting data to the last known state and retains the data until another election is loaded.

4.5.4 Retention of Test Materials

The successful Logic and Accuracy tests, conducted at the time of certification (or re-certification, if necessary) to the Secretary of State, storage logs or records (EMS Application Logs, PBC Administrative Logs) and the election result reports shall be retained as long as the ballots are kept for the election. The official Accuracy Test and Logic Test ballot cards used shall also be kept for as long as the ballots are kept. Back-up decks and other test decks may be destroyed or used to train operators for other elections. Transport Media used for the tests need not be retained.

Check	Election Audit Reports
☐	PBC Administrative Log showing hardware accuracy test Display and print from the Maintenance Menu
☐	PBC Election Summary Reports for the Logic Test Printed when voting is closed for the Logic Test
☐	EMS Tabulation Reports for the Logic Test Print from the EMS Tabulation application after uploading votes with Vote Converter

Check	Election Files
☐	Transport Media with vote files (tally, ballot image, and machine log) These files are uploaded by the Vote Converter to store with the EMS database. The Transport Media can be “cleaned” and reused after all machine logs are uploaded using the Election Converter following the test.

4.5.5 Logic and Accuracy Board/Certification of Testing

A Logic and Accuracy Board shall be appointed by the Election Official and, when possible, shall be comprised of the same persons prior to, during, and after the election. The Board shall have the following duties:

- Receive from the Election Official all required test materials and take steps to ensure the security of said materials prior to, during, and after the election, except when the materials are properly in the possession of one of the other boards or Election Official as required by these procedures.

- Verify the correctness of the logic and accuracy test and the logic and accuracy test ballots. This verification shall also be required for any of said material that must be replaced.
- Observe the performance and verify results of all required tests.
- Note any discrepancies and problems and affirm their resolution or correction.

Final pre-election certification shall be made to the Secretary of State no less than seven days before each statewide election. The Election Official, based on the Logic and Accuracy Board's certification of successful testing, shall make this certification. In the event an amendment to the ballot counting program is required following this certification, the Election Official must immediately re-conduct the logic and accuracy tests and re-certify to the Secretary of State.

4.6 Ballot Tally Programs

4.7 Election Observer Panel

All procedures prescribed in these *Procedures* shall be carried out in full view of the public insofar as feasible. In addition, the responsible elections official shall devise a plan, subject to the approval of the Secretary of State, whereby all critical procedures of the vote tallying process described in these *Procedures* are open to observation by an Election Observer Panel. The Election Official shall appoint the members of the Election Observer Panel. Representatives of the qualified political parties and representatives of the news media shall be among those invited to serve on this Panel and shall be given the opportunity to observe that the correct procedures have been followed in the receiving, processing, and tallying of all the voted ballots. Failure of any or all invited parties to participate on the Panel shall not stop procedures from continuing as otherwise required by law.

Note: According to the California Elections Code section 15004. "The county central committee of each qualified political party may employ, and may have present at the central counting place or places, not more than two qualified data processing specialists or engineers to check and review the preparation and operation of the tabulating devices, their programming and testing, and have the specialists or engineers in attendance at any or all phases of the election."

4.8 Hardware Maintenance and Preparation for Use

Ballot counting equipment must be maintained in a satisfactory manner as described in the *InkaVote PBC System Maintenance Procedures*. Any equipment, or component, that fails or malfunctions during maintenance and testing shall be serviced, repaired, or replaced and appropriately tested prior to the use of that equipment or component in any election.

To prepare hardware before an election:

These are minimum requirements.

- Insert a cleared Transport Media in each PBC.
- Load a 80mm thermal printer paper roll into the PBC report printer.
- Load a 82.5mm (pre-printed, 25-ballot) thermal printer paper roll that meets the specifications identified in Appendix A of this document into the audio ballot printer.
- Include *Setup Sheets A* and *B* in the main PBC unit. Include *Setup Sheet C* in the audio booth case.
- Package the wheeled PBC unit following instructions in the provided *Setup Sheets*, and package the precinct materials and ballots inside the wheeled ballot box. The poll Inspector for the precinct will receive these two, wheeled units and the audio ballot case.

To prepare hardware for storage following an election:

- Remove the 80mm thermal printer paper roll from the PBC report printer.
- Remove the 82.5mm (pre-printed, 25-ballot) thermal printer paper roll from the audio ballot printer.
- Store printer rolls separately.
- The PBC units should be stored fully closed andlocked in their cases on a rack system in the warehouse.

5. Polling Place Procedures

Follow procedures and guidelines outlined in the California Election Code for conducting an election and processing ballots. The procedures provided here are recommendations for using the ES&S system and should be used in conjunction with the approved California Election Code procedures. Detailed procedures are provided in the following InkaVote PBC user guides:

- *InkaVote PBC Setup Sheets*
- *Election Day Poll Worker's Guide*
- *Election Day Operator's Guide*
- *Election Day Troubleshooter's Guide*

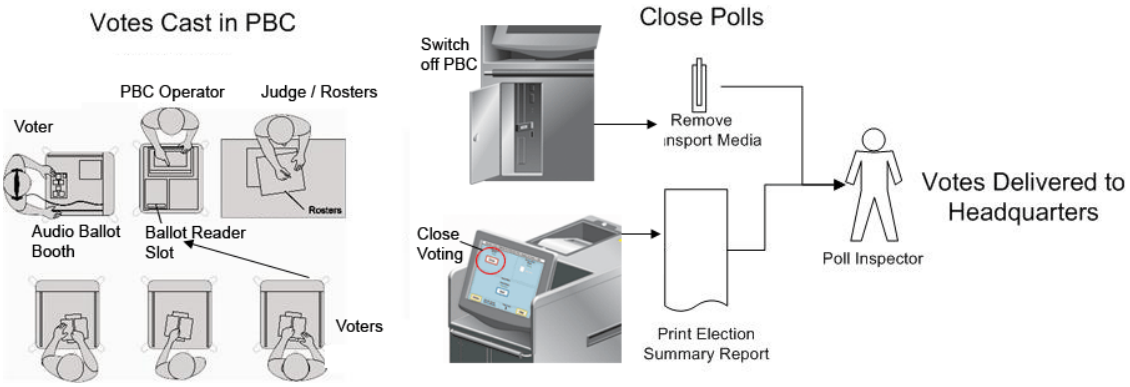


Figure 33: Polling Place Procedures

5.1 Precinct Supplies, Delivery and Inspection

In addition to those supplies required for the conduct of elections generally, the Election Official shall supply to each precinct a sufficient quantity of the following:

- Marking devices compatible with the InkaVote Voting System.
- Ballots of such form as required for tallying the Unisyn EMS system, which can include precinct ballots and provisional ballots. Ballots shall be appropriately tinted and watermarked as directed by the Secretary of State.
- Secrecy envelopes for provisional ballots and secrecy folders for audio ballots in sufficient quantity to conduct the election. These envelope/folders must entirely cover the ballot area on which voting marks are made. These envelopes/folders provide security coverage of voted ballots until the ballots are deposited into the ballot box.

The envelopes/folders are not deposited in the ballot box with the voted ballots, and may thus be reused by successive voters.

- A ballot return box where voted and counted ballots are placed and sealed following the election.
- Containers or envelopes in which to enclose the following: (1) provisional ballots (2) absentee ballots; (3) spoiled, unused and cancelled ballots.
- A Precinct Ballot Statement or appropriate form for reconciling ballots.
- Technician's List itemizing PBC equipment received with serial and security numbers as described in the *Warehouse Technician's Guide*.
- Other supplies necessary for the conduct of the election.

5.2 Equipment Setup

Perform the following steps an hour before polls open:

- Make sure the equipment you have received matches the equipment listed on the Technician's List. If it does not, call the election hotline. Refer to the Warehouse and Election Day guides.
- Set up the InkaVote PBC as described in the InkaVote PBC *Setup Sheet A.* Setup requires at least ***two people*** to lift the PBC unit on top of the ballot box.
- Set up voting booths. Follow jurisdiction guidelines for privacy and safety.
- Set up the Audio Ballot booth and components using *Setup Sheet C* as a guide. Make sure the cable connecting audio equipment to the PBC is not obstructing voter traffic.
- Follow your election procedures to post sample ballots and registered voter information.
- Follow your election procedures to prepare voter rosters and precinct ballots and ballot cards for voting by precinct. Make sure the correct precinct ID markings appear at the bottom of the ballot cards.
- Review procedures for assisting voters with all poll workers.
- Note the total number of blank ballots received plus the number of ballots provided on the audio ballot paper roll on the Technician's List .

5.2.1 Zero Count and Readiness Tests

When you start the InkaVote PBC, it automatically runs diagnostic tests on its hardware components and prints a Zero Count.

To start the PBC for voting:

1. Plug in and switch on the PBC. The system starts and prompts for the Election password.
2. Enter the Election password by touching keys on the screen. When the password is accepted, the system prompts for a ballot header card. The ballot header card initializes a particular precinct (ballot style) for voting on the PBC.
3. Insert a blank ballot card for the valid precinct. If the PBC will process multiple precincts, insert a ballot card for each precinct, one at a time.
4. For each precinct, a Zero Count report prints. Insect the Zero Count for success of the internal diagnostics and for zero (0) value counts for the Public Count and each candidate total.
5. The Inspector signs each Zero Count and notes the time on his/her watch, for comparison to the PBC recorded time at the top of the report. All Zero Count reports are stored and returned to Election Headquarters when polls close.
6. The Inspector makes sure the Protective and Public counts on the Zero Count reports match the counts on the Technician's List.
7. If the Zero Count does not print, if a test fails, or if there is any system error, call your election hotline immediately.

5.2.2 Adding Precincts after Voting is Open

If you need to initialize an additional precinct after voting is open, simply insert the "new" precinct ballot card (with or without vote selections). If the Public Count is greater than zero (votes have been cast), you are prompted to confirm adding a precinct and you must enter the Election password. The ballot is returned to the voter, who re-inserts it for validation and casting after the precinct is initialized.

5.3 Opening the Polls

When the PBC has been switched on and tested as described above, the poll inspector announces that polls are open.

5.4 Polling Place Procedures

In addition to standard California election procedures, use the following procedures for handling voters at an InkaVote PBC poll location.

5.4.1 General Process Overview for Registered Voters

Stationed at a table next to the PBC, a judge receives each voter and checks the voter registration roster. Pollworkers are assigned to hand out and receive ballots. The PBC operator sits at screen.

For a registered voter:

1. If the voter is on the roster of registered voter, a poll worker(s) hands the voter:
   (a) Ballot pages in a holder with
   (b) Ballot card for the appropriate precinct with ½-inch serial number stub removed
   (c) Ballot card secrecy sleeve for returning the ballot
   If the voter requires an audio ballot or is not on the roster of registered voters (must vote provisional), follow the procedures in Sections 5.5.1 and 5.6 below.
2. The poll worker instructs the voter :
   (a) To mark the ballot carefully and when finished voting
   (b) Remove the ballot card from the holder
   (c) Insert it into the secrecy sleeve with the receipt showing outside the sleeve
   (d) Return the holder and the ballot in the sleeve to the poll worker.
   The poll worker can use a sample ballot card in a secrecy sleeve to illustrate the procedure.
3. The voter goes to a voting booth and marks votes.
4. After voting, the voter returns to the poll worker who is receiving ballots and turns in the vote holder and the secrecy sleeve with ballot.
5. The poll worker removes the ballot receipt stub extending from the end of the secrecy sleeve and returns the covered ballot and receipt to the voter. If the ballot is exposed in any way, the poll worker instructs the voter to cover the ballot before taking it.
6. The poll worker instructs the voter:
   (a) Go to the PBC unit and insert the ballot card into the yellow slot
   (b) The PBC will validate your ballot for proper votes per contest
   (c) Keep the receipt stub as your proof of voting
   (d) Return the secrecy sleeve to the operator (or another poll worker) after the ballot is accepted
7. The voter removes the ballot card from the PBC and inserts the ballot into the ballot reader slot of the InkaVote PBC. The PBC reads and validates the card.

If the PBC cannot read the ballot, it ejects it back out to the voter and displays an error message. Follow procedures in Section 5.4.3.
If the PBC encounters a Ballot Alert condition, it ejects the card to the voter, prints a report, and displays a message. Follow procedures in Section 5.4.2.

8. When the PBC accepts the ballot, the PBC operator sees that a "Cast Successful" message appears and the Public Count is incremented.
9. The operator instructs the voter to return the secrecy sleeve and reminds the voter to keep the ballot receipt as proof of voting.

5.4.2 Ballot Alerts

Any ballot inserted in the ballot reader slot will be scanned by the PBC for overvotes. Optionally, if desired by the jurisdiction, the PBC may also be programmed to scan for undervotes. An overvote is when the voter makes more selections than allowed by law (e.g., votes for 2 candidates for President). An undervote is when the voter fails to make the maximum selections allowed by law for a contest (e.g., votes for none, or votes for only 2 out of 6).

When the ballot reader encounters overvotes (or undervotes, if so programmed) the PBC prints a ballot alert report and displays "Ballot Alert" on the PBC screen.

When a ballot alert occurs:

1. The reader ejects the ballot card back out to the voter.
2. The PBC prints a "ballot alert" report on the report printer. This report lists the contests and the kind of error that occurred. The operator can use a **Print** button to reprint the report in the voter's language, if the PBC is so programmed, and if necessary.
3. The voter takes the report from the printer to see where the problem occurs.
4. Preventing the next voter from voting, the operator asks the voter if he/she would like to submit the ballot "as is," or vote a new ballot.
5. At the voter's request, the operator can "override" the ballot alert and accept the voter's ballot as is, with errors. The operator presses the **Override** button and the voter re-inserts the ballot with errors. It is cast as is, and the system automatically tracks the undervote or overvote data. Votes in an undervoted contest are counted; overvoted contests receive no count (no vote is recorded).
6. At the voter's request, the operator or poll worker instructs the voter to return the ballot in the secrecy sleeve. The ballot is spoiled, and the voter assisted in starting a new one.

Ballot alert reports are not produced for Audio Ballots since overvotes are prohibited, a warning is provided for undervotes and all contests confirmed by the voter as the voter completes them.

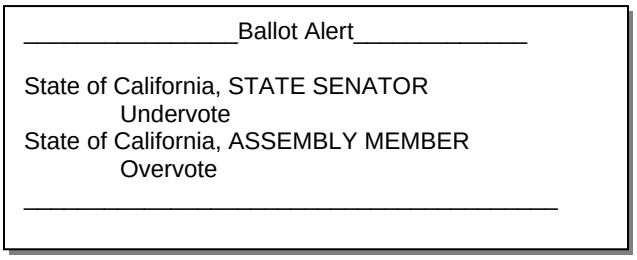


Figure 34: Ballot Alert Report

5.4.3 Ballot Errors

If any ballot returns an “Invalid Ballot” or “Invalid Ballot Style” error on the PBC screen, the operator notifies the Judge and/or Inspector. The ballot card may have the wrong Precinct ID, may be damaged, or may be illegal. Store the ballot card with a note describing the error with other spoiled ballots. Determine whether the voter should be given a new ballot.

