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Dominion Voting Systems Democracy Suite® Use Procedures

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Chapter 1

Introduction

This document discusses Dominion Voting Systems' (DVS) Democracy Suite[®] platform as outlined by the *Voting System Use Procedures for California Template*.

1.1 System Description and Components

This section defines the System Description and Components as specified by section 1.1 of the *Voting System Use Procedures for California Template*.

1.1.1 ImageCast[®] Evolution (ICE) v. 4.14.10A1



Figure 1.1: The ImageCast[®] Evolution

The ImageCast[®] Evolution Ballot Counter, as depicted in Figure 1.1, is a precinct-based optical scan ballot tabulator that is used in conjunction with ImageCast[®] -compatible ballot boxes. The system is designed to scan marked paper ballots, interpret voter marks on the paper ballot, and safely store and tabulate each vote made on the ballot. As well, the ImageCast[®] Evolution supports enhanced accessibility voting through optional accessories that are connected to the unit and via the 18.5" LCD touchscreen.

Once an accessible voting session has been activated, the Voter inserts a blank ballot and makes their selections using the Audio-Tactile Interface (ATI), Paddles, or Sip and Puff devices. When the accessible voting session has been completed, the ImageCast[®] Evolution will mark the ballot according to the selections made in a manner that renders it indistinguishable from normally printed and marked ballots. This ballot is then scanned back into the ImageCast[®] Evolution for tabulation, and deposited into the secured ImageCast[®] ballot box. The ImageCast[®] Evolution 's major system elements are outlined in Table 1.1.

Linux Operating System	MPC8347E PowerPC Processor-based Motherboard
Internal type II Compact Flash memory cards	Two optical imaging scanners
18.5" backlit LCD touch panel	Internal thermal printer
Internal inkjet printer	iButton administrative security key interface
Paper feed mechanism	Ballot diverter
Power supply module	Battery pack
Ballot box	Packaging

Table 1.1: ImageCast[®] Evolution Major System Elements

1.1.2 ImageCast[®] Central (ICC) v. 4.14.4



Figure 1.2: The ImageCast[®] Central

The ImageCast[®] Central Ballot Counter, as depicted in Figure 1.2, is a commercial off-the-shelf high speed scanner, manufactured by Canon, coupled with a ballot processing application which runs on a Dell 9010 All-in-One PC workstation. The system is designed for use in a central scanning location, to process absentee ballots, or to run and process an entire election. The ImageCast[®] Central's major system elements are outlined in Table 1.2.

Windows 7 Professional 64-bit Operating System with SP1	Pentium IV or higher
4GB RAM	160GB hard disk
CDROM/DVD ROM Reader	Ethernet port for uploading results files
Dedicated USB port for 1-wire iButton Reader	Dedicated USB port for Canon DR-X10C
Dedicated USB port for Compact Flash card reader	Canon DR-X10C High Speed Scanner

Table 1.2: ImageCast[®] Central Major System Elements

1.1.3 Election Management System (EMS) v. 4.14.2301

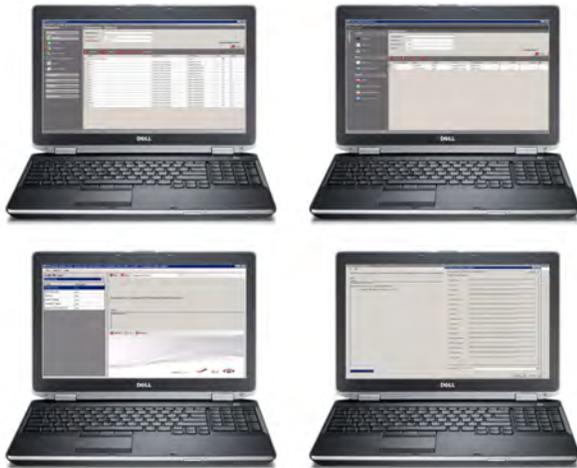


Figure 1.3: Election Management System Client Applications (L-R, T-B): Election Event Designer, Results Tally & Reporting, Audio Studio, Election Data Translator)

The Democracy Suite[®] Election Management System (EMS), as depicted in Figure 1.3, is a set of applications for all pre-voting and post-voting groups of activities used for defining and managing elections. EMS runs on a Dell Latitude e6530 laptop workstation and Dell T620 server. The complete EMS software platform consists of client and server applications as follows:

- **Democracy Suite[®] EMS Election Event Designer:** Integrates election definition functionality and represents a main pre-voting phase enduser application.
- **Democracy Suite[®] EMS Results Tally & Reporting:** Integrates election results acquisition, validation, tabulation, reporting, and publishing capabilities, and represents a main post-voting phase enduser application.
- **Democracy Suite[®] EMS Audio Studio:** A supplementary client application used to record audio files for an election project. As such, it is used during the pre-voting phase of the election cycle.
- **Democracy Suite[®] EMS Election Data Translator:** A supplementary client application used to import, edit, and export template election project data into, and out of, Election Event Designer.
- **Democracy Suite[®] EMS File System Service:** A standalone service that runs on client machines to access low level operating system API for the partitioning of Compact Flash cards.
- **Democracy Suite[®] EMS Data Center Manager:** A system level configuration application used in the EMS backend data center configuration.
- **Democracy Suite[®] EMS Application Server:** A server side application responsible for executing long running processes such as rendering ballots, generating audio and election files, etc.
- **Democracy Suite[®] EMS Network Attached Storage (NAS) Server:** A server side file repository of the election project file-based artifacts, such as ballots, audio files, reports, log files, election files, etc.
- **Democracy Suite[®] EMS Database Server:** A server side RDBMS repository of the election project database that holds all pre-voting and post-voting election project data.
- **Democracy Suite[®] ImageCast[®] Adjudication:** A set of server-side services and a client-side application that allow adjudication of ImageCast[®] Central ballot images.

1.2 Terms and Definitions

Absentee Ballot: EAC 2005 definition: Ballot cast by a Voter unable to vote in person at their Polling Place on Election Day.

Accessible Voting Session (AVS): A method of voting for voters who are unable to easily-mark their paper ballot. Audio, visual, and tactile interfaces are used in any voter-preferred combination to navigate and mark a ballot.

Accuracy Test: Consists of tabulating a known number of ballots, with a known pattern of voted positions, into the Election Management System to ensure its accuracy. This test is used to verify that the election project set-up, the production of the ballots, and the vote tallying hardware are operating correctly.

Adjudication: The process of examining voted ballots to determine, and, in the judicial sense, adjudicate voter intent. The application used for this purpose is primarily ImageCast[®] Adjudication.