5.4.4 Spoiled Ballots

Spoiled ballots (ballots damaged or for any reason rejected by the voter) should be kept in a specific and secure location for counting at close of voting.

5.4.5 Absentee Voter Ballots

If the voter is returning an absentee ballot, the ballot must be in the proper envelope and signed as required by election procedures. The judge determines if the envelope is acceptable, and if so, hands the envelope to a poll worker who inserts it in the secondary ballot slot in the ballot box.

5.5 Special Needs Voters

Follow the procedures below for special needs voters at the polls.

5.5.1 Audio Ballot Voters

Any voter with the need can request to use the audio ballot. The PBC always contains audio ballots for every precinct in the jurisdiction. The judge passes the voter's precinct and party information (as applicable) to the PBC operator.

For an audio ballot voter:

1. The PBC operator issues an Audio Ballot as described in the *Election Day Operator's Guide.*
2. A poll worker assists the voter to the Audio Ballot booth.
3. When the voter has headphones on and is ready at the keyboard, the operator starts the narrated ballot. The ballot starts with an instructional segment where the voter becomes familiar with the keyboard.
4. At any time, if the voter has difficulty, the ballot may be stopped and started again. No part of the ballot is recorded or cast.
5. When the voter reaches the end of the ballot, the voter has the option to review and then print their vote selections on an Audio Ballot Slip.
6. If the voter is on the registered voters roster, while in the privacy of the voting booth, the voter inserts the ballot slip into a secrecy envelope that facilitates feeding the slip into the ballot reader slot. A poll worker may then assist the voter in inserting the slip into the ballot reader slot.
7. If the voter is provisional, while in the privacy of the voting booth, the voter seals the Audio Ballot Slip in the provided provisional envelope. A poll worker then inserts the envelope in the secondary slot of the ballot box.

5.5.2 Physically Challenged Voters

Either a vote recorder ballot or an audio ballot keyboard can be placed in a voter's lap to facilitate voting. The Audio Ballot Booth is designed to accommodate the width of a wheelchair. In addition, a ballot may be brought to a voter, to be marked curbside in a car, according to jurisdiction procedures.

5.5.3 Non-English Language Voters

The jurisdiction may choose whether to produce ballot pages in all languages or provide English-only ballots with a translation guide for each language. If a registered or provisional voter does not read English, the voter receives either a guide or a ballot in his or her language, as supported by the jurisdiction.

- For an audio ballot voter, the PBC operator selects the voter's language for the audio narrative.

- For a “Ballot Alert” reports, the PBC operator selects the voter’s language and reprints the report in the language.

5.6 Provisional Voters

If the voter is not on the roster, the judge determines whether the voter can vote provisionally. If so, the voter receives a provisional envelope with the ballot and signs the provisional roster.

For a provisional voter:

The voter goes to a voting booth and marks the votes. In the privacy of the voting booth, the voter removes the ballot card and inserts it into the provisional envelope. The voter then returns the vote recorder to a poll worker and hands the envelope to a poll worker. The poll worker inserts the provisional envelope into the secondary ballot slot in the ballot box. The provisional ballot may also be validated by the PBC before it is inserted into envelope, if this option (**Validate Only**) is desired by the jurisdiction.

If the voter provides an address that is in precinct, the appropriate precinct ballot is provided, but the ballot is still inserted in an envelope and in the Provisional Ballot Slot of the PBC. The voter will be approved during the canvass.

Note: The PBC is loaded with audio ballots from every precinct. If the “Allow All Audio Ballots” switch is on (see Section 4.1.4.4), the PBC operator can issue an audio ballot from any identifiable precinct to a registered or provisional voter.

5.7 Closing the Polls and Vote Reporting

Perform all tasks required for closing the polls as outlined in the California Elections Code and in plain view of the public.

To close the polls:

1. The poll Inspector verbally declares that the polls are closed at the proper closing time. Allow any voters remaining in line to vote, but turn away any voters that arrive at the polling place after the official closing time.
2. When the last voter has voted, the PBC operator selects **Close** on the system. No more votes may be cast on the system. The operator notes the Protective and Public Counts
3. The precinct Election Summary automatically prints on the report printer. The Inspector finds the final Protective and Public Counts on the Election Summary,

compares them to the operator's noted Protectcive and Public Counts to ensure they match, and transcribes them on the Technician's List. The Inspector signs the Election Summary.

4. The operator shuts down and unplugs the system.
5. When the PBC is off, a poll worker verifies that the tamper-evident seal covering the PBC front compartment door has not been broken and compares the seal serial number to the number on the Technician's List. The pollworker transcribes the seal number on the Technician's list. If the seal matches, the pollworker breaks the seal.
6. The poll worker then removes the assigned key a sealed envelope in the canvass bag, unlocks the front compartment door of the PBC, and removes the Transport Media (USB memory device) from the interior PC.
7. The Inspector places the Transport Media and Election Summary report tape(s) in the Precinct Results canvass bag. The Inspector places a provided numbered, security seal over the bag opening and notes use of the seal and transcribes its number on the Technician's List.
8. The pollworker transcribes the seal number on the security tape attaching the InkaVote PBC to its ballot box on the Technician's list. If the seal matches that on the Technician's list, the pollworker breaks the seal. and lifts the InkaVote PBC off the ballot box.
9. The PBC case is inspected to ensure no ballots remain in the ballot reader chute, and all ballots are removed from the ballot box: counted PBC ballots from the main ballot box compartment and provisional and absentee secrecy envelopes from the secondary ballot box compartment are processed as described below.
10. Poll workers pack the PBC case and Audio Ballot Booth equipment following instructions in the *Setup Sheets*.
11. The operator and poll workers pack up the voting booths.

5.7.1.1 Processing Ballots

Poll workers pack up ballots using the ES&S system as follows. Be sure to note all counts as required on the Ballot Reconcilation sheet for return to Election Headquarters:

- PBC Counted Ballots (taken from the PBC Public Count on the Election Summary report)
- Ballots with Write-ins separated (match to Registered Roster)
- Count of Absentee ballots turned in at the polls
- Count of Provisional ballots in secrecy envelopes (match to Provisional Roster)
- Count of Unused ballot cards and ballots on the audio ballot paper roll
- Count of spoiled ballots

5.7.1.2 PBC Counted Ballots

After the PBC unit has been removed from the ballot box, remove and stack the counted ballots from the main ballot reader compartment of the ballot box. Seal the ballots in a provided box as required by the jurisdiction. The total count of these ballots is provided by the Public Count on the Election Summary report.

5.7.1.3 Write-in Votes

Separate and stack all counted ballots with the write-ins marked in the write-in area at the top of the ballot. Audio ballot voters select write-ins as part of the voting process, and the write-in names are printed at the top of the audio ballot. Bind the ballots with write-ins in a rubber band. These ballots are included in the Public Count from the PBC, but must be processed at Election Headquarters.

5.7.1.4 Absentee Voter Ballots

From the secondary ballot compartment, remove, stack and count all absentee secrecy envelopes containing absentee ballots. Note the count on the appropriate form and bind the envelopes together.

5.7.1.5 Provisional Voter Ballot

From the secondary ballot compartment, remove, stack and count all provisional voter secrecy envelopes. Note the count on the appropriate form and bind the envelopes together.

5.7.1.6 Unused Ballots

Count the unused ballots, including the unused ballots in the Ballot Printer roll. Each Ballot Printer roll contains 25 ballots. Note the count on the appropriate form.

5.7.1.7 Spoiled Ballots

Count the spoiled ballots.

5.7.1.8 Ballot Totals

The Inspector ensures that all ballots used, unused, or spoiled have been accounted for and add up to the correct total ballots noted on the Technician’s List.

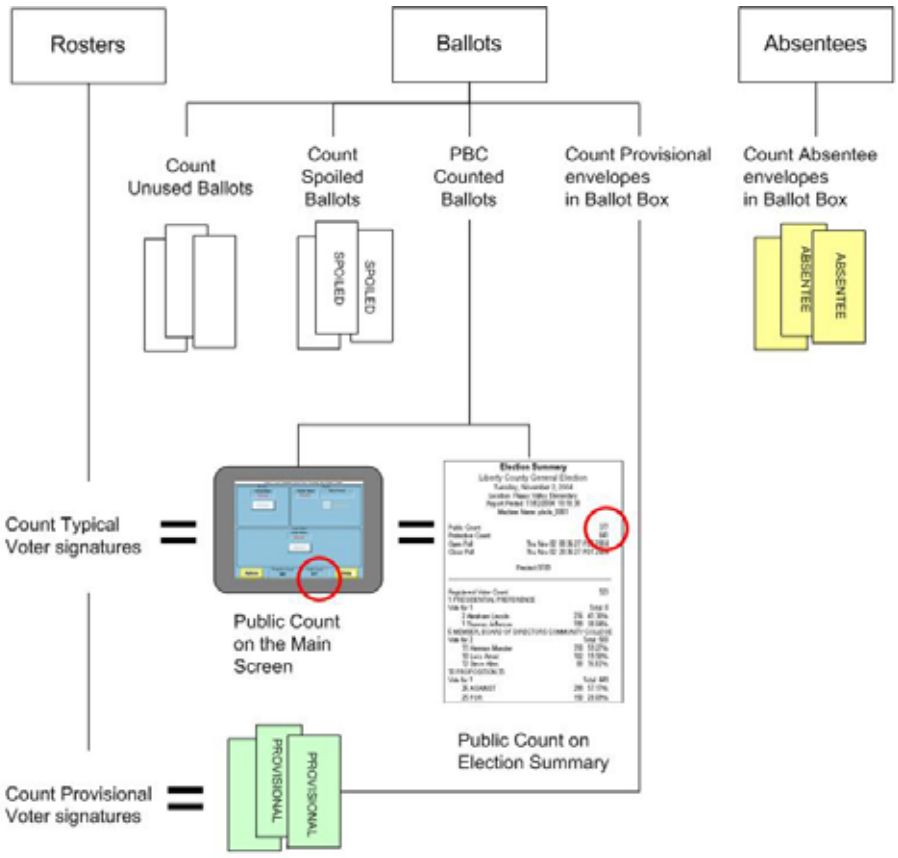


Figure 35: Ballot Reconciliation

5.7.1.9 Returning Ballots and Equipment

Return all ballots and supplies as prescribed by the Election Code and as directed by the jurisdiction. At least two precinct board members must accompany all ballots until they are in the custody of the jurisdiction and a properly executed receipt has been provided.

Additional procedures are provided in the *Election Day Poll Worker's Guide* for delivering the following to Election Headquarters or the central count location.

- Sealed Precinct Results Envelope containing:
  Zero Count report
  Election Summary reports (signed)
  Transport Media USB device
- Larger Precinct Return Package containing:
  Absentee ballot package
  Provisional ballot package
  Spoiled ballot package
  Precinct Results Envelope (see above)

- Ballot Return Box containing:
  Counted ballots
  Ballots with write-ins separated
- Use the empty, wheeled ballot box to package the following:
  Rosters and street index
  Signs, stickers, pencils and all materials from the Registration table
  Unused ballot cards and unused ballot slip paper
  Technician's List
- Voting booth cases
- Audio voting booth case
- InkaVote PBC case

5.8 Securing Audit Logs and Back-up Records

Retain the vote files from the PBC on Transport Media for the specified [period of time] and maintain a folder of Election Audit Reports for investigative purposes.

5.8.1 Election Reports

Items to retain in the Live Election Audit Reports folder are:

- Election Summary report tape(s)—one for each precinct—delivered from polls in canvass Precinct Results bags. These reports provide tallies of votes for each precinct / party.
- Audit Trail printout (see below)—one for each PBC. This report can only be obtained when voting is closed, and provides a record of the PBC machine name and the ballot images (all contests and vote selections) in randomized order that it recorded.
- Administrative Log Printout (see below) —one for each PBC. This report provides a log for a single PBC with a date/time stamps next to coded PBC activities performed, errors encountered, and cast ballot actions.
- Technician's List for each PBC (see the figure in Section 4.2) —one for each PBC. This manually recorded checklist is created pre-election and accompanies the PBC to the polls. The report provides proof that security procedures were followed, equipment was returned, and serves as an additional record that PBC counts match reports and final tabulation.

To print the Audit Trail:

Obtain the Audit Trail post-Election from PBCs returned from the polls.

1. Start the PBC and login using a Maintenance technician username and password for the Election.
2. From the Maintenance Menu, select Print Audit Trail. Wait for the report to print.

To print the PBC Administrative Log from the PBC:

The PBC Administrative Log (Machine Log) can be obtained either from the PBC itself post-election at the warehouse, or from the Election Converter after logs are uploaded and TM's cleaned. From the PBC:

1. Start up and log in to the PBC with a valid Maintenance Technician username and password.
2. Select **Admin Log** from the Maintenance Menu.
3. On the Admin Log screen, scroll and use the **Print** function to print portions of the log that show startup of system on Election Day through "Close" voting and Shut Down activities.

To print the PBC Administrative Log from the Election Converter:

The Election Converter provides indexing and lookup of the Administrative logs by PBC machine IDs, election, and specific system code numbers found in the logs. See the *Election Converter User Guide.* From the Election Converter application:

1. Log in to the Election Converter with an Admin User or Superuser username and password.
2. From the **Tools** menu select **Machine Logs**.
3. Use drop-down lists to select the Election and a PBC Machine ID.
4. Click Show Log.
5. Press **Ctrl+A** to select the entire log, press **Ctrl+C** to copy it, then press **Ctrl+V** in a blank document (MS Word, Notepad, etc.). Use the document's **Print** function to print the log.

Check	Election Reports
☐	Election Summary report tape(s), one for each precinct / party voting.
☐	Audit Trail report, one for each PBC
☐	Administrative Log report from each PBC
☐	The Technician's List for each PBC

Make sure the items to be verified at the polls on the Technician's List have been properly verified. Check off return of the voting equipment. If a poll worker has made a note or a discrepancy is found, flag the report for further investigation.

Check	Technician's List
☐	**Counts**: Beginning PBC Protective Count minus Ending Protective Count (as recorded on the Election Summary reports) equals ending Public Count.
☐	**Security Seal**: **Precinct Results bag.** The bag was sealed after polls closed and the seal security number matches the provided seal number.
☐	**Security Seal**: **PBC front access door**. The seal was not broken until after polls closed, and its number matches the provided seal number.
☐	**Security Seal**: PBC front access door. The seal was not broken until after polls closed and matches the provided seal number.
☐	**PBC Machine ID**: PBC has been returned from poll location, and its ID matches the machine ID assigned to the poll location.
☐	**Transport Media ID**: The Transport Media has been returned from the poll location in the Precinct Results bag, and its ID matches the ID assigned to the poll location.
☐	**Audio Voting ID**: The Audio Voting booth has been returned with headphones, keyboard and printer intact, and its ID matches the ID assigned to the poll location.

5.8.2 Election Files

The Transport Media includes the following PBC files:

- Election Summary (tally by precinct)
- Audit Trail (ballot image file)
- Administrative Log (self-auditing log of all PBC activities)

Following an Election, the Transport Media Tally and Audit Trail files are uploaded to the EMS database on insertion into the USB port of a Vote Converter PC. The Administrative Logs are uploaded separately to the Election Converter and maintained in a separate database using the Election Converter's **Tools** / **TM Maintenance** function.