Application Server (APPS): A server side application responsible for executing long-running processes such as rendering ballots, generating audio and election files, etc.

Audio Studio (AS): A supplementary pre-voting user application used to review, record and import audio files for an election project..

Audio Tactile Interface (ATI): A handheld controller that allows a voter who is unable to easily-mark their paper ballot, to navigate and make selections to a ballot that is presented in audio and visual form during an Accessible Voting Session.

Audit Trail: EAC 2005 definition: Recorded information that allows Election Officials to review the activities that occurred on the voting equipment, to verify or reconstruct the steps followed without compromising the ballot or Voter secrecy.

Backup: Equipment and procedures available in the event of failure of the voting system.

Ballot: EAC 2005 definition: The official presentation of all of the contests to be decided in a particular election.

Ballot Box: A secure ballot storage container where tabulated ballots are automatically deposited once scanned through an ImageCast[®] tabulator.

Ballot Counter: EAC 2005 definition: Process in a voting device that counts the votes cast in an election.

Ballot Definition: EAC 2005 definition: Information that describes to a voting machine the content and appearance of the ballots to be used in an election.

Ballot Definition Subsystem: Includes all hardware, software, and manual procedures required to accomplish the following:

-
- Administrative Activities
 - Candidate and Contest Definition
 - Voter Registration Databases Management
 - Ballot Generation
 - Election Programming
 - Ballot Printing/Display
 - Ballot Validation

Ballot Image: EAC 2005 definition: Electronically produced record of all votes cast by a single Voter.

Ballot Layout: The ballot configuration unique to each precinct or split precinct that encompasses all candidates, including any rotation of candidate names, and ballot measures for facing Voters at that election.

Ballot Style: EAC 2005 definition: Particular set of contests to appear on the ballot for a particular election district, their order, the list of ballot positions for each contest, and the binding of candidate names to ballot positions.

Ballot Subset: Portion of a ballot that a particular Voter is eligible to vote on. The subset (e.g. a precinct ID) is selected prior to the Voter making selections.

Ballot Tabulation: Process of totalling, or tallying, votes.

Ballot Write-In Voting Position: For selected offices on the ballot, immediately below the space on which the last candidates name is printed or displayed, a space is available for the voter to write-in the name of a candidate not listed on the ballot and mark its voting position.

Blank Ballot: A ballot on which there are no voting position marks that can be read by the voting system.

Candidate: EAC 2005 definition: Person contending in a contest for office. A candidate may be explicitly presented as one of the choices on the ballot or a Write-In candidate.

Canvass: EAC 2005 definition: Compilation of election returns and validation of the outcome that forms the basis of the official results by political subdivision.

Central Count System: EAC 2005 definition: A voting system that tabulates ballots from multiple precincts at a central location. Voted ballots are placed into secure storage at the polling place. Stored ballots are transported/transmitted to a central counting place which produces the vote count report.

Central Counting Location: The place where the following operations occur:

- Tabulate ballots or accumulate the results of previously tabulated ballots at one or more Central Counting Locations.

-
- Merge the voting data produced by dissimilar voting systems.
 - Program or reprogram ballot-tabulating devices after Opening the Polls.
 - Edit Vote Tally programs or voting data.

Certification Message: A message, followed by signature lines, which may be printed on reports attesting that the statistics and results are true to the best of the Precinct Board's/Central Count Operator's knowledge.

Contest: EAC 2005 definition: Decision to be made within an election, which may be a contest for office or a referendum, propositions and/or questions. A single ballot may contain one or more contests.

Contest Headers: Space on the displayed ballot image where the contest name is shown.

CPU (Central Processing Unit): Commonly used abbreviation to describe the Central Processing Unit of a computer or computer system as distinguished from other peripheral devices or components.

Cumulative Voting: EAC 2005 definition: A method of voting exclusive to multi-member district election (e.g. county board) in which each Voter may cast as many votes as there are seats to be filled and may cast two or more of those votes for a single candidate.

Demonstration Ballot: Ballot, used for Demonstration purposes, which displays a mock election. Such ballots may be used and re-used for demonstrations from Voter to Voter and from election to election.

Device Configuration File (DCF): The file that holds configuration parameters as defined by EMS applications and passed onto the ImageCast[®] Central . This file defines and determines the behavior of the tabulator during an Election.

Diagnostic Messages: Appropriate message printed by the election log, under certain conditions, which indicates a problem or condition, as well as the recovery procedure. Such messages are Tracking Points in the audit trail.

Election: EAC 2005 definition: A formal process of selecting a person for public office or of accepting/rejecting a political proposition by voting.

Election Coding: EAC 2005 definition: Process by which Election Officials or their designees using voting system software to logically define the ballot for a specific election.

Election Cycle: Represents all activity required to conduct an election. Comprised of the following election phases:

- Pre-election: Includes all preparation activities occurring before Opening the Polls.
- Election Day: Includes all activities occurring during the election, including Opening the Polls, Official Election, and Closing the Polls.
- Post-Election: Includes all activities occurring after Closing the Polls.

Election Database: Database created for each election that defines the appropriate election parameters and attributes including the number of issues, offices, candidates, and other election-specific information.

Election Day: Election phase, which allows for official ballots to be cast, during the Official Election. Includes all activities occurring during the following sub-phases:

- Opening the Polls
- Official Election
- Closing the Polls

Election Definition Cycle: The step-by-step processes used to program and prepare an election using the Democracy Suite[®] Election Management System's set of applications.

Election Definition Files: A term used to collectively describe both Device Configuration and Voter Information Files, which are stored on Compact Flash cards within the ImageCast[®] series of tabulators.

Election Event Designer (EED): The primary pre-voting enduser application used to define, design, and program an Election Event.

Election Management System (EMS): A set of applications for all pre-voting and post-voting activities accomplished in the process of defining and managing an election. These applications include Election Event Designer, Results Tally & Reporting, Audio Studio, Election Data Translator, and Results Transfer Manager.

Election Official (EO): Applies to the County Clerk, the County Registrar of Voters, the City Clerk, or any other person who has been properly and legally charged with the responsibility of conducting the election. They may deputize others to perform functions.

Election Programming: EAC 2005 definition: Process by which Election Officials or their designees use voting system software to logically define the ballot for a specific election.

Election Stage: Individual operational activity, which occurs within an election phase. Several election stages make up an election phase. Some election stages are required, others are optional.