After 90 days following the election, if there are no unresolved issues and if all files have been uploaded and Election Audit Reports have been generated, the Transport Media may be cleaned for use in the next election. Use the **Tools** / **TM Maintenance** function provided by the Election Converter. See the *Election Converter User Guide*.

Check	Election Files
☐	**Transport Media: Vote files** have been uploaded by the Vote Converter to store with the EMS database. Use Tabulation **Upload** report. See Section **Error! Reference source not found.**
☐	**Transport Media: Machine Logs** have been uploaded to the Election Converter. Obtain Election Converter reports for each PBC machine. See Section 5.8.1 above.

5.9 Troubleshooting and Problem Resolution

If a PBC unit fails or if a system error appears, a Troubleshooter is dispatched to the polls with replacement equipment. Complete instructions for problem resolution are provided in the *Election Day Troubleshooter's Guide*.

6. Absentee/Mail Ballot Procedures

Follow the guidelines in sections 15100 to 15112 of the California Elections Code for counting absentee ballots. California law allows for verifying absent voter envelope signatures and other processing steps prior to Election Day. Absentee ballots may be counted, but no results may be tallied or released prior to the close of polls on Election Day.

The jurisdiction will start counting absentee ballots 20 days before the election. Each day there will be a group of election officials opening the envelopes; another group will then insert the cards into the PBC reader. Each night they fill out the Absentee Ballot Daily Log, as shown in Appendix D of this document.

Absentee and mail-in ballots are processed at a Central Count location before, during and after the Election according to state law and jurisdiction procedures. The ES&S InkaVote PBC system can be used to process absentee ballots as described in this section.

The InkaVote PBC provides an "Absentee Mode" to read and count absentee ballots. An Absentee session can be started any time before Election Day, the results uploaded to the EMS for tabulation at close of Election Day, and another session started on the same PBC the day after Election Day. Pre-requisites for an Absentee session are:

- The PBC has the current election loaded
- A cleared Transport Media USB device is installed in the PBC
- The PBC shows a Public Count of 0 (zero, no votes on the system). See the *Warehouse Technician's Guide*, Section 8.

Note: Similar procedures, using a **Select Run: Provisional** function, can be used to process approved Provisional ballots.

6.1 System Start-up and Pre-Tabulation Report Procedures

Set up Absentee ballot processing at a secure, locked Election Headquarters location. One or more specific PBCs are designated as "Absentee" machines. You can start an absentee session using the **Voting Mode** function (on the Maintenance Menu) any time before Election Day or the day after Election Day. On Election Day, the PBC will automatically start to the Election Application, and you can start an absentee session by inserting an Absentee ballot card as the header card (identified by color and the absentee punch code). Complete instructions are provided in the *Warehouse Technician's Guide.*

Pre-Tabulation reports to create and retain are:

- An Absentee Log (see Appendix D in this document) tracking times, counts, and security seals during each absentee session.
- Zero Count reports generated on startup of an absentee session

Follow the procedures below to start up the PBC for absentee ballot processing.

To start an absentee session before Election Day:

1. Note the date and time and the number of the security seal over the PBC lid in the Absentee Log. Break the seal.
2. Switch on the InkaVote PBC and verify on the startup screen that the correct election is installed. Before Election Day, the PBC prompts for a Maintenance password.
3. Login with a Maintenance password to the PBC.
4. The Maintenance Menu appears. Note the Protective and Public Counts shown at the bottom of the Maintenance Menu in the Absentee Log.
5. Press **Voting Mode** from the Maintenance Menu.
6. Enter the Election password.
   A password is defined for the election in the Election Converter (see Section 4.1.4.3).
7. Select **Absentee**, and confirm that you want to start an Absentee session. The PBC is automatically initialized for reading ballots from all precincts. There is no need to insert a ballot header card.
8. The PBC prints a Zero Count report, consolidating contests from all precincts. Retain the Zero Count with your Election Audit Reports.
9. Process absentee ballots as described in the next section until Election Day, when you can begin uploading votes to the EMS as described in Section 6.3. **Do not Close voting on the PBC until you are ready to upload votes.**

To start an absentee session on Election Day:

To start absentee processing on Election Day, you must use a PBC that was not used for Absentee processing before the election (using **Voting Mode**).

1. Note the date and time and the number of the security seal over the PBC lid in the Absentee Log. Break the seal.
2. Switch on the InkaVote PBC and verify on the startup screen that the correct election is installed. On Election Day, the PBC prepares to open for voting and, if programmed to do so, prompts for the Election password. Enter the Election password.

3. When the PBC prompts for a ballot header card, insert an Absentee ballot card.
4. Confirm that you wish to set the PBC for Absentee voting. The PBC is automatically initialized for reading ballots from all precincts. Only Absentee-marked cards will be accepted as valid by the PBC.
5. The PBC prints a Zero Count report, consolidating contests from all precincts. Retain the Zero Count with your Election Audit Reports.
6. Note the Protective and Public Counts shown on the Zero Count report in the Absentee Log (see Appendix D in this document).
7. Process absentee ballots as described in the next section until Election Day, when you can begin uploading votes to the EMS as described in Section 6.3.

To start an absentee session after Election Day:

The day after Election Day, you can use **Voting Mode** to start absentee processing for additional ballots that arrive via mail. At this point, you can restart absentee processing on a PBC where an absentee run was closed for uploading. Follow these procedures:

1. Note the date and time and the number of the security seal over the PBC lid in the Absentee Log. Break the seal.
2. If the PBC was used previously to count absentee ballots, before starting the PBC, insert a new, clean Transport Media.
3. Switch on the InkaVote PBC and verify on the startup screen that the correct election is installed. After Election Day, the PBC prompts for the Election password.
4. Enter the Election password.
5. Confirm that you want to clear the current Absentee voting data and start another Absentee session. The PBC is automatically initialized for reading ballots from all precincts. There is no need to insert a ballot header card.
6. The PBC prints a Zero Count report, consolidating contests from all precincts. Retain the Zero Count with your Election Audit Reports.
7. Process absentee ballots as described in Section 6.2 until all ballots have been processed. uploading votes to the EMS as described in Section 6.3.
   Do not Close voting on the PBC until you are ready to upload votes.

6.2 Absentee Tabulation Procedures

Absentee ballots are counted on the PBC using the Absentee Run, then uploaded to the EMS for tabulation. Maintain the Absentee Log sheet and prepare an Absentee Ballot Errors Log to accompany any damaged/unreadable ballots.

To process absentee ballots on the PBC:

1. Insert ballots one at a time into the InkaVote PBC ballot reader. In Absentee Mode, the PBC will not validate the ballot for overvotes or undervotes, and audio voting is turned off.
2. If any ballot is rejected by the PBC with an "invalid ballot" or "ballot error" message set the ballot aside as damaged and note the error the PBC displayed on the Absentee Ballot Errors Log.
3. If any ballot has been visibly smudged, torn, or rendered unreadable, do not insert it into the PBC. Set it aside as damaged, and note the nature of the damage on the Absentee Ballot errors Log.
4. **Do not close voting until all absentee ballots have been read**. If absentee processing takes more than one day, you can either leave the PBC on in a locked room, or switch off the PBC *without closing* voting and then switch it back on (and let it recover to the last known state) the next day

   At the end of the day follow these procedures:
   (a) Make sure the PBC front compartment security seal has not been broken.
   (b) Log the security number in the Absentee Log (see Appendix D in this document).
   (c) Log the Public Count shown at the bottom of the screen in the Absentee Log.
   (d) Log the Protective Count: press **Admin** and login to the Maintenance Menu. The protective count is shown at the bottom of the Maintenance Menu.
   (e) Switch off the PBC.

   When you switch off the PBC and voting is active, not closed, if you switch it on again, the system will recover to voting open, where it left off.
5. On the following day, switch on the PBC.
   Wait for it to recover and display the Election Application screen with the Absentee run noted at the bottom of the screen. Make these log entries:
   (a) Verify the front compartment security seal has not been broken.
   (b) Log the Public and Protective Counts to ensure they have not changed.
6. Continue processing absentee ballots.

7. On Election Day, tabulation at the EMS can begin. At this point, you can select **Close** on the PBC screen to close voting.

8. When all absentee ballots have been processed, touch the **Close** voting button. The Election Summary report prints. Rather than printing a Summary report for each precinct, the PBC prints a consolidated Summary Report for Absentee Voting. The report is marked "Absentee Voting." Retain this report with your Election Audit Reports.

9. Note the Public and Private Counts from the Election Summary report on the Absentee Log.

8. Note the security number on the front access door seal on the Absentee Log. Break the seal and use the PBC key to open the door.

9. Remove the Transport Media. Relock the PBC front access door.

Although the PBC consolidates absentee precincts into one Election Summary report, precinct results are retained in the voting files and can be separately reported either by absentee status or by precinct from the Vote Tabulator.

6.3 Post-Tabulation Report and Shutdown Procedures

Continue processing absentee results until Election Day, when central count tabulation can begin. Resume absentee ballot processing the day after Election following the startup instructions given above. To conclude a session and upload results, touch the **Close** button on the PBC. Do not shut down the PBC until reports have been obtained.

6.3.1 Obtain the PBC Reports for the Session

The PBC machines used for Absentee voting retain the vote files on their hard drives, just as precinct machines do, until you clear the PBC for another absentee session. It is important to obtain the Audit Trail report from the PBC before beginning the next absentee session. The Administrative Log (Machine Log) will be maintained throughout absentee sessions and will be uploaded to the Election Converter. The Audit Trail report must be printed from the Maintenance Menu .

To obtain the PBC Audit Trail report:

1. After closing voting, sign and retain the Election Summary Report that prints automatically.

2. Touch **Admin** at the bottom of the PBC screen. Touch Maintenance and log in using a Maintenance password.

3. Select **Print Audit Trail**.

6.3.2 Reconcile the Absentee Ballots

Treat the absentee session similar to a precinct poll session. The difference is that the physical ballots You will be turning in absentee Transport Media results for upload and processing at the end of each absentee session.

To reconcile the Absentee Ballots

1. Stack and bind all PBC tabulated absentee ballots.
2. Gather the Absentee Election Summary reports and use the combined total Public Counts to get the total count of PBC processed ballots. Transcribe this total on the Absentee Ballot Statement.
3. Count and bind the damaged and unreadable absentee ballots that were not tabulated by the PBC. Transcribe this total on the Absentee Ballot Statement.
4. Reconcile the PBC tabulated and damaged ballots with the number of absentee ballots logged as received. Explain or note any discrepancies on the Ballot Statement.
5. Sign and date the Ballot Statement.
6. Use a security seal to seal PBC tabulated ballots in a box. Note the security seal number on the Ballot Statement.
7. Deliver the following to the Election Official in charge of Central Count tabulation:
   (a) Sealed box of ballots
   (b) Absentee Ballot Statement
   (c) Absentee Daily Log
   (d) Absentee Ballot Error Log
   (e) Damaged absentee ballots (to be inspected during official canvass)
   (f) Transport Media used in the Absentee PBCs
   (g) Zero Count for each Absentee PBC session
   (h) Election Summary report for each Absentee PBC session

6.3.3 Upload the Absentee Transport Media

The Election Official in charge of Central Count tabulation begins the process of uploading absentee ballots on Election Day. The official follows the procedures in Section 7 of this document to make sure the Vote Tabulator is on, the current “Run” is the live election, the initial reports show zero counts (as described in the Section 7).

To upload the counted Absentee Votes:

1. An Election official starts and logs into the EMS Tabulation application using an Admin or Superuser login. Make sure the Live Election Run is active.
2. An authorized technician logs into the Vote Converter using a Maintenance password. The current Election CD must be in the Vote Converter's CD drive.
3. The technician inserts the Transport Media from the Absentee PBC into a USB port of the Vote Converter PC.
4. The vote files are detected and uploaded.
5. The Vote Tabulator adds the Absentee tallies to the consolidated precinct reports. .

To obtain absentee reports from Tabulation:

There are three columns of results in the consolidated Election Summary Report for the election: Election Day, Absentee and Provisional.

1. From the Tabulation application, open the **Election** menu and select **View Election Summary**.
2. The absentee results appear in the **Abs** column of the Election Summary Report.

6.3.4 Shutting Down Absentee Processing

When Absentee processing is finished, follow instructions in the Setup Sheets to take down the Absentee PBC units. Make sure all ballots are removed from the ballot boxes

6.3.5 Absentee Reports

The following reports are retained from the absentee processing with the Election Audit Reports.

Check	Election Reports
☐	Zero Count report (consolidated precincts) for each Absentee PBC
☐	Election Summary (consolidated precincts) report for each Absentee PBC
☐	Audit Trail report, one for each Absentee PBC
☐	Administrative Log report from each Absentee PBC
☐	Absentee Daily Log, one for each Absentee PBC, (Addendix D)
☐	Absentee Ballot Statement
☐	Absentee Error Log

6.3.6 Absentee Files

Files on the Transport Media are handled the same as for Transport Media returned from poll locations.

Check	Election Files
☐	**Transport Media: Vote files** have been uploaded by the Vote Converter to store with the EMS database. Use Tabulation **Upload** report. See Section **Error! Reference source not found.**
☐	**Transport Media: Machine Logs** have been uploaded to the Election Converter. Obtain Election Converter reports for each PBC machine. See Section 5.8.1 above.

7. Semi-Official and Official Canvass Reporting

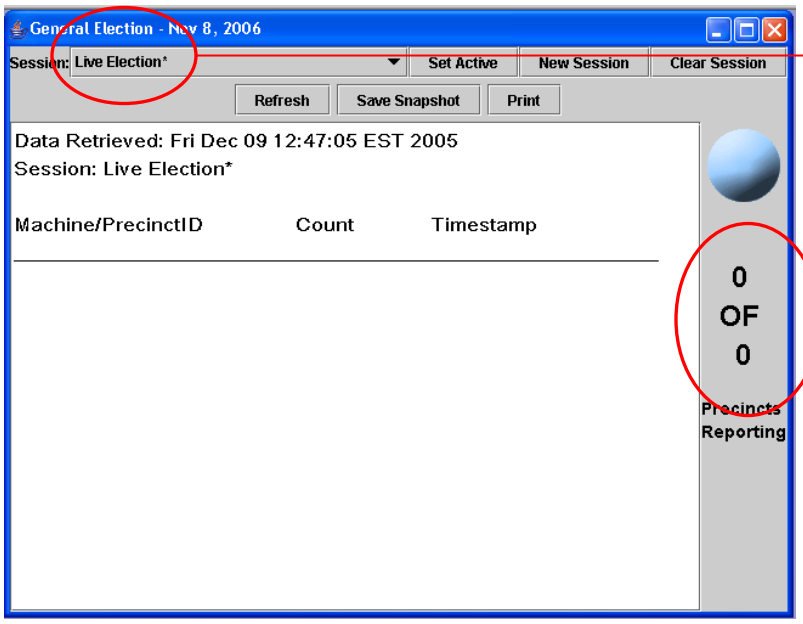
California Elections Code determines how central counting and tabulation will take place. The procedures in this guide are guidelines for tabulating results from the InkaVote PBC with the Unisyn EMS system.

7.1 System Startup and Pre-Tabulation Report

The Vote Tabulator displays all available elections on its desktop. Double-click to open the current election. Before any upload of votes take place, you will set the "live election" as the active "run" and obtain zero counts.

To start up the Tabulator for an election:

1. Make sure the Vote Tabulator PC communicates with the Vote Converter PC over a dedicated, local area network.
2. Open the Vote Tabulator program and select the election. The Tabulator opens to the Upload Status Report. All counts are 0 (Zero).
3. If necessary, create a run for "Election Day" or "Live Election" with a run type of "normal" and make the run **Active**.



4. Print the Upload Status Report.
5. Open the Election menu, select View Election Summary. The Summary reports **Total Ballots: 0**. Print the Election Summary report.
6. Start the Vote Converter. The status should read 0 TMs uploaded.

Retain the Tabulation Zero Count reports with the election audit records.

7.2 Processing Vote Reports

The Vote Tabulator consolidates election results in the following reports. The reports include Absentee and Provisional results if these ballots were processed by a PBC.

- **Upload Status**: PBC machines / precincts that have reported in.
- **Machine Summary**: reports votes from a selected, uploaded PBC machine.
- **Election Summary**: consolidated votes from all precincts uploaded so far by contest and candidate. Includes number of ballots with over or undervotes for each contest and lists any Absentee or approved Provisional ballot results uploaded from PBCs.
- **Statement of Vote**: a complete tally of consolidated votes for candidates, by precinct, that can be used for unofficial and official purposes.
- **Supplement to the Statement of Vote:** a **report** login to the EMS database with read-only access to the tabulation results allows customized reporting from tabulation data. See Section 4.8 of the *Vote Tabulator User Guide.*
- **Voter Turnout Report:** based on uploaded precinct registration counts, shows how many voters from each precinct voted in the election.

7.2.1 Central Tabulation

Precinct results from the polls are returned to the Central Count facility on Transport Media. The Transport Media are returned with the precinct Election Summary Reports, signed by poll inspectors. The Transport Media contain all ballot and audit information from a single PBC, with tallies by precinct.

All Transport Media—returned from the precincts, from absentee processing, and from provisional processing—are delivered to the central count facility where the Vote Converter and Vote Tabulator are kept in a secure, locked room. The Vote Converter and Vote Tabulator are used to upload and process the vote files on the Transport Media. When the Transport Media vote files are uploaded by the Vote Converter, the Vote Tabulator consolidates and reports on the precinct results.

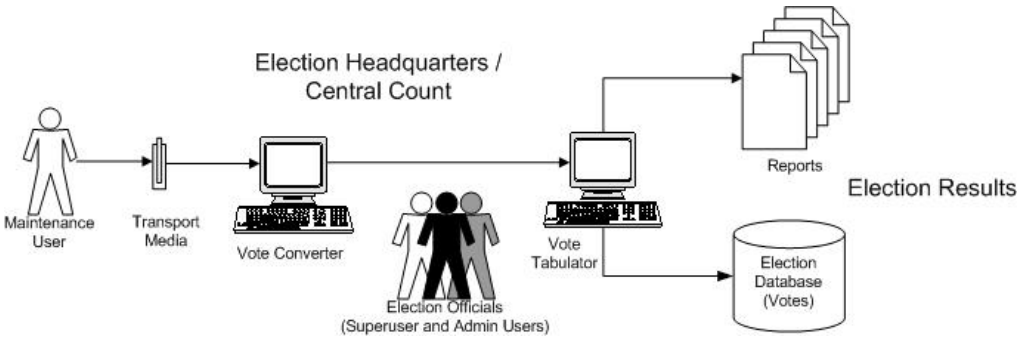


Figure 36: Upload and Tabulation of Precinct Results

To process material returned from the polls

Handle materials from one poll location at a time:

- PBC equipment is inspected against the returned Technician's List to ensure the equipment that was delivered to the polls has been returned and returned to the warehouse. Voting results remain on the PBC hard drive until the next election is loaded. Make sure the PBC machine ID label matches the machine ID on the Precinct Results bag tag and on the Technician's List.
- Open the Precinct Results bag, remove the TM and check the TM serial number against the serial number on the bag's tag and on the Technician's List.
- Remove the reports from the Precinct Results bag. Check the PBC Machine ID printed on Zero Count and Election Summary reports against the Machine ID on the Precinct Results tag and on the Technician's List.

- Compare the Ballot Statement to the Public Count on the Election Summary Report and to returned physical ballots.
- Paper ballots that have been counted by PBCs at the polls are returned in a sealed box. These are kept for manual recounts and stored for the required period of time following the election.
- Provisional ballots returned from the polls are checked against the Ballot Statement and directed to the Provisional approval and processing area.
- Ballots with Write-ins are checked against the Ballot Statement and directed to the Write-in approval and processing area.
- Absentee envelopes returned at the polls are directed to Absentee processing area.
- Transport Media are brought to the Vote Converter upload station.

To verify the Transport Media:

The jurisdiction may implement one of two ways to verify TM serial numbers. One would be to use a bar code scanner with a database of valid numbers. Another would be to check the physical TM serial label against materials returned from the polls: Precinct Results tag and the Technician's List both include the TM serial number.

7.2.2 Precinct Tabulation

The Transport Media are preconfigured by ES&S with a serialized anchor file, which has an encrypted ID. The a label on the TM has the serial number as well as a bar code signifying the ID. When the TM is read into the Vote Converter, the system automatically verifies the encryption keys on the TM before it accepts the vote files. The encryption keys in the Vote Converter must match those of each TM or the TM is not read. Each vote file is also encrypted on the TM and the checksum is read before entered into the system.

To upload votes from Transport Media:

1. A Maintenance technician user switches on and logs in to the Vote Converter using a Maintenance username and password for the election.
   The Vote Tabulator must also be on and set to the current, live election.
   The Election CD must be in the Vote Converter's CD-ROM drive.
2. The Vote Converter prompts for a Transport Media (USB) to be inserted.
3. The technician inserts a Transport Media device. The voting data is automatically uploaded. (No voting data is visible on the Vote Converter screen.)

If the Vote Converter rejects the Transport Media or will not upload results, set aside the TM for further investigation. The Vote Converter rejects Transport Media (a) when the device is not correctly serialized for use with the system, (b) when results are from the wrong election, or (c) when results are from a Logic Test or Demo.

4. When votes are successfully uploaded, the Vote Converter automatically communicates with and notifies the Vote Tabulator that new voting data has been uploaded. This is repeated until all Transport Media has been uploaded.

To view or print precinct tabulation results

The Vote Tabulator receives notification of uploads and stores the uploaded voting data in the EMS database. An Election Official with Superuser or Admin User login privileges can generate the Tabulator reports as tabulation is in progress.

1. Use the **Election** menu on the Vote Tabulator to access reports.
2. Use the **Save Snapshot** feature to save a PDF file of a report with a time-stamped filename.

7.3 Integration with County Systems and Calvoter

To provide statewide results, InkaVote PBC tabulation results can be accessed directly from the database using a Supplement Statement of Vote viewer provided with the Unisyn EMS. See Appendix E.

8. Official Canvass and Post-Election Procedures

The official canvass is a post-election audit of several voting precinct's ballot returns and absentee ballot returns. The canvass begins no later than the Thursday following the election. The official canvass is used to:

- Validate the outcome of an election by verifying that the number of ballots cast is not greater than the total number of voters that signed the voter index or were issued absentee ballots.
- Account for all official ballots produced for the election and to ensure that the precinct board properly executed all required certificates and oaths.
- Verify the accuracy of the computer count by manually recounting voted ballots from at least one precinct of the voting precincts and comparing the manual totals to the system generated totals.

The official canvass must be performed by a minimum of three people.

8.1 Election Observer Panel

Pursuant to the California Elections Code, all proceedings at the central counting place shall be open to the view of the public and no person except one employed and designated for the purpose by the elections official or authorized deputy shall touch any ballot container, or other tabulating equipment. Access to the area where the electronic data-processing equipment is being operated may be restricted to those authorized by the elections official.

All unescorted persons present within the security area, including visitors, media representatives, and standby personnel, shall be clearly identified by a badge or other means and a log of their arrival and departure times. All unescorted personnel shall be subject to the restrictions established by the responsible election official to ensure the efficiency and integrity of the vote tallying process.

8.2 Canvassing Precinct Returns

Precinct returns are delivered to Election Headquarters as described in Sections 5.7.1.9 and 7.2.1 above.

To canvass precinct returns:

1. From ballots returned from polls, separate Provisional, Absentee, and Write-ins with ballot stubs to be handled separately. Examine audio ballot slips for write-in votes.
2. Examine the Ballot Statement prepared by each precinct board. Compare the number of official ballots reported "received" by each precinct to the number issued by the election official. Resolve or explain any discrepancy. Verify that the number of ballots voted (including those voted provisionally), plus spoiled and unused ballots, equals the number received by the precinct. Resolve or explain any discrepancy.
3. Reconcile tallies: Compare the number of signatures in the Roster-Index to the number of precinct voter ballots reported on the Ballot Statement. Resolve or explain any difference between the two. Compare the number of ballots voted by provisional and precinct voters to the precinct's Election Summary report (tally tape). Resolve or explain any discrepancy.
4. Remake and process any ballots not counted on election night because of damage, invalid identification punches, or any other reason.
5. Search election supplies and equipment, including unused and spoiled ballots, ballot. containers, etc., for ballots not accounted for. Process any found ballots.

8.3 Canvassing Absentee Ballots

Absentee ballots are returned to Election Headquarters by mail, and those returned to the polls are included with precinct materials returned. See Section 6 in this document for detailed procedures.

To canvass absentee ballots:

1. Prepare a Ballot Statement for absentee ballots received from polls and by mail. Reconcile used absentee ballots with unused ballots.
2. Determine eligibility for any outstanding, uncounted absentee ballots.
3. Insert any eligible outstanding absentee ballots turned in at the precinct to the dedicated Absentee InkaVote PBC to add to the Absentee results. Process any outstanding ballots not counted in the semi-official count.
4. If an absentee ballot is damaged and cannot be read, duplicate the ballot and void but retain the original. Process the ballot in the Absentee PBC.
5. Compare the InkaVote PBC total ballot count to the number of ballots to be counted, as shown on the Ballot Statement. Resolve or explain any discrepancy.

6. Compare the Vote Tabulator absentee counts with the InkaVote PBC tally tape(s) for absentee ballots.

8.4 Canvassing Provisional Ballots

Provisional ballots are returned to the central count location untabulated and separated from registered voter ballots. Use the guidelines in section 14310 of the California Elections Code to record totals from provisional ballots.

The InkaVote PBC allows you to run a session to process provisional ballots. Provisional processing should take place in a locked room within public view at the central count facility. The PBC must have the current election loaded, a clean TM inserted, and no votes on the system (Public Count = 0).

To start a Provisional run on a PBC:

It must be the day after Election Day.

1. Switch on the PBC and log in using the Maintenance username and password.
2. Touch **Voting Mode.**.
3. Enter the Election password.
4. Touch **Provisional**. (This option is not available before Election Day.) The PBC is automatically initialized for all precincts. A single Zero Count report prints showing a "Provisional" report label and all contests. Retain the Zero Count report.
5. The PBC Election Application screen appears with "Provisional" displayed at the bottom of the screen. You are ready to process eligible provisional ballots.

To canvass provisional ballots:

1. Gather provisional voter ballots returned by each precinct.
2. Verify eligibility of persons who cast ballots provisionally.

   For invalid provisional ballots, write the reason for rejection on envelopes of ineligible voters. Place unopened envelopes with election materials to be retained for the period prescribed by law.

   For verified voters who voted the wrong ballot, manually remake the ballot, marking the voter's selections on the correct precinct, then process with the Provisional Run at the PBC. A second election official checks the made ballot for correct entries against the original ballot. The original ballot is retained.

To tabulate eligible provisional ballots:

1. Insert the eligible ballots one at a time into the Provisional InkaVote PBC ballot reader slot.
2. If any ballot has been visibly smudged, torn, or rendered unreadable, do not insert it into the PBC. Duplicate the ballot and void but retain the original. Process the duplicated ballot in the Provisional PBC.
3. **Do not close voting until all provisional ballots have been read**. If provisional processing takes more than one day, you can either leave the PBC on in a locked room, or switch off the PBC *without closing* voting and then switch it back on (and let it recover to the last known state) the next day .
   Continue processing provisional ballots.
4. When you are finished processing eligible provisional ballots, touch **Close** on the PBC screen. An Election Summary report labeled "Provisional" automatically prints. The single report consolidates results from all precincts. Retain this report with the Election Audit Reports.
5. Shut down and switch off the PBC. Remove the Transport Media.
6. Lift the PBC unit off the ballot box and remove all ballots from the box. Seal provisional ballots in a box with a serialized security tape for the election.

To consolidate provisional with precinct results:

1. Follow procedures described in Section 7 to upload Transport Media results using the Vote Converter.
2. The Vote Tabulator shows provisional results on the Election Summary report. All other reports show provisional votes consolidated with precinct results.
3. Compare the Vote Tabulator provisional results with the InkaVote PBC tally tape(s) for provisional ballots.

8.5 Canvassing Write-in Votes

Ballots with write-ins are returned to the central count location separated from the general, counted ballots. If the ballots were processed and counted by the PBC (not provisional or absentee), only the contests with write-ins need to be inspected. The Vote Tabulator reports do not list any write-ins. Use California Elections Code to process votes for write-in candidates. The jurisdiction must establish and follow procedures for adding these ballots to any unofficial canvass report as appropriate.

To canvass write-in votes:

1. Verify that ballots counted at the precincts have write-in votes. Make sure that audio ballot slips with write-ins are included.
2. Follow jurisdiction procedure to verify that the write-in names are valid for the election..
3. Using paper/pencil or a spreadsheet application, tally and summarize the valid write-ins.
4. Prepare a report to be appended to the Statement of Vote.

When the Official Canvass is complete, add any write-in votes or other totals to the final vote count. Post the final vote count at the counting location for public inspection.

8.6 1% Manual Recount Procedures

Manually recount the ballots from at least one percent of the jurisdiction precincts, chosen at random, according to the guidelines described in section 15360 of the California Elections Code. Use the manual recount to verify the results from the central tabulation.

Manual recount procedures are described in Section **Error! Reference source not found.** of this document; the 1% recount would include only the specified precincts.

8.7 Handling Ballot Exceptions

If ballots are set aside as damaged and unreadable by the PBC, as determined within the law by the election official or court of jurisdiction, any mark or vote where voter intent is clear and obvious shall be counted.

If a PBC has had a problem throughout the election day and was unable to process ballots, these ballot shall be tabulated at the Election Headquarters and added to the total as such. In addition, the said precinct shall become part of 1% manual recount for verification and validation to ensure the accuracy and reliability it maintained throughout the process. All said ballot shall be subject to the Ballot Counting Board inspection process.