'Famous Names' Ballot: A mock election ballot carrying fictitious offices and candidates who are familiar in history. This ballot is intended for use not only as a demonstration item, but also as an Accuracy Test. Also known as an 'Ice Cream' Ballot, where flavors of ice cream are listed as Voter selections.

ImageCast[®] Adjudication: The application that is used to examine ballots scanned by the ImageCast Central (ICC) to adjudicate them.

ImageCast[®] Central (ICC): A central ballot scan tabulator coupled with a ballot processing application, which is primarily used to process absentee ballots.

ImageCast[®] Evolution (ICE): A precinct voter-fed paper ballot tabulator with an integrated inkjet ballot marking device and touchscreen.

iButton Security Key: A computer chip enclosed in a 16mm-thick stainless steel capsule, used as an Administrative Security Key for accessing secured menus within the Democracy Suite[®] set of products and applications.

Initialization Process of returning a computer to its original state when the program was first run, by returning all counters to zero or their starting values.

Local Election Official (LEO): The individual or officer of a local governmental unit responsible for certifying candidates and issues to be placed on the ballot.

Logic and Accuracy Test: Tests which must be run before and after processing official ballots for an election. The logic test group of ballots has predetermined totals for all contests on the ballot, with every candidate in a contest receiving a different number of votes than any other candidate in that contest.

Machine Behavior Settings (MBS): The settings that hold configuration parameters as defined by EMS applications and passed onto the ImageCast[®] Evolution . These settings define and determine the behavior of the ImageCast[®] Evolution during an election.

Maintenance Diagnostics: Series of software and hardware tests and system utilities that allow for troubleshooting and setting system parameters.

Network: Interconnected system of transmission lines that allows the following to communicate with each other:

- Computers
- Terminals
- Peripheral Devices
- Similar types of equipment

Network Attached Storage (NAS): A server-based repository used for storing files and data related to the election cycle.

Non-Partisan Offices: EAC 2005 definition: Elected offices for which candidates run without political party affiliation.

Official Canvass: Consists of the post-election processing of all valid VBM, write-in, and provisional ballots, an audit of counting process, and reporting of final results to the SOS.

Official Election: Election Day sub-phase, when Voters cast official ballots for their candidate choices.

Open Primary: EAC 2005 definition: Primary Election in which any Voters, regardless of political affiliation, may participate. Some states require Voters to publicly declare their choice of party ballot at the Polling Place, after which the Poll worker provides/activates the appropriate ballot. Other states allow the Voters to make their choice of party ballot within the privacy of the voting booth.

Opening the Polls: Election Day sub-phase, which allows for Opening the Polls, for the Official Election sub-phase.

Overvote: EAC 2005 definition: Voting for more than the maximum number of selections allowed in a contest.

Overvoted Ballot: A ballot where the Voter has voted for more than the allotted number of candidates for the office being contested.

Paddles: Hand or foot-operated switches that attach to the ATI and are used to navigate, and make selections to, the ballot during an Accessible Voting Session.

Partisan Offices: EAC 2005 definition: Elected offices for which candidates run as representatives of a political party.

Post-Election: Election phase, which includes all activities occurring after Closing the Polls.

Post-Election LAT (Logic and Accuracy Tests): Optional Post-Election function, which includes post-election Logic and Accuracy Tests, for ballot verification and public oversight of ballot integrity.

Pre-Election: Election phase, which includes all activities occurring before Opening the Polls.

Pre-Election LAT (Logic and Accuracy Tests): Pre-Election function, which includes mandatory Logic and Accuracy Tests, which are performed during Pre-Election, for electronic verification and public oversight of ballot integrity.

Precinct Count System: EAC 2005 definition: A voting system that tabulates ballots at the Polling Place. These systems typically tabulate ballots as they are cast and print the results after close of polling. For DREs, and for some paper-based systems, these systems provide electronic storage of the vote count and may transmit results to a central location over public telecommunications networks.

Printer: System component that is used to produce reports of the Vote Tally.

Protective Counter: A function of the ballot tabulator, which includes a counter that records the number of all of the ballots tabulated since the device was built.

Provisional Ballot: EAC 2005 definition: Ballot provided to individuals who claim they are eligible to vote but whose eligibility cannot be confirmed when they present themselves to vote. Once voted, such ballots are not included in the tabulation until after the Voter's eligibility is confirmed.

Provisional Voting: EAC 2005 definition: Ballot provided to individuals who claim they are eligible to vote but whose eligibility cannot be confirmed when they present themselves to vote. Once voted, such ballots are not included in the tabulation until after the Voter's eligibility is confirmed. In some jurisdictions called an Affidavit Ballot.

Public Counter: FEC 2002 definition: Counter in a voting system that counts the ballots cast in a single election or election test.

Recall Voting: EAC 2005 definition: Process that allows Voters to remove their elected representatives from office prior to the expiration of their terms of office. The Recall may involve not only the question of whether a particular Officer should be removed, but also the question of naming a successor in the event that there is an affirmative vote for the Recall.

Results Tally & Reporting (RTR): The primary post-voting user application that integrates election results acquisition, validation, tabulation, reporting, and publishing capabilities.

Rotation: EAC 2005 definition: Process of varying the order of the candidate names within a given contest.

Secrecy Sleeve: An envelope or folder of such design and dimensions as to hide from view the Voted Ballot.

Semi-Official Canvass: The process of collecting processing, and tabulating ballots on election night. This may include reporting results to the Secretary of State. The semi-official canvass may include some or all of the Absentee vote totals. The semi-official canvass is contrasted with the official canvass which begins no later than the first Thursday following the election and, for statewide elections, must result in final certification 28 days following the election.

Sip & Puff: A pneumatic breath-operated switch attached to the ATI and used to navigate, and make selections to, the ballot during an Accessible Voting Session.

Split Precinct: EAC 2005 definition: A precinct that contains an election district subdivision, e.g., a water district or school board district, requiring an additional Ballot Configuration.

Spoiled Ballot: EAC 2005 definition: Ballot that has been voted but will not be cast.

System Proofing: Procedure which verifies that all materials, files, and programs for an election are correctly prepared. This proofing is normally done in approximately two (2) weeks, during the period consisting of 40 days to approximately 14 days prior to Election Day. Logic and Accuracy tests are included in System Proofing.

Test Deck: A pre-marked stack of ballots which will generate a predictable pattern of results, when scanned into a tabulator programmed for that election project. This deck would be used for Accuracy Testing.

Undervote: EAC 2005 definition: Occurs when:

- The number of choices selected by a Voter in a contest is less than the maximum number allowed for that contest.
- No selection is made for a single choice contest.