The Election Supervisor submits all damaged, unreadable, and other ballots requiring verification to the Ballot Counting Board for inspection. These ballots will include absentee and provisional voted ballots that have been received at the precinct but are not readable on a PBC because the card is torn or the card was a bad print.

The Ballot Counting Board must inspect each ballot and determine that a mark was a clear and obvious voter's intent, and then re-make and count the ballot. Any mark where it is determined that the voter intent is not clear and obvious shall not be counted.

8.8 Post-election Logic and Accuracy Testing

The same Accuracy and Logic Tests run before the election can be run following the election. See Section 4.5 of this document. Prior to running the Logic Test, create a **New Run** in the Vote Tabulator of the Logic Test type. Give the run a title, such as "Post-Election Logic Test," and make the run **Active** before uploading Logic Test results from PBCs.

8.9 Final Reporting of Official Canvass

The Election Official shall report elections results, as specified, to the Secretary of State for statewide elections and specified special elections.

8.9.1 Certified Statement of Vote

Prepare a certified statement of the election results and submit the statement to the governing district within 28 days of the election. Show results on a precinct-by-precinct basis. The ES&S Statement of Vote provides a report customized for California requirements that includes the following items:

- The total number of votes cast
- The number of votes cast at each precinct for each candidate and for and against each measure
- The total number of votes cast jurisdiction-wide for each candidate and for and against each measure
- The number of votes cast in each city, Assembly District, congressional district, State Senate District, State Board of Equalization District, and supervisory district located in whole or in part of the county

Note: Voter registration statistics can be uploaded to the Tabulation application, providing the data for Voter Turnout reports by precinct. See Sections 4.10-4.11 in the *Tabulator User Guide*.

8.9.2 Distribute Official Results

Send a copy of the results to each of the following:

- All candidates participating in the statewide election
- All of the candidates voted for in the following offices:
  Member of the Assembly
  Member of the Senate
  Member of the U.S. House of Representatives
  U. S. Senate
  Member of the State Board of Equalization
  Justice of the State Supreme Court
  Justice of the Court of Appeal
  Judge of the Superior Court
  Judge of the Municipal Court
  All persons voted for in a presidential primary
- The vote given for persons for electors of President and Vice President of the United States
- All statewide measures

8.9.3 Supplemental Statement of Vote

The Supplemental Vote, produced pursuant to Election Code section 15502, contains the official results by district for each of the statewide races. Produce this report from the EMS tabulation data by using the SSOV Viewer as described in Appendix E of this guide and in the appendix to the *Vote Tabulator User Guide*. Once the Supplemental Statement of Vote has been generated, the report can be distributed as per state law.

8.10 Backup and Retention of Election Material

Election and voting data and materials are retained for 22 months following Election Day. Retention periods may be extended in the case of a court challenge. Materials and data to retain includes, but is not limited to:

- Election CDs
- EMS database for the election (ballot data plus votes)
- Election Converter data (election, ballot, and audio data)
- Election Loader log files for the election
- Vote Tabulator tables for reports using the EMS database
- PBC log files / machine reports (available via Election Converter)
- PBC Election Summaries (tally report tapes)
- All voted ballot cards and audio ballot slips

The EMS database election can be backed up by performing an operating system copy to media or to another location.

9. Manual Recount

A recount may be performed for one or more or all precincts following the election. For a recount, the voters' original marked ballot cards must be available. Recount ballot processing must be set up at a secure, locked Election Headquarters location.

9.1 Manual Procedure

A recount cannot be conducted until after Election Day.

To conduct a manual recount:

1. Use the Ballot Generator to print a complete set of ballot pages for the precincts being recounted.
2. Gather the voted ballot cards for these precincts, the PBC audit trail reports from each of the PBCs and the Election Summary reports for each precinct.
3. Count the votes and verify the results.

9.2 PBC Recount Procedure

A recount can be conducted on a PBC after Election Day. The InkaVote PBC system accommodates a recount of marked ballot cards through its **Voting Modes** functionality on the Maintenance Menu. Once voting is opened in **Recount** Mode, scanning of ballots proceeds as normal, and on closing, results are removed on the Transport Media and uploaded for Tabulation where "recount" reports can be produced.

One or more specific PBCs that have the current election loaded but do not contain any voting results are designated as "Recount" machines and will be left *on* until all ballots have been recounted as required by the jurisdiction. The machines cannot be used for any other type of ballot processing during this procedure.

To use the PBC for a recount:

1. Log in using a Maintenance Password. A recount must be started at least one day after Election Day.
2. Select **Voting Mode**. This function is available only on *non-Election Days* when there are *no votes* on the system.

3. Enter the Election Password. A new password is used for each election.
4. When the password is accepted, select **Recount.**
5. Wait for Voting to open. The voting screen displays “Recount” in the lower left status area. The PBC is automatically initialized to accept ballots from any valid precinct.
6. Insert the voted cards in the ballot reader slot, one at a time. No validation takes place; no Ballot Alerts are printed.
7. When all ballots have been processed, close voting. The Election Summary report prints.

   Do not close voting until all Recount ballots have been read. If processing takes more than one day, you can either leave the PBC on in a locked room, or switch off the PBC *without closing* voting and then switch it back on (and let it recover to the last known state) the next day.

Rather than printing an Election Summary report for each precinct, the PBC prints a consolidated Election Summary for the Recount. Precinct results, however, are tallied separately for uploading and reporting by the Vote Tabulator.

9.3 Recount Vote Uploading

Before uploading the recount votes, create a **New Run** in the Vote Tabulator of the “Normal” election type. Give the run a title, such as “Recount Run,” and make the run **Active** before uploading Recount results from PBCs. This allows the Tabulator to use the same election while keeping the results separate.

Follow the Vote Converter upload procedures. The Tabulator automatically interprets Recount results as Recount reports, and labels the reports accordingly.

10. Security

Familiarity with procedures from top officials down to volunteer poll workers is essential for a secure election. Security procedures are integral part of training for an election. A complete copy of written security procedures shall be submitted to the Secretary of State for review prior to any election in which the system is intended to be used.

10.1 Physical Security of System and Components

Procedures must be established for the physical protection of the EMS / election preparation PCs, PBC machines, ballot boxes, and election ballots. Physical security procedures should cover the following points at minimum.

Election headquarters and warehouse building security:

- Intrusion and fire alarms at headquarters and warehouse locations.
- Locked rooms where ballot preparation and central count takes place. Only authorized Election Officials have keys to these rooms, and ownership of keys is maintained in a log.
- Locked facility for voting equipment. Only the Elections Supervisor and the Warehouse manager have keys to this facility. Ownership of keys is logged, and a sign-in – sign-out sheet is maintained at the facility entrance.
- Environmental controls and monitoring of the environment where voting equipment is stored.
- NOTE: Physical security of the system goes beyond this. What about backup requirements for the data (including what to backup and when)? Physical isolation of the network? Protection of the equipment during storage, etc?

Election materials/ballot security:

- Procedures for storing ballots and ballot cards prior to an election.
- Procedures for secure delivery of polling place materials to polls.
- Security seals are affixed to a poll's ballot materials until Election morning.
- Security seals are affixed to the closed PBC case to prove no tampering has occurred prior to delivery at the polls.
- Procedures for secure and efficient return of polling place materials following an election.

- Procedures for opening sealed packets with Transport Media and inserting Transport Media for upload.
- Procedures for storing voted ballots and Transport Media from a past election.

Polling place security:

- Polling place doors are locked until polls open.
- The PBC case door (access to Transport Media) remains locked and sealed with a serialized security tag until voting is closed.
- The Audio Ballot Printer cover is locked down during voting preventing access to the ballot slip paper.
- During voting, all access to PBC ports (LAN) are deactivated. No keyboard or input device other than the audio ballot keyboard is connected to the system.
- Procedures are in place for immediate replacement of faulty equipment.
- Officials are trained in secure procedures for accepting votes manually, without using the PBC, in the event of system failure.
- Ballots and Transport Media are secured and sealed by poll Inspector for return from polls to headquarters.

10.2 Logical Security of System and Components

The PBC comes configured with a limited-access Linux operating system and all necessary software pre-installed. Both user access and configuration controls provide security at the OS and network levels. Only defined “users” with the proper access and rights to the operating system can work with data directories or application software.

10.2.1 Essential and Non-essential Services and Ports

The InkaVote PBC firmware is designed and configured to allow only the ES&S applications to run, maintaining strict control over all services and ports. These points require no interaction from the jurisdiction. These are features built in to the InkaVote PBC system and always operational.

- The InkaVote PBC system is configured to boot from the hard drive only, limiting control from other drives.
- A firewall is built into the kernel allowing only outgoing messages.
- Only encrypted communication is allowed with external clients.
- The Windows Manager is set so that only one window (the application window) is allowed and there are no menus.
- The X Windows platform is configured to block keyboard shortcuts to OS access.

- All application components automatically login to the OS internally.
- The system locks down access via keyboard, touch screen, or other peripheral devices that might be used for backdoor access.
- DHCP is disabled.
- Unused services are disabled or (in the case of ftp and telnet) not compiled into the kernel.
- The system is pre-configured by the ES&S vendor to automatically deactivate the physical LAN port during Election Day.
- The Election application is designed so that voting cannot be reopened once it is "closed" on the PBC, and voting can be set to close at a specified time period. For example, the Election can be programmed so that the Election Application will not allow close voting until 8:00 PM, Election Day.

10.2.2 User-level security

Security depends on a spirit of integrity among all personnel working for the election. No one individual should control all election procedures. Responsibilities are assigned to a variety of people, from a balanced spectrum of political parties, who are trained in specific procedures. Language requirements for each precinct should be considered. The training should be thorough, in order to minimize misunderstanding and errors.

10.2.2.1 Passwords and Access Control

Jurisdiction training should instill in each person granted a password the importance of keeping the password private. If the security of a password is compromised, a new password should be assigned and the old removed (as soon as is possible). All PCs running election software on Windows XP should require password entry to the OS.

The Election supervisor or Registrar of Voters assigns high-level personnel these separate roles, with separate access, for election preparation and tabulation. Permissions are automatically assigned when the user type is designated in the user account setup:

- Superuser: an official at Election Headquarters whose login includes creation of the Election CD, closing an election, and managing elections in addition to all Admin user privileges. Superuser account is defined in the Ballot Generator.
- Admin user: an official at Election Headquarters whose login includes data entry, sound uploading and proofing for an election. Admin User account is defined in the Ballot Generator.

Maintenance Technician passwords provide access to the following procedures. Maintenance users are defined in the Election Converter program.

- Testing, diagnostics and reporting from the PBC machines (PBC Maintenance Application).
- Loading elections onto the PBC (Election Loader).

- Running the program that automatically uploads the vote data to the database (Vote Converter)

An Election Day password starts voting on Election Day and is required to start Absentee, Provisional, or Recount ballot tabulating sessions. This password must be changed for each election.

10.2.3 Anti-virus protection

Linux system is closed off to any means of acquiring a virus. The ES&S EMS system components, Election Loader PCs and all other PCs in the EMS system, do not require Internet access. If the jurisdiction desires anti-virus protection, the jurisdiction must install their choice of any anti-virus utility. ES&S will recommend utilities on request.

10.2.4 Procedures for Updates and Changes

These changes are primarily for installing critical updates to operating system, anti-virus protection or other third-party elements related to security and error correction.

10.2.4.1 Audit Records for the Changes

Unisyn follows ISO procedures for release of software and hardware components. With each release of an update to a system, ES&S provides release notes containing:

- Build Version Number
- Incidents fixed or modifications made, if applicable
- Sign-off approval by appropriate Unisyn / ES&S personnel
- Authorization number from federal ITA
- Authorization from the State of California, as applicable

10.2.4.2 Installation Procedures for Updates

No updates or upgrades to any component of the voting system can or will be made without prior certification of the Secretary of State.

Updates to the InkaVote PBC voting system go through federal qualification and state certification as required by law. Updates to the PBC are installed by an ES&S technician onsite at the jurisdiction or at an ES&S facility. The version can be verified on startup and by accessing the **About** function from the Admin or Maintenance Menu.

EMS software updates are provided on media (CD-ROM) and can be installed by the jurisdiction. Software updates are self-installing from a setup executable file on the CD. Versions can be verified by opening the **Help** menu and selecting **About**.

When a product or product upgrade is released to the customer, in addition to Release Notes, instruction will be provided for installation and use in the form of a Readme file and updated documentation.

10.2.4.3 Acceptance Testing after the Installation.

The customer acceptance testing is performed using acceptance ballot data, as described previously in this document, following a similar sequence.

10.3 Security Procedures for Central Processing

- Certify that the only software installed on the computers running election software and/or the EMS database are approved software modules necessary for the election. The programs installed may include one or more of the Unisyn Voting Solutions components: Election Loader, Election Converter, Election Management System, Vote Converter, and EMS Reports.
- Prohibit unauthorized use of media or transference of data to and from the election computers (via CDs, USB devices, disks, or LAN access, etc.).
- Ensure that any computer running an election program or EMS database is physically isolated and networked only to the other EMS component computers as needed over a dedicated network. There must be no access to a larger network or the Internet.
- Establish user accounts to log in to the Windows XP system at each EMS component computer.
- Adhere to limited and careful distribution of passwords, especially Superuser and Admin User passwords.
- Data upload and tabulation processes are never unattended, are in view of public, but are secure from non-authorized personnel.
- Always have more than one person present attending upload and tabulation procedures.
- Make use of PBC machine logs (Administrative Logs), Election Load logs, and all software Application Logs to monitor security of data and system use at all phases of election.

10.3.1 Contingency Plan

The jurisdiction must implement a contingency plan for ballot counting, utilizing either back-up ballot counting facilities under the election official's supervision, or the availability of such facilities from another jurisdiction, or from a vendor, or from another source. In addition to the ballot counting program sent to the Secretary of State pursuant to Elections Code section 17500, each election official shall store another copy of the ballot counting program in an off site secure-but-readily-accessible location

10.4 Security Procedures for Polling Places

Never leave the PBC voting system unattended by a poll official. Persons of more than one party must return Transport Media and ballots to the central count location.

The following destructible security seals are used:

- Over the PBC front access door (Transport Media) until close of voting
- Holds the ballot box access door open before the PBC is placed onto of it.
- Across the PBC and ballot box when assembled, until polls close
- Securing ballot box containing counted ballots
- Securing Precinct Results envelope containing the Transport Media, Zero Counts, and Election Summary Reports

The following security procedures should be followed:

- Election Application will not open for normal, precinct voting unless it is Election Day.
- At least one valid precinct ballot header card is required to open the Election Application.
- Confirm election title/date displayed on startup. Initializing additional precincts for voting after voting is open is set via election parameters by the Election Headquarters.
- On startup, inspect the Zero Count report for correct election information.
- Inspect the Zero Count for "0" counts next to all candidates.
- Inspect the Zero Count to match the Protective Count to the Technician's list. The Public Count should be "0."
- In a recovery situation, voters whose ballots were accepted by the Reader may not vote again; the vote was already counted.
- At close of voting, record the Protective and Public Counts on the Technician's list (see the sample Technician's List below).
- At close of voting, make sure the increment in the Protective Count matches the total Public Count.
- At close of voting, the Inspector and poll officials sign the Election Summary (tally of precinct results) after inspecting it.
- On startup or recovery, if a ballot is ejected from the PBC, hold the ballot for inspection at Election Warehouse or Headquarters.

10.4.1 Data Security

The ES&S system includes internal measures for protecting the firmware and software from fraudulent manipulation by persons inside or outside Election Headquarters. These include specially modified Linux OS on the PBC, limited access to data in all software, limitations based on software "states," date and time restrictions, data encryption, and secure generation of encryption keys among others. The jurisdiction must complement these measures with data security procedures that at minimum cover:

10.5 Audit Trails

The Inkavote PBC provides the following audit trails for the precinct voting system:

- The PBC Machine report (Administrative Report) available from the PBC itself or on uploaded TMs from the Election Converter logs all startup, shut down, precinct initialization, ballots cast, audio ballots delivered, other activities and error messages. All logs are coded and can be sorted by code at the Election Converter.
- The PBC Audit Trail provides a ballot image of each ballot cast on the PBC, in random order. The Audit Trail can be printed after voting is closed from the PBC, and is delivered on the TM and uploaded for storage in the EMS Central Count system.
- The PBC tallies are reported in the precinct Election Summary reports, which can be accessed after voting is closed on the PBC, and which are uploaded from TM to the EMS Central Count system.
- All EMS software components maintain Application logs that audit all startup, write/delete/modify activities, reporting, and shutdown.

10.5.1 Election Audit Reports Retained

Check	Pre-Election Reports
☐	Ballot Generation Setup Application Log Ballot Generation Setup Translations Report
☐	Ballot Generator: Audio Ballot Script report Election Proof report Ballot Proofs in each language Ballot Generator Application Log
☐	Election Converter Application Log Record of Election CD's produced
☐	Election Loader: Election Log Machine Log Application Log
☐	PBC Pre-election: Zero Count Reports Administrative Log
☐	Logic Test: Zero Count Reports Administrative Log Tabulation Reports (all)

Check	PBC Voting Reports
☐	Precinct voting: Technician's List with security checks for each PBC Ballot Statement with reconciled ballots for each Poll location Zero Count Report for each Precinct Election Summary Report for each Precinct Administrative Log for each PBC Audit Trail report for each PBC
☐	Absentee Ballot processing: Absentee Log with security checks for each PBC Ballot Statement with reconciled ballots for Absentees Zero Count Report for each Absentee Session Election Summary Report for each Absentee Session Administrative Log for each Absentee PBC Audit Trail report for each Absentee PBC
☐	Provisional Ballot processing: Zero Count Report for Provisional Run Election Summary Report for Provisional Run Administrative Log for each Provisional PBC Audit Trail report for each Provisional PBC

Check	Central Count Reports
☐	Precinct Upload Report
☐	Voter Turnout Report
☐	Election Summary Report
☐	Statement of Vote
☐	Supplemental Statement of Vote
☐	Vote Converter Application Log
☐	Vote Tabulator Application Log

10.5.2 Printing the Application Logs

All ES&S InkaVote PBC EMS applications provide an "Application Log" that documents the user logged in, application activities, and changes made to the data. Following completion of each task, print the Application Log for the application you used and retain it in the Election Audit Reports folder. The Application Log viewing function is the same in all the EMS software applications.

To print the Application Log:

1. On the hard drive of the EMS computer, create a folder in the EMSOutput folder for your Application Logs.
2. Open the **Help** menu and select **View Logs**. The Application Log window appears with a log of all application and database activity.

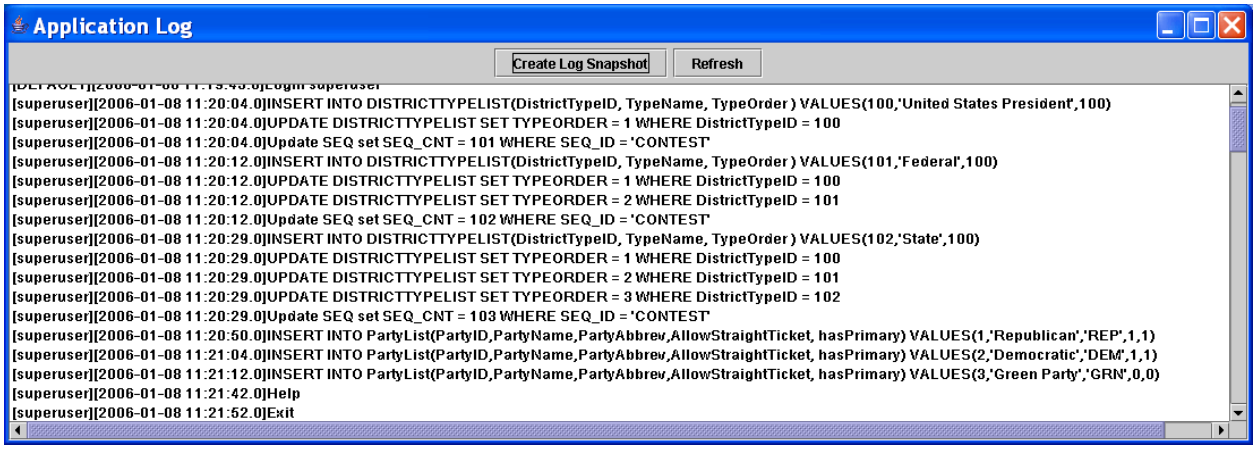


Figure 37: Ballot Generation Setup Application Log

4. Click **Refresh** if recent activity has taken place.
5. Click **Create Log Snapshot**. A dialog box appears.
6. Navigate to your EMSOutput\Application Logs folder and click **Open** (OK). If you are on a different computer from the EMS computer, use removable media to transport the file to the central EMS computer. When you click OK, an HTML file is written to the folder. The filename includes the date and time the report was generated.

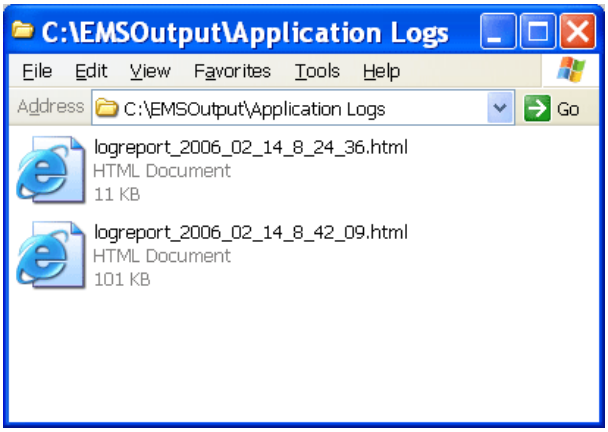


Figure 38: Application Log Report Files

7. Open the Log Report file using any web browser, such as Internet Explorer.

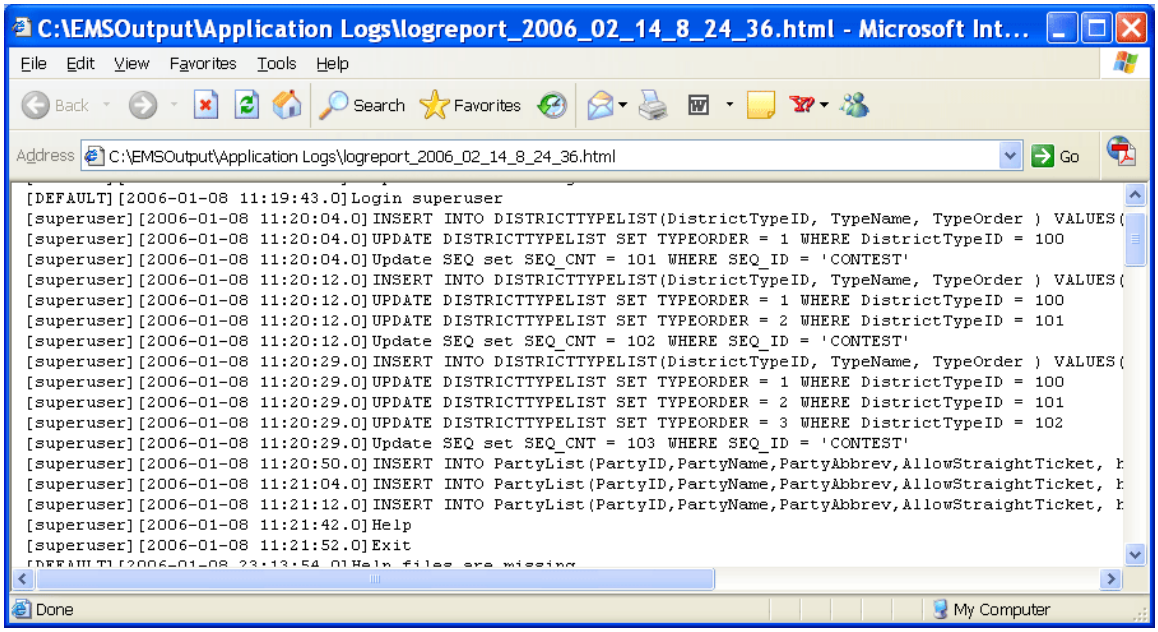


Figure 39: Application Log HTML Report

8. Use the browser's **Print** function to print a hard copy of the file,
9. File the Application Log printout in your Election Audit Reports folder.

11. Biennial Hardware Certification and Notification

California Elections Code, §19220 requires that elections officials inspect and certify the accuracy of InkaVote Precinct Ballot Counter equipment at least once every two years before using it for an election . To meet this regulation officials will conduct a complete Logic and Accuracy test (as described in this document), proving the end-to-end functionality on all equipment, based on the California Certification Data provided by the Secretary of State. The elections official shall certify the results of the inspection to the Secretary of State.

Appendix A:
InkaVote PBC Accessible Ballot Slip Roll Specifications

These specifications describe the printed thermal paper roll to be provided as ballot slip paper in the Accessible Voting (Audio Ballot) booth .

A. 1 Paper Specification

Type	Direct Thermal
Width	82.55mm +/- 0.2mm (3.25” +/- 0.008”)
Caliper	134 – 135 Microns (5.26 – 5.32 mils)
Weight	120 – 130 g/m^2
Top coated	Optional
Back-coated	Optional
Image Stability	10 Years under ideal conditions (<77°F, <70% relative humidity)

A.1.1 Recommended Thermal Papers

- Appleton Résiste 800-5.3
- Kanzaki ST-5

A.2 Roll Specification

Maximum Outside Roll Diameter	100mm (3.93”)
Core Outer Diameter	76.2mm (3.00”)
Core Inner Diameter	69.85mm (2.75”)
Core Wall Thickness	3.18mm (.125”)
Core Material	Cardboard or Plastic
Wind Direction:	
Thermal Coating (printed selection grid)	Outside of roll. Bottom edge of ballot is at the end of the roll.
Tail end attachment	Do not use tape or glue to secure the roll paper to core. Do not fold the tail end of the paper.

Figure 1: Ballot Slip Roll wind direction

A.2.1 Packaging & Labeling

Rolls shall be packaged in materials resistant to humidity. Ordering Jurisdiction will provide a description of the information to be provided on outside label.

A.2.2 Number of Printed Ballots per roll

State	Number of Ballots / Roll	Notes
California	25	Election Title, color tint, and watermark are to be printed for each election.
Other		

A.3 Printing Specifications

The ballot slip roll has a repeating pattern every 11.00". The Election Title and InkaVote Selection Grid are printed on the front (thermal) side of the roll. The top-of-form marks are printed on the back (non-thermal) side of the roll.

No additional printing can exist on either side of the ballot slip.

A.3.1 InkaVote Selection Grid

The InkaVote Selection Grid is a 312-position matrix (12 X 26) printed on the thermal side of the roll. Refer to Figure 2 for the location of printing on the roll. Print layout files are available from Unisyn Voting Solutions, Inc.

The Grid is printed in Rubine Red or PMS 192 color ink The red ink shall have a minimum reflectance of 70%. The reflectance of the ink should match the reflectance of the paper stock as closely as possible

A.3.2 Election Title

The Election Title is printed above InkaVote Selection Grid. The Title and date of the election are printed in this area. Refer to Figure 2 for the location of printing on the roll. Print layout files are available from Unisyn Voting Solutions Inc.

The Title is printed in Rubine Red or PMS 192 color ink The red ink shall have a minimum reflectance of 70%. The reflectance of the ink should match the reflectance of the paper stock as closely as possible.

A.3.3 Top-of-form black mark

On the back (non-thermal) side of the roll, the top-of-form black marks, Tint color, and Watermarks are printed in a repeating pattern every 11.00".

The Top-of-form marks are 5mm x 14mm and printed 1mm from the edge of the roll. Refer to Figure 3 for exact location on the roll.

The relationship between the printing of the top-of-form black marks and the location of the InkaVote Selection Grid on the front side of the roll is critical. Print layout files are available from Unisyn Voting Solutions Inc.

A.3.4 Tint

On the back (non-thermal) side of the roll, the top-of-form black marks, Tint color, and Watermarks are printed in a repeating pattern every 11.00".

A tint color and watermark shall be furnished by the Secretary of State.

The tint color begins 15mm (0.59") from the same edge of the roll as the Top-of-form black marks and extents to the opposite edge. Refer to Figure 3 for exact location on the roll.

A.3.5 Watermark

On the back (non-thermal) side of the roll, the top-of-form black marks, Tint color, and Watermarks are printed in a repeating pattern every 11.00 inches. A watermark and tint color shall be furnished by the Secretary of State.

The watermark is contained in tint color pattern that begins 15mm (0.59”) from the same edge of the roll as the Top-of-form black marks and extents to the opposite edge. Refer to Figure 3 for exact location on the roll.