Undervoted Ballot: A ballot where the Voter has voted for less than the total number of election contests listed on the ballot, or less than the number of positions to be filled for a single office.

Virtual Outstack: A function within the ImageCast® Central application where ballots containing voter exceptions (e.g. misread, overvote, undervote, blank, ambiguously marked ballots), will halt the

scanning process and notify the operator which ballot in the batch contains the voter exception.

Vote By Mail Ballots: See **Absentee Ballots**.

Vote For: EAC 2005 definition: A ballot choice in which Voters are allowed to:

- Vote for a specified number (N) of candidates
- Vote in a multi-seat (M) contest

Voted Ballot: EAC 2005 definition: Ballot that contains all of a Voter's selections and has been cast.

Voter Information Files (VIFs): Election information including, but not limited to, ballot layouts, contests, and candidate names, that are stored on the Compact Flash cards within the tabulator.

Write-In: EAC 2005 definition: To make a selection of an individual not listed on the ballot. In some jurisdictions, Voters may do this by:

- Using a marking device to physically write their choice on the ballot
- Using a keypad, touchscreen, or other electronic means to enter the name.

Write-In Ballot: A ballot where a vote has been cast in a race for a candidate whose name does not appear on the ballot.

Write-In Candidate: Optional candidate type used to provide a means to the Voter to write the name of a candidate whose name does not appear on the ballot.

Chapter 2

Ballot Paper Specifications

2.1 Overview

Ballot layout for all Democracy Suite[®] products is accomplished in the Election Management System Election Event Designer application during the election definition process. Ballots are generated as tabulator-ready PDF ballot artwork files.

2.2 Ballot Artwork Source Files

Dominion's Democracy Suite[®] Election Management System (EMS) creates tabulator-ready PDF ballot artwork files. Ballot artwork files are created as complete ballot images, without trim lines or crop marks, and are designed to directly print on digital 4-color sheet-fed xerographic or other electrophotographic printers (most B-sized laser printers). Ballot artwork is generated in industry-standard PDF Version 1.3 and CMYK color space.

Ballot artwork files are full-sized press-ready ballots containing all required ballot elements and the unique ballot ID barcode that distinguishes each ballot style. Each file contains one or two ballot images: a front image (if the ballot is single-sided) or paired front and back ballot images. All fonts used in the ballot artwork are embedded in the PDF file. Ballot artwork files are digitally-signed (X.509) and tied to the election project files produced by Democracy Suite[®] EMS to allow for authentication and revision control. The file naming scheme used for the ballot artwork files is set in Democracy Suite[®] EMS and is controlled by the election administrator. Typical file names might be as simple as "1.pdf" or be as descriptive as "ballot_4324_A01_B_EP_20100912.0.pdf". An election administrator will provide a list of the ballot artwork file names and usage.

Pre-press imposition of ImageCast[®] ballot artwork to add crop or alignment marks, jurisdictionally-mandated background screens, stub artwork, or other printing, may be required. No modifications, post-processing, or image conversion of the original ballot artwork files is allowed.

2.3 ImageCast[®] Ballot Printing Methods

ImageCast[®] ballots can be easily printed by a range of modern printing technologies.

- Small quantities of tabulator-ready ballots can be printed with a conventional B-size laser printer (600 dpi min., pre-calibrated), directly onto pre-cut blank ballot stock. ImageCast[®] ballot artwork

files are pre-configured for this use. In-house laser printing of ImageCast® proofing and test ballots allows a jurisdiction to quickly and easily test the Democracy Suite® EMS election project setup and tabulation options.

- Most jurisdictions choose a Dominion-certified print vendor to produce the ballots that will be used for their election. ImageCast® ballots are often produced by conventional web or sheet-fed offset lithographic presses.
- High-speed digital xerographic or other electrophotographic presses (both web and sheet-fed) have also been used to produce ImageCast® ballots.
- Ink jet printers, from small desktop units to high-speed web print engines, have produced millions of ImageCast® ballots.

2.4 ImageCast® Ballot Stock Selection

ImageCast® ballots are printed on high-quality, dimensionally stable, opaque text and cover paper from selected manufacturers. As a result of the high precision required in ballot scanning and vote tabulation, Dominion only recommends ballot stock that has been tested to have a low dirt content and low numbers of imageable defects for ImageCast® ballot production. Approved paper stocks are still subject to additional inspection on a lot-by-lot basis for dirt and other defects in the paper that may be imaged by our tabulators. A range of paper weights (basis weight or grammage) can be used, depending upon the type of ballot being printed and the ImageCast® tabulator used.

Ballots marked by voters at the polls and hand-fed into tabulators are usually printed on heavier weight cover or text stocks. Ballots designed for mail distribution are often printed on lighter weight stocks. The election administrator may indicate a preference for varying the weight of the stock for the different types of ballots, or the entire election may be printed on a single weight of paper.

Multiple paper weights do not pose problems for the tabulator so long as the weight is an approved ImageCast commercial ballot paper.

Ballot stock is available in both rolls and sheets, and comes in a variety of sizes to accommodate the different ballot printing technologies and presses. If the selected presses or finishing equipment are limited to certain paper stocks, please inform the election administrator before bidding.

Most ImageCast® ballots are printed on approved #100 opaque text or #65 opaque cover stocks. This yields a dimensionally-stable ballot card that is durable, easy to print, and widely accepted by voters.

2.5 Approved Ballot Paper Stocks

The text and cover paper stocks that have been tested and approved for manufacturing ImageCast® ballots are listed in Table 2.1.

All approved ballot stock is white, bright white, or natural colored paper and has a smooth finish. Color-coding ballots is normally achieved in the ballot artwork by printing screened area(s) of color as a background as required by California Elections Code section 13002 – *not* by ordering colored ballot stock.

Recycled pulp				
Cascades Fine Paper	Rolland Opaque 50	80# and 100# Text	Bright White, Smooth Finish	50% Post consumer fiber, EcoLogo, FCS Mixed Sources
Cascades Fine Paper	Rolland Opaque 50	65#	Cover Bright White, Smooth Finish	50% Post consumer fiber, EcoLogo, FCS Mixed Sources
Virgin wood pulp				
International Paper	Accent Opaque	100# Text	Smooth	FCS Forest Management
International Paper	Accent Opaque	65# Cover	Smooth	FCS Forest Management

Table 2.1: Text and Paper Stocks Approved for ImageCast Ballots

Chapter 3

System Configuration and Acceptance Testing

Democracy Suite[®] system installation and configuration procedures are described in *Dominion Voting Systems Democracy Suite[®] Installation Procedures*.

3.1 Acceptance Testing

3.1.1 ImageCast[®] Evolution Acceptance Testing

Acceptance testing for the ImageCast[®] Evolution tabulator unit is simply a matter of confirming that the physical and electromechanical components are functioning properly and have not been damaged during transport, and that certain internal parameters have been programmed correctly. Performing this testing will ensure the integrity of the installed firmware within the voting machines. It should be performed prior to each election. To perform acceptance testing, the supervisory election official or designee must complete the following steps:



Figure 3.1: Inserting Compact Flash Cards

1. Unpack the ImageCast[®] Evolution tabulator unit and place it on an assembled ballot box if separated from it.
2. Insert the test Compact Flash cards provided with the ImageCast[®] Evolution tabulator unit, as seen in Figure 3.1.



Figure 3.2: Powering up the ImageCast® Evolution

3. Connect the ATI (Audio Tactile Interface) to the ICE using the RJ-45 cable provided.
4. Plug the power supply into a suitable 120 volt AC power source, and connect the power supply to the ImageCast® Evolution device.
5. Lift the LCD monitor into the upright position.
6. The ImageCast® Evolution will begin the power-up sequence, and the LCD will display a number of messages at each stage of the sequence.

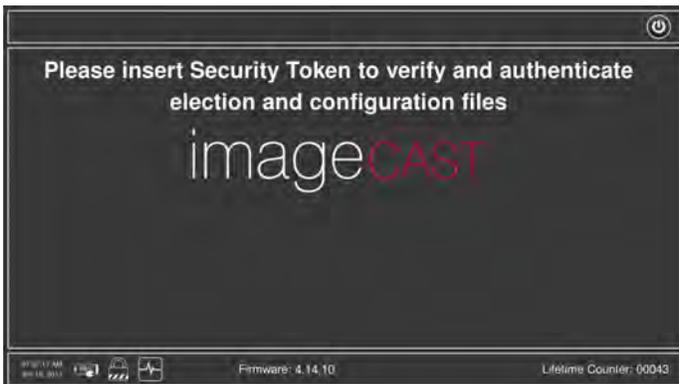


Figure 3.3: iButton Security Key Prompt

7. Once the ImageCast® Evolution has powered up, the system will prompt for the iButton Security Key to be applied to the iButton Security Key receptacle as seen in Figure 3.3.
8. Press the iButton Security Key firmly to the receptacle, and hold it in place until the login screen appears on the touchscreen.
9. On the Authorization screen, enter the username and password specific for the project and press the 'OK' button. In the event that the username and password are incorrect, the screen will clear the text and provide a new opportunity to enter the correct username and password.

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10. Check that the battery icon indicates that the AC power supply is present.
 11. Check that the ImageCast[®] Evolution internal battery is fully charged. There are two ways to do so:
 - a. The LCD display is used to display the internal ImageCast[®] battery status in the same manner as cell phones. There are six different indications that can be shown on the screen:
 - No battery (system on AC/DC power)
 - Almost empty
 - 25% full
 - 50% full
 - 75% full
 - 100% full
 - b. Check the externally visible LEDs on the right side of the unit to ensure that the AC power is connected and to determine the status of the internal battery.
 - c. When the ImageCast[®] Evolution is powered down, the status of the battery can be checked by pressing the battery level push button to the right of the LEDs.
 12. Check that the security icon (in shape of a padlock) is white color (when security has been compromised, the padlock will turn red).
 13. Check that the System Health icon is white. When the system health has been compromised, the icon will turn red. For example, if the ATI is missing, the icon will turn red.
 14. In addition to the steps described above, the ICE unit has multiple procedures available for polling place verification:
 - The election's identification data available via printed report and on-screen.
 - Identification of the unit available on-screen only.
 - Identification of all ballot formats available on a printed report.
 - The contents of each active candidate register by office and of each active measure register at all storage locations (showing that they contain only zeros, i.e. zero tape) available on a printed report.
 - A list of all ballot fields that can be used to invoke special voting options available on a printed report.
 15. More extensive diagnostic tests and procedures are contained within the Technician menu and can be conducted by authorized vendor Technical staff.

3.1.2 ImageCast[®] Central Acceptance Testing

Acceptance testing for the ImageCast[®] Central scanner is simply a matter of confirming that the physical and electromechanical components are functioning properly and have not been damaged during transport, and that certain internal parameters have been programmed correctly. Performing this test will ensure the integrity of the installed firmware within the voting machines. It should be performed prior to each election and initially for customer acceptance testing. To perform acceptance testing, the supervisory election official or designee must complete the following steps:

1. Unpack the ImageCast[®] Central scanner and place it on the desired workstation surface.
2. Attach the cabling from the scanner to the PC workstation.

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3. Plug the scanner and the PC workstation into a suitable 120V AC power source.
 4. Power up the scanner and PC workstation.
 5. Insert the memory card containing the election files into the memory card port.
 6. Log onto the computer.
 7. Run the ImageCast[®] Central application from the computer.
 8. Insert the iButton security key and enter the passcode. The application will verify the iButton security key against the election files in the memory card port. Errors at this point indicate that the iButton security key has not be programmed correctly, and a replacement key may need to be ordered. Otherwise, the application will commence internal diagnostics testing before going into User's Mode.
 9. If the ImageCast[®] Central profile has been provided, and the settings match, then there is no need to re-create or re-save the profile. Simply use the one provided.

3.1.3 Election Management System Acceptance Testing

To perform acceptance testing on the Election Management System, the supervisory election official or designee must complete the following steps:

3.1.3.1 Pre-Voting Phase

1. Open the EMS Election Event Designer application
2. Create the Election Project
3. Open the Project
4. Set the Ballot Style and Ballot Style Parameters
5. Define District Types
6. Define the District
7. Define the Precincts and associate Precinct to Districts
8. Create Political Party
9. Create Office, Define Office Settings, Associate Elector Group Types to Offices, set Rotations
10. Import District Rotations
11. Create Contest, Override Office/Contest Settings
12. Define Choice Associate Choice to Contest, Associate Political Parties to Choice
13. Import Template Keywords
14. Define Ballot Manifestation
15. Preview Ballot Types
16. Preview Ballot Manifestation
17. Create Ballot Header

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18. Create Contest Headings
 19. Create Proofing Ballots
 20. Create (Official) Ballots
 21. Creating Polling Places
 22. Define Tabulators, Assign Polling Places to Tabulators, Assign Precinct to Tabulators
 23. Import DCF/MBS Files
 24. Define Configuration files
 25. Associate Configuration File to Tabulator
 26. Generate Election Files
 27. Program Memory Card
 28. Program iButton Security Key
 29. Create EMS Results Tally & Reporting User

3.1.3.2 Post-Voting Phase

1. Open the EMS Election Event Designer application
2. Open Project
3. Login
4. Load Result Files
5. Load Result Images
6. Load Log File
7. List all result files
8. Select Results Files
9. Preview Result Files
10. Preview Result Files
11. Validate and Publish Result Files
12. Create Reports

Chapter 4

Election Readiness and Logic & Accuracy Testing

This chapter describes the procedures used to verify proper functioning of the equipment and Democracy Suite system as a whole. Prior to running any system level tests, a trained service technician performs a series of diagnostic tests in order to identify any existing or potential issues with the ImageCast[®] Evolution and ImageCast[®] Central tabulators. After, the Readiness Testing is executed to determine that the system has been configured properly and that the equipment functions correctly. Finally, Logic and Accuracy test is run prior to election to ensure that the election project has been programmed and configured correctly.

The election project database will be provided by Dominion Voting's Service Bureau. The Administrator must restore the Election Project on the EMS server by following the procedures outlined in Section 14.2.2.

Once the project is restored and the tabulator files have been copied to the ICC workstation, return here and proceed to Section 4.1 to test the ImageCast[®] tabulators. Once testing is completed, proceed to Section 4.2.

4.1 System Diagnostics Procedures

This section defines the System Diagnostic Testing Procedures, which are performed by a trained service technician in order to identify any existing or potential issues with the ImageCast[®] series of tabulators.

If any device fails diagnostic testing or a component of diagnostics testing, please refer to Troubleshooting and Problem Resolution in Appendix D.

4.1.1 ImageCast[®] Evolution System Diagnostic Testing Procedures

Prior to running pre-election diagnostics tests on the ImageCast[®] Evolution , a trained service technician must first login as Technician in order to access the Diagnostics options on the Technician Menu. The trained service technician must have an iButton Technician Security Key, username, and password before performing the following:

From here, two sets of Diagnostics tests can be performed - Automated Tests and Functional Tests - as listed in Table 4.1.



Figure 4.1: ImageCast[®] Evolution Technician Menu

1. Power up the ImageCast[®] Evolution by pressing the main power switch located on the side of the unit.
2. When prompted by the touchscreen, insert the Technician iButton Security Key into the Security Key receptacle, and enter the Technician Username and Password. If you are unsure of the password, contact your elections supervisor for assistance.
3. The Technician Menu, as seen in Figure 4.1, will appear. Under the Technician Main Menu, press the 'Diagnostics' menu button.
4. Ensure the paper roll is installed.
5. Ensure the printer inkjet cartridge is installed. Refer to Section 5.3.1.3
6. Ensure the ATI and headphones are connected. Refer to Section 5.3.1.4.
7. Clean ImageCast[®] Evolution . Refer to Section 5.3.1.2.

A Diagnostics Report can be printed via the ImageCast[®] Evolution thermal printer and retained for auditing purposes.

Automated Tests	Functional Tests
Memory	Audio
Compact Flash	Video
EEPROM	Scanner
Thermal Printer	Printer
Ballot Marking Printer	ATI
Video	Sip and Puff or Paddle
ATI	Virtual Keyboard
Audio	Voting Buttons
Internal Clock	System Test
Power	Communication Test
Scanner	
Power On Self Tests (POST)	

Table 4.1: ImageCast® Evolution Diagnostics

4.1.2 ImageCast[®] Central System Diagnostics Testing Procedures

The ImageCast[®] Central scanning devices automatically perform a set of diagnostic tests after every power cycle. The system generates a report at the end of the diagnostics testing procedure that outlines the status of the system. To display this report as a text file (.txt), navigate to the Administrator's 'STATUS' menu and press the 'SHOW LOG' button in the ImageCast[®] Central application.

4.2 System Readiness Testing Procedures

System Readiness Testing consists of end to end system test that helps to ensure that the system has been configured properly and that all parts of it function correctly. The test consists of pre-voting, voting and post-voting phases. Pre-voting phase consists of restoring and, if necessary, modifying the election project to be used for Readiness Testing as well as preparing all other necessary material for testing such as iButtons, Security Keys, test decks etc. Voting phase consists of scanning the test decks on all physical tabulators and post-voting involves loading results and analyzing the reports. Each of the following subsections addresses one of these phases.

4.2.1 Performing the Pre-Voting Phase Readiness Test

Tabulator pre-voting readiness tests can be performed with any suitable Democracy Suite election project and ballots. Dominion Voting Systems will provide state-specific Demonstration and/or Acceptance Test election projects for this purpose, or the jurisdiction can develop their own. Jurisdictions that have their elections programmed by Dominion Voting Systems' Service Bureau should proceed to Section 14.2.2 to restore the test election database and then continue with Section 4.2.2.

Jurisdictions that program their own elections will create their projects according to the custom use procedure document created for them by Dominion Voting Systems, which they will receive after purchasing the system. In addition, specific procedures and tips for creating election projects in EMS EED are contained in the Section C.2.1.

In addition, even though ballot adjudication will not be performed in the Election Readiness Testing phase, the correct configuration and setup of the Adjudication system should be performed at this time. Depending on the expiration date set on the Adjudication Certificate, your Administrator might need to create a new certificate and install it on the EMS Server as well as the remote adjudication client workstations. The instructions on how to create and install Adjudication Certificate are described in the *California Installation Procedures* document, Sections 1.9.3.4 Creating Adjudication Certificates with XCA, 1.9.3.5 Adjudication Server Certificate Installation and 2.1.6.1 Adjudication Client Certificate Installation. Once this step is complete, the voting phase readiness test can begin.

4.2.2 Performing the Voting Phase Readiness Test

Voting phase readiness test is performed on all ImageCast[®] Evolution and ImageCast[®] Central tabulators. The following testing procedures require election-specific CF cards and iButton Security Keys to program the ImageCast[®] Evolution and ImageCast[®] Central using the EMS workstation. Refer to Appendix C, Section C.2.6 for details on how to program the CF cards and iButton Security Key. A pre-marked test deck of ballots (with a known set of results) for the specific election is also required for use in the readiness test.

4.2.2.1 Voting Phase Readiness Testing: ImageCast® Evolution

This section describes the Readiness testing procedure for the ImageCast® Evolution tabulators. The procedure consists of loading of CF cards containing election files on each ImageCast® Evolution tabulator and testing it by scanning test decks and verifying the results reports.

NOTE: Make sure to test every physical ImageCast® Evolution tabulator that might be used for Early Voting or Election Day.

1. Burn the CF cards and corresponding iButton for ICE to be tested.
For instructions on how to burn the CF cards and iButton please see Sections C.2.6.1 and C.2.6.2.
2. Insert the memory card containing the Election Project into the CF1 card slot of the ICE tabulator, and the Initialized backup memory card into the CF2 card slot on the tabulator.
For more details on how to do this, please see step 2 in Section 3.1.1.
3. Power up the ICE tabulator by lifting the LCD monitor into the operating position.
For instructions on the power on procedure, see steps 3 through to 7 in Section 3.1.1.
4. When prompted by the LCD screen, insert the iButton Security Key and enter the appropriate password.
For more details, see step 8 and 9 in Section 3.1.1.
5. Visually confirm that the date and time are correct by looking at the lower left section of the ImageCast® Evolution LCD screen.
6. Open the polls.
For instructions on how to open polls, see steps 12 through to 21 in Section 8.3.1.
7. Prepare the ICE for scanning by activating the ‘Standard Voting’ session.
For instructions on how to activate the ‘Standard Voting’ session on the ICE, follow the steps in Section 8.4.2.1.
8. Tabulate the pre-marked test deck of Readiness Testing ballots into the ImageCast® Evolution tabulator by feeding the test deck and then return here to continue with next steps below.
9. Start an Accessible Voting Session and vote a predefined voting pattern.
Please refer to Section 8.4.2.2 for instructions on how to run an AVS session on the ImageCast® Evolution . Return here to continue with the next step below.
10. After all ballots have been tabulated and an Accessible Voting Sessions have been completed, insert the iButton Security Key and close the polls.
For instructions on how to close the poll, see steps 2 through 6 in Section 8.7.1.
11. Allow at least one result tape to print and confirm that you do not need another copy.
For more details see steps 7, 8 and 9 in Section 8.7.1, and then return here to continue with the next step below.
12. Power down the unit by pressing the ‘Shut Down’ icon at the top right corner of the screen.
For more details, see step 11 in Section 8.7.1.
13. On the right side of the ImageCast® Evolution , open the CF1 and the CF2 card slot doors and remove both cards from the tabulator. Place both cards in the envelope provided. These cards will be used for tally in the Results Tally & Reporting application.
14. For each tabulator tested, confirm that the tabulator-level result reports match the expected results from the pre-marked test deck.
15. Repeat this test procedure for each physical ImageCast® Evolution tabulator.

4.2.2.2 Voting Phase Readiness Testing: ImageCast® Central

This section describes the Readiness testing procedure for the ImageCast® Central tabulators. The procedure consists of loading of ICC election files to the ICC workstation and testing each of the ImageCast® Central tabulators by scanning test decks and verifying the results reports.

Before you begin, ensure that the C:\DVS folder contains only the 'bin' folder and that the C:\DVS\bin contains only the ImageCast Central.exe executable file. If there are any other files or folders present in C:\DVS, delete them before proceeding.

NOTE: Test every physical ImageCast® Central tabulator to ensure it is functioning correctly.

1. Before you begin, ensure that the ImageCast® Central workstation and scanner are powered on and ready to load election files.
Refer to Section 6.2 for more instructions. If the ICC workstation is already set up, continue with the next step.
2. Attach the CF card reader into the ImageCast® Central workstation.
3. Navigate to C:\DVS, and create the folder named 'config' inside it.
4. Load an election to the ImageCast® Central system, by inserting the programmed CF card into the CF card reader attached to the ImageCast® Central workstation.
5. Using Windows Explorer, browse to the CF card root directory.
6. Copy all the files and folders on the CF card, and paste them into the "C:\DVS\config" folder on the ImageCast® Central workstation.
7. Open ImageCast® Central application.
See Section 6.4 for instructions on how to open the ICC application.
8. Print the Zero report by selecting the 'STATUS' icon.
For instructions on how to print the Zero report see steps 7 and 8 in Section 6.10.
9. Configure the server path.
For more details on configuring the server path, see Section 6.5.
10. Access Supervisor mode in the ICC application.
See Section 6.6 on how to access Supervisor mode.
11. Set Scanner Properties and ICC Scan Options.
For instructions on setting Scanner Properties and Scan Options, see Section 6.6.1) and Section 6.6.2), respectively.
12. If this is the first tabulator tested, the multi-feed settings need to be verified as explained in Section 6.2.1. However, this verification can be skipped for every next tabulator under test.
13. Tabulate and process the pre-marked test deck of ballots into the ImageCast® Central for that precinct.
See Sections 6.8.1 and Section 6.8.2 on scanning ballots and accepting and discarding batches.
14. Close the poll.
See Section 6.9 on instructions for how to close the poll.
15. Print results report.
See step 2, 7 and step 8 in Section 6.10.

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16. Exit the ImageCast® Central application by clicking on the **EXIT** button. The confirmation dialog will appear. Click **Yes** to exit the application.
 17. Repeat steps 4 through to 13 for each ImageCast® Central physical tabulator. When all tabulators have been tested, proceed to the next section.
 18. For each tabulator tested, confirm that the tabulator-level result reports match the expected results from the pre-marked test deck.

4.2.3 Performing the Post-Voting Election Day Phase Readiness Test

This section provides instructions on how to tally and report results from the ImageCast® Evolution and ImageCast® Central tabulators. Additional instructions can be found in the 'Help' menu within the EMS Results Tally & Reporting application (referred to as RTR).

1. Open the RTR application.
See Section 9.4.1 for instructions on how to open the RTR application. If the project was created by the Dominion Voting's Service Bureau, the RTR user name and password will be provided to the jurisdiction. Jurisdictions programming their own elections will have to have their Administrator create an RTR user account and activate it in EED as described in Section 14.2.4.
2. Open the appropriate Election Project and enter your login credentials.
See Section 9.4.2 for more details.
3. Load the results files, audit log files and result images (if enabled and required) from the ImageCast® Evolution, and the ImageCast® Central into the RTR application.
See Sections 9.4.4 and 9.4.5 on how to load results from memory cards and directory. Once all result files are uploaded, return here and continue with the next step.
4. Validate and publish results files in the RTR application. See Section 9.4.6 on how to validate and publish results in RTR.
5. Create the Election Summary Report.
For instruction on creating Election Summary Report, see Section 9.5.
6. Confirm that the results from the Election Summary Report from RTR matches the tabulator summary reports and the expected test deck results.
7. Review a subset of Audit Marked images in order to confirm that ballot image files are clear and readable and to verify that the system is interpreting the individual ballots correctly. The images can be found in each batch folder on the EMS server - D:\Adjudication\Project_Name\Results\Tabulator_x_x_x_x_x\Batch_x_x_x\Images.

4.3 Logic and Accuracy Testing of System and Components

Formal Logic and Accuracy Testing is required to be conducted in accordance with the Elections Code to ensure that the system has been configured correctly for an election.

This testing is performed using a set of ballots for which the correct results are known ahead of time. Such a test set, also called a test deck, is run through the system to ensure that the results shown by the tabulator are aligned with those expected.

After Logic and Accuracy Testing has been completed, the system must be reset in order to remove the test results. The system can then be locked away in a secure location until actual election ballots are ready to be scanned.

Notify the election supervisor immediately if there are any problems or irregularities during Logic & Accuracy testing. If at any time during the testing the system fails or produces incorrect results that cannot be attributed to human error, notify the election supervisor immediately.

4.3.1 Pre-Conditions for Performance of Tests

4.3.1.1 Restore Election Project

Prior to begging an L & A testing, the Administrator needs to restore the election project. For instructions on how to restore the election project please see Section 14.2.2.

4.3.1.2 Pre-Testing of the Scanning setting with Official election ballots from the certified ballot printer

As mentioned in Section 4.3.2.2, pretesting the Scanning setting with the actual election ballots, as delivered by the certified ballot printer, must be performed.

When the first printed Official ballots and/or test decks are received by the jurisdiction (prior to Logic and Accuracy testing), they should be tested on the ImageCast[®] Central system with the election project to confirm that the tabulator scanning parameter settings and the VRS settings will work with the ballots as printed. With the variety of print methods used to print ballots, and the substantial variation in the types of printing presses, a small batch of ballots, numbering between 50 and 100 ballots (sampled throughout the ballot types and styles) should be tabulated with one of the ImageCast[®] Central tabulators that have been defined in the elections project (usually the Absentee tabulation unit). These ballots will not be marked (although they can be if they are test deck ballots) to confirm that they will not misread and that un-voted voting positions do not read as ambiguous marks.

To run this test, perform the following steps:

1. Setup, load, and prepare your ImageCast[®] Central tabulator for use as per the procedures outlined below.
2. On the Configuration menu, click the “Scan Options” button.
3. The “Scan Option” dialog box will appear.
4. Click the options to “Stop Scan on” on Ambiguous marks.
5. Return to the Scanning menu and start scanning the batch of ballots.
6. In order for the test to pass, there should not be stoppages due to ambiguous marks.
7. If the scanner is stopping due to the ambiguous marks, troubleshoot the scanner by following procedure in Section D.2.1.1.

4.3.1.3 Test Decks Required for Logic and Accuracy Testing

Test decks are generated either manually from unmarked ballots, automatically using the Democracy Suite Test Deck Generator utility, or by a combination of the two methods.

Ensure you test for the handling and reporting of exception ballots (blank, over-voted, write-in, error, etc.) as required by Elections Code. While test decks can be created at the jurisdiction on the EMS ballot printer, actual “Official Ballots” produced by the CA-certified ballot printer should also be included in the test. A control sheet should be created that summarizes the total results for the test decks prior to

beginning the Logic and Accuracy Testing. Pre-marked test decks should be supplied by the jurisdiction's selected certified ballot printer. This ensures that the exact paper, ink, and print process for use on Election Day are being tested.

There are two distinct levels of test decks: "*Ballot Level*" and "*Tabulator Level*". The meanings of the different levels of test decks will become clear when executing the procedures below.

1. **Establish "Ballot-Level" test decks for each ballot style:** Each ballot style will have its own test deck, called a "Ballot Level" test deck. For a given ballot style, each and every voting space on that ballot style must be tested. Therefore, the number of ballots in the "Ballot Level" test deck will depend on the number of candidates that appear on that particular ballot style.

Once the "Ballot Level" test decks have been created for each of the ballot styles, conduct tabulator and manual counts in order to determine the results for each "Ballot Level" test deck.

2. **Establish "Tabulator Level" test decks for each tabulator:** Each tabulator will also have its own test deck called a "Tabulator Level" test deck. The test deck for a given tabulator will simply be the combination of the "Ballot Level" test decks for each of the ballot faces that the tabulator is programmed to accept.

If applicable, the "Tabulator Level" test deck for a given tabulator should include ballot styles that the tabulator is programmed to reject in order to ensure that it has been correctly programmed to do so. For example, if the tabulator is programmed to read Ballot Style 1 of 80, another style (of the 80) should be scanned to verify that the machine is programmed to reject them.

The results for each of the "Tabulator Level" test decks can be determined by manually adding together the results from each of the "Ballot Level" test decks that comprise the particular "Tabulator Level" test deck.

4.3.1.4 Backup of Election Project

Ensure that the EMS Administrator has backed up Election Project (see Section 14.2.1) prior to starting the Logic and Accuracy Test.

The project package created during this back up procedure must be manually copied and saved to a dedicated and safe location. The folder where the project is saved should be named distinctly in order to differentiate it in the future.

4.3.2 Logic and Accuracy Test Procedures

Once the system has been fully configured, and as soon as possible after receipt of the first set of official election ballots from the printer, the jurisdiction must conduct formal "Logic & Accuracy" testing in order to confirm that the system has been correctly configured, and that all components are functioning properly. The process of Logic & Accuracy testing is described generally, and then more specifically in the sections to follow.

Note that the detailed Logic & Accuracy testing procedures may vary from one jurisdiction to the next. The procedures presented in this document are suggestions only, and the applicable laws and regulations of the jurisdiction must ultimately determine the specific testing process to be followed. This testing should be performed prior to every election.

On a high level, Logic & Accuracy testing consists of the following basic steps:

- Restoring or programming of an Election Project in the Election Management System.

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- Generate test ballots (test decks), either manually from unmarked ballots, or automatically using the EMS Test Deck application with a predetermined voting pattern and expected result totals.
 - Running of the appropriate test decks through each of the tabulators in the system.
 - Closing of the polls and inspecting the results tapes to ensure that the results are correct for each tabulator.
 - Uploading of results files from all ICE and ICC tabulators into the RTR application.
 - Running Election Summary Report.
 - Additionally processing ballots from Early Vote ICE's and Election Day ICE (single precinct ICE's with unqualified write-ins and multiple precinct ICE's with any write-in votes) as described in Official Canvass and Post-Election Procedures chapter. This includes re-scanning those ballots on appropriate ICC tabulators, adjudicating ballots with outstack