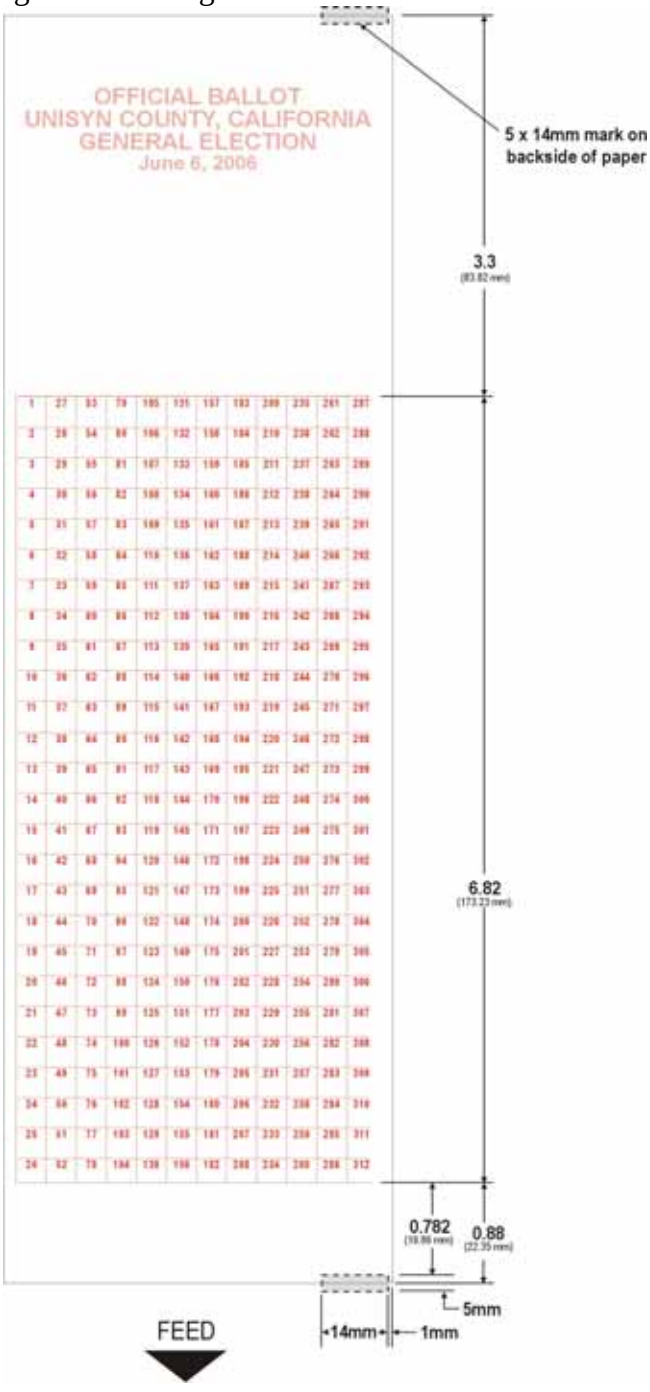


Figure 2: InkaVote Ballot Slip, front

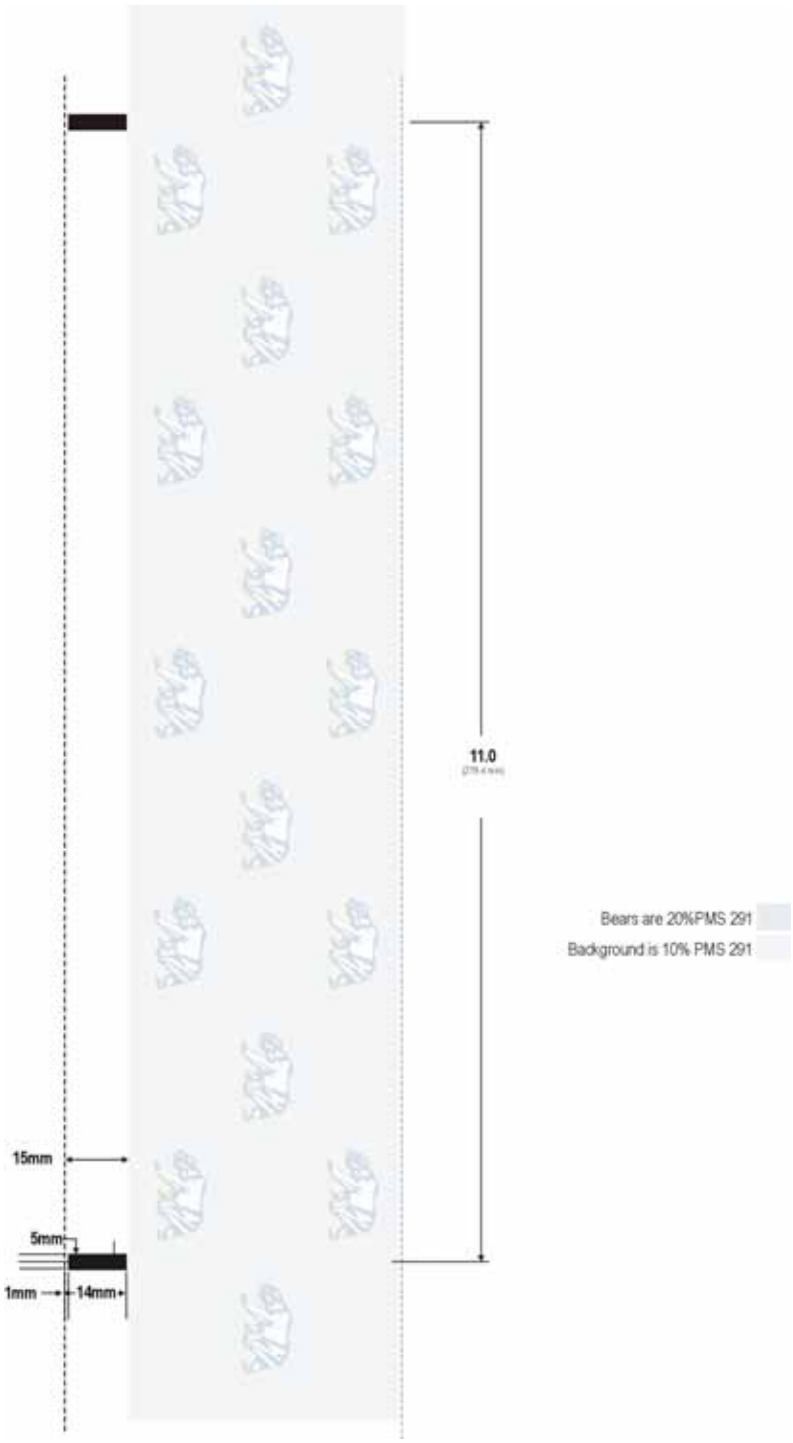


Figure 3: InkaVote Ballot Slip, back

Appendix B: InkaVote PBC Acceptance Test

Test 1 Physical Inspection	PASS	FAIL
1. Match the case serial number to a number on the Unisyn provided shipment list 2. Look for visible damage to the case. 3. Find the key to front access door; make sure the key opens the front access door. Check to make sure the Transport Media is inserted in the PC. 4. Make sure all components are present: touch screen, PC, ballot reader, and report printer.	There is no visible damage to the case, front access door unlocks properly, and the case includes a PC, Report Printer, and Ballot Reader	The case is damaged, the front door lock does not work, the case is missing one or more components, or one or more components appears to be damaged.

Test 2 System Starts	PASS	FAIL
1. Press the switch on the side of the case above the power cable to turn on the PBC. Make sure the PC starts, the touch screen lights up, and the InkaVote logo appears. (Check the monitor power button if the screen does not light up.) 2. A screen displays the software version number and technical support number. Make sure the software version matches version given on the Acceptance Sheet. 3. A screen displays “Successful normal startup.”	System starts up and displays software version and Demonstration Election loaded as expected.	Software version is not correct, system does not start, not a demonstration election loaded.

Test 3 Ballot Reader	**PASS**	**FAIL**
1. A screen displays the "Demo (acceptance) Election" title. You are prompted to insert the ballot header card. 2. Insert the provided header card. The Ballot Reader accepts the header card and ejects it back out. Make sure a poll location and precinct(s) are displayed onscreen.	System accepts and ejects the ballot header card. A poll location with precinct(s) is set as a result of inserting the card.	Reader not detected. The reader rejects the header card with an error. The header card is not ejected back out.

Test 4 Report Printer	**PASS**	**FAIL**
Wait for the Zero Count report to print. Make sure the printer cuts the paper at end of report and that the printed text is legible.	The printer rints a Zero Count on startup, cuts paper at end of report, and the printed text is legible.	Printer error message appears and remains after checking power and connections. Failure to print report, printed text is not legible.

Test 5 Zero Count	**PASS**	**FAIL**
1. Make sure the report includes the line "Diagnostics: Passed." 2. Check the PC Machine Name on the Zero Count against the PBC serial number label and the one given on the Acceptance Sheet. 3. Make sure Public Count and all candidate counts are "0." 4. The Main Screen is displayed.	Machine Name matches name given on sheet. Diagnostics "passed." Public Count and candidate counts are "0."	Failure to print report, report does not print Demonstration Election contests.

Test 6 Touch Screen	**PASS**	**FAIL**
After the Main Screen appears, touch **Admin, Diagnostics,** and **Test Touch Screen**. Touch the screen. Make sure a mark appears where you touch.	Touch onscreen X's and calibration test responds and completes as expected.	No response from screen after checking power and connections. Screen needs to be recalibrated.

Enter the Protective Count

- Get the PBC's Protective Count from the Zero Count report and write it on the PBC Acceptance sheet.

Perform the same steps at all other PBCs.

- Shut down the PBCs and remove the printer paper.
- Replace PBC covers and move to storage.
- Set up and start the next group of PBCs.

Acceptance Date:
System Version:
Software Version:

PBC Unit Serial #	1- Physical Inspection	2- System Starts	3- Ballot Reader	4- Report Printer	5- Zero Count	6-Touch Screen	7- Protect. Count	Observation / Reason for not passing

Appendix C: EMS Software Windows XP Pro Security Settings

Follow the instructions in this appendix to prepare the computer where the supporting EMS software for ES&S InkaVote PBC will be installed. You can install the Unisyn EMS components on the same computer as the Election Converter or on a separate computer. The computer you install on, however, must meet the following requirements:

- Windows XP Professional Operating System
- Pentium 4 / 1 GHz
- 1 GB RAM
- 80 GB Hard drive
- 4 USB Ports
- LAN Card
- CD-RW with CD read/write software available

C.1 Change Windows Services Settings

These service settings are based on a **Windows XP Service Pack 2** installation, with modifications to the default settings in boldface. Make changes to the computer before using the ES&S InkaVote PBC EMS software to match these settings.

*** Note 1:** Set this service to "Manual" on Election Converter PC to permit recording (burning) the Election CD.

Service	Startup Type	Log On As
Alerter	Disabled	Disabled
Application Layer Gateway Service	Manual	Manual
Application Management	Manual	Manual
Automatic Updates	Automatic	**Disabled**
Background Intelligent Transfer Service (BITS)	Manual	**Disabled**
Clipbook	Disabled	Disabled
COM+ Event System	Manual	Manual
COM+ System Application	Manual	Manual
Computer Browser	Automatic	**Disabled**
Cryptographic Services	Automatic	Automatic

Service	Startup Type	Log On As
DCOM Server Process Launcher	Automatic	Automatic
DHCP Client	Automatic	**Disabled**
Distributed Link Tracking Client	Automatic	**Disabled**
Distributed Transaction Coordinator	Manual	**Disabled**
DNS Client	Automatic	Automatic
Error Reporting Service	Automatic	**Disabled**
Event Log	Automatic	Automatic
Fast User Switching Compatibility	Automatic	**Disabled**
Help and Support	Automatic	**Disabled**
HTTP SSL	Manual	**Automatic**
Human Interface Device Access	Disabled	Disabled
IMAPI CD Burning COM Service (See Note 1*)	Manual	**Disabled**
Indexing Service	Manual	**Disabled**
IPSEC Services	Automatic	**Disabled**
Logical Disk Manager	Automatic	**Manual**
Logical Disk Manager Administrative Service	Manual	Manual
Messenger	Disabled	Disabled
MS Software Shadow Copy Provider	Manual	Manual
Net Logon	Manual	**Disabled**
NetMeeting Remote Desktop Sharing	Manual	**Disabled**
Network Connections	Manual	Manual
Network DDE	Disabled	Disabled
Network DDE DSDM	Disabled	Disabled
Network Location Awareness	Manual	**Disabled**
Network Provisioning Service	Manual	**Disabled**
NT LM Security Support Provider	Manual	**Disabled**
Performance Logs and Alerts	Manual	**Disabled**
Plug and Play	Automatic	Automatic
Portable Media Serial Number Service	Manual	**Disabled**
Print Spooler	Automatic	Automatic
Protected Storage	Automatic	**Disabled**

Service	Startup Type	Log On As
QoS RSVP	Manual	**Disabled**
Remote Access Auto Connection Manager	Manual	**Disabled**
Remote Access Connection Manager	Manual	**Disabled**
Remote Desktop Help Session Manager	Manual	**Disabled**
Remote Procedure Call	Automatic	Automatic
RPC Locator	Manual	**Disabled**
Remote Registry	Automatic	**Disabled**
Removable Storage	Manual	Manual
Routing and Remote Access	Disabled	Disabled
Secondary Login	Automatic	**Disabled**
Security Accounts Manager	Automatic	**Manual**
Security Center	Automatic	**Disabled**
Server	Automatic	**Disabled**
Shell Hardware Detection	Automatic	**Disabled**
Smart Card	Manual	**Disabled**
SSDP Discovery Service	Manual	**Disabled**
System Event Notification	Automatic	Automatic
System Restore Service	Automatic	**Automatic**
Task Scheduler	Automatic	**Manual**
TCP/IP NetBIOS Helper	Automatic	**Disabled**
Telephony	Manual	**Disabled**
Telnet	Disabled	Disabled
Terminal Services	Manual	**Disabled**
Themes	Automatic	Automatic
UPS	Manual	**Disabled**
UPnP Device Host	Manual	**Disabled**
Volume Shadow Copy	Manual	Manual
Web Client	Automatic	**Disabled**
Windows Audio	Automatic	Automatic
Windows Firewall	Automatic	Automatic
Windows Image Acquisition	Manual	**Disabled**

Service	Startup Type	Log On As
Windows Installer	Manual	Manual
Windows Management Instrumentation	Automatic	Automatic
WMI Driver Extension	Manual	Manual
Windows Time	Automatic	**Disabled**
Wireless Zero Configuration	Automatic	**Disabled**
WMI Performance Adapter	Manual	**Disabled**
Workstation	Automatic	**Disabled**

C.2 Change Network Settings

Modify the network adapter (**Start** / **Control Panel** / **Network Settings**). Double-click the current wireless or LAN connection and click **Properties** to access these settings:

- Disable (deselect) "Client for Microsoft Networks"
- Disable "File and Print Sharing for Microsoft Networks"
- Disable "QoS Packet Scheduler"

C.3 Change Security Center Firewall Exceptions

Modify the Security settings in the following ways. Open the Security Center (**Start** / **Control Panel** / **Security Center**).

1. Click "Change the way Security Center notifies me."
2. In the Alert Settings window, deselect each of the options. (This may not be available after shutting down the Security Center service.) Click OK
3. On the main Security Center panel, click the Firewall option (Manage Security Settings for: Windows Firewall). Under the **General** tab, make sure the firewall is turned on.
4. Click the **Exceptions** tab in the Windows Firewall configuration window and deselect each item on the panel.
5. Click **Add Port**. Set each of the following port names and numbers. Click the Scope button for each and set the Scope as follows:

Name	Port #	Scope
Ballot DB	3356	127.0.0.1
Converter DB	3366	127.0.0.1

Precinct Controller HTTP	8080	"My Network only"

6. Click **OK** to set each. Do this again for any additional ports required for the service.
7. Click **OK** to leave the Windows Firewall configuration window.

C.4 Change Security Center Internet Options

While in the Security Center, click **Internet Options.**

1. On the **General** Tab make these settings:
Change the home page to "Use Blank."

Under Temporary Internet Files, Click **Settings** and change the amount of disk space to use to 1MB.

Change the "Days to keep history" to zero (0).

2. On the **Security** tab, select each of the items in the upper region and change the security level to **High.**

3. On the **Connections** tab, click **LAN Settings** and deselect "Automatically detect settings."

4. On the **Privacy** tab, set to "Block all cookies."

5. On **Programs** tab, click **Manage Add-ons**.
In the next window, disable **Windows Messenger**. Click OK.
On the main Internet Properties window deselect the option "Internet Explorer should check to see if it is the default browser."

6. On the **Advanced** tab, make these settings:

Disable "install on demand"
Disable "offline items to be synchronized on schedule"
Disable "enable 3rd party browser extensions"
Don't play animations, sounds, or videos in web pages
Don't show pictures
Disable image toolbar
Disable image resizing
Disable smart image dithering
Disable searching from the address bar
Don't check for publishers certificate revocations

C.5 Add/Remove Programs

In Add/Remove Programs (**Start** / **Control Panel** / **Add/Remove Programs**) click **Add/Remove Windows Components**. Then deselect everything and accept.

C.6 Start Menu

In the Start menu, remove the following (**Start** / **All Programs**, right-click and select **Delete**):

- Windows Catalog
- Windows Update
- The Games folder
- Remote Assistance
- Windows Movie Maker

Change the behavior of the Start Menu (Start / Control Panel / Appearance and Themes / Taskbar and Start Menu / Start Menu Tab / Customize):

- On the **General** tab under "Programs," set the number to zero (0) and click "clear list"
- On the **Advanced** tab under "Start Menu Items," Deselect "Help and Support," and set "My Documents," "My Pictures" and "My Music" to "Don't Display."
- Deselect the option "List my most recently used documents."

C.7 Recycle Bin

Set the recycle bin to delete files immediately (right-click and select **Properties**).

C.8 Define Two Users

Define the following two users:

- Administrator:
  Administrator Privileges
  Password to be determined by jurisdiction
- Unisyn
  Limit Privileges
  Password to be determined by jurisdiction

All applications are installed as Administrator.

Note: Set up a specific Windows username and password for each EMS and Gateway user.

Appendix D: Absentee Daily Log

Precinct Ballot Counter:_____

Date:_____

Technician Signature:_____

OPEN PBC									CLOSE PBC							
Date	Time	PBC Seal #	Public Count	Protective Count	PBC front access Seal#	Judge Initial	Judge Initial		Date	Time	Seal #	Public Count	Protective Count	PBC front access Seal#	Judge Initial	Judge Initial

Appendix E: Supplemental Statement of Vote

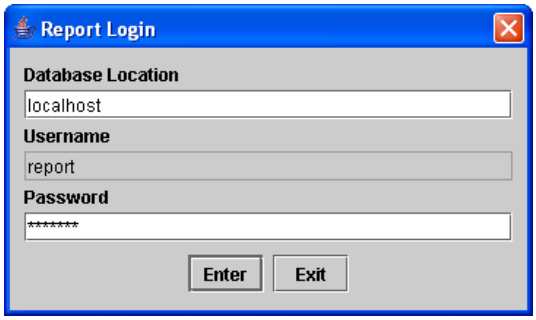
A Unisyn-provided viewer allows access to the EMS database through the **report** account. The report database account is a limited account that allows viewing privileges for the purpose of generating reports, but has no modify, add, or delete privileges. Accessing the results directly from the database allows a jurisdiction to create custom reports conforming to individual specifications.

The SSOV Viewer allows you to generate candidate vote totals for each district on the ballot, by contest. The report can be saved to disk in the format you require (JasperReports, PDF, HTML, Excel, CSV, or XML) to consolidate these with other results or to use for other purposes.

Follow these procedures to use the Unisyn report viewer:

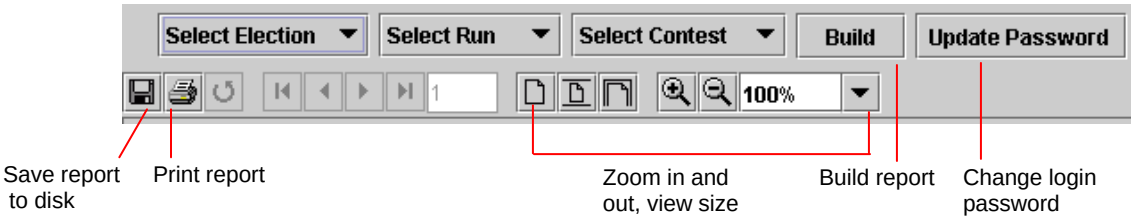
1. Install the SSOV Reports viewer on the same PC where the EMS Ballot Generation, Tabulation and database reside. Execute the SSOV installer by double-clicking on it.

2. Run the program by opening the Windows **Start** menu. Select **All Programs**, **Unisyn Voting Solutions**, **EMS Reports** and **SSOV**. A login panel prompts for database authentication:



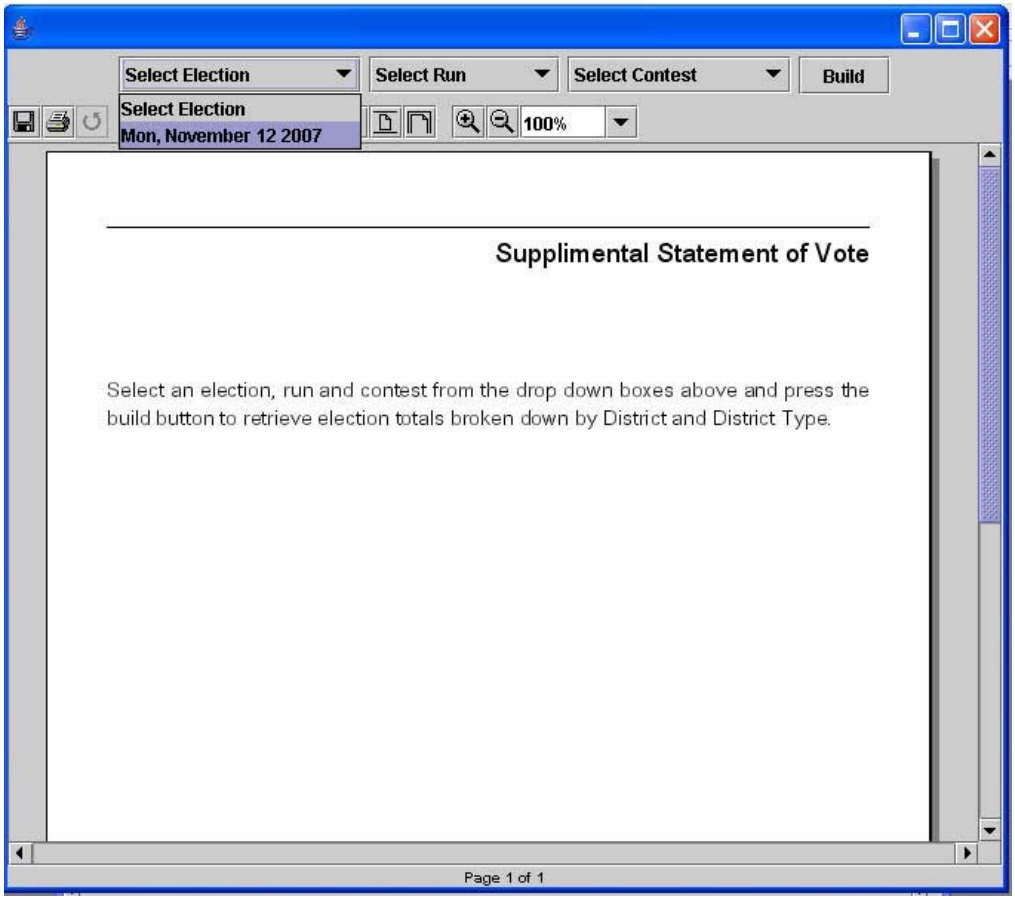
Note: Only the **report** user may login to the SSOV viewer, and the report user is limited to read-only access to the EMS database.

3. The default database location is **localhost**, the username is always **report**, and the password is provided by ES&S. Press Enter. The SSOV viewer opens. The top of the viewer provides buttons.

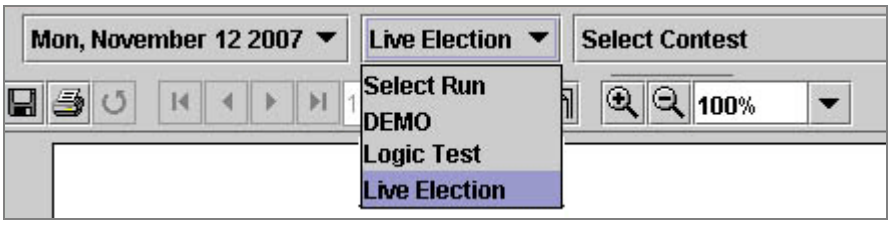


4. For security purposes, change the initial report login password by clicking **Update Password**. Enter a new password, type it again to confirm and click **Enter**. Remember your new password and guard it carefully.

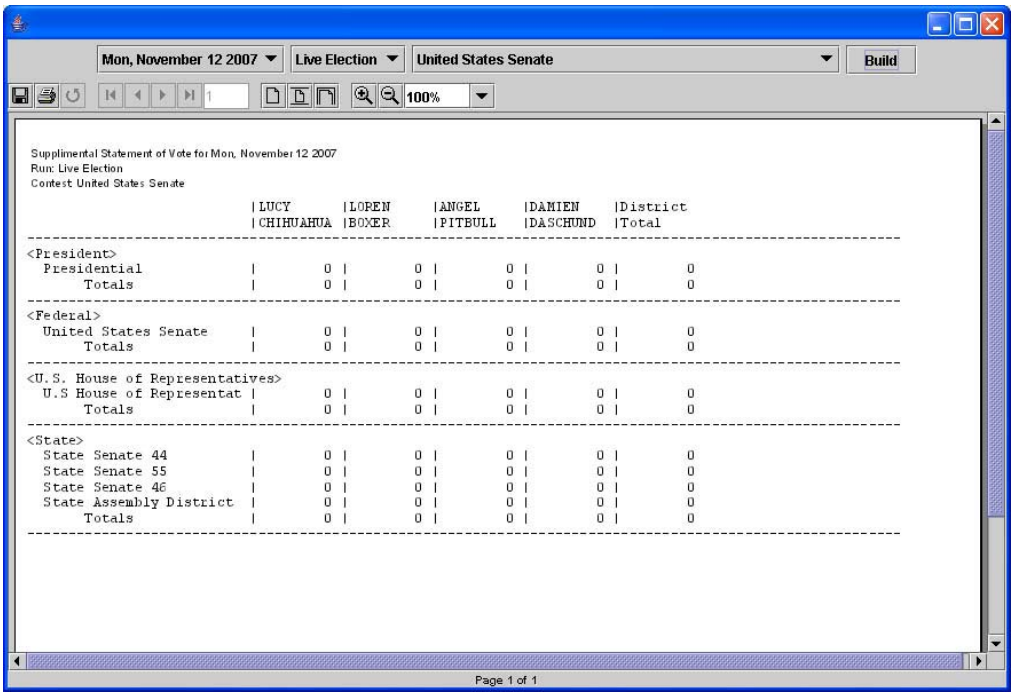
5. Click **Select Election**. The viewer automatically detects which elections are available from the MySQL (**ballot**) database instance. Select the election for which you need the report from the drop down list.



6. Click the **Select Run** button. The database keeps test and demo runs separate from live election runs for each election database. To get a report following a Logic Test, you would select the test run. To get a report following a Live Election, select the live election run, as named in the Vote Tabulator.

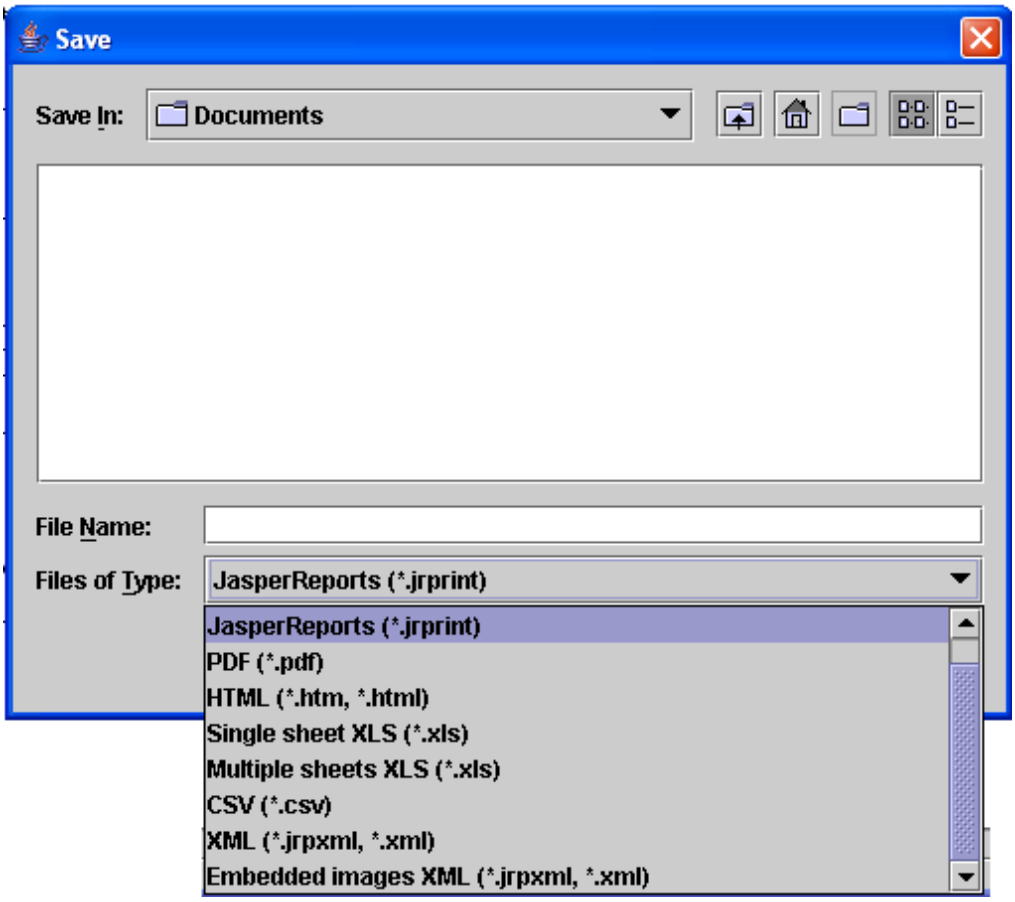


7. Click the **Select Contest** button. Select a contest for office to report on.
8. Click the **Build** button. The viewer builds the report from the EMS database data. Note that this is only a read of the data; no manipulation is possible. The following illustration represents a pre-tabulation report, where all counts are zero (0).



9. To export the data, click the Save icon  .

10. Select the export format you needed. Enter a file name and destination, and click **Save**.



- JasperReports saves a file readable by Jasper.
- The .pdf format is readable by Adobe Acrobat.
- HTML is readable by any web browser.
- The two .xls formats provide Microsoft Excel output.
- Comma separated values (CSV) format is readable by most database applications.
- XML formats can be adapted and customized for many purposes.

Note: For security, change the SSOV report login password and all EMS Superuser passwords frequently and guard them carefully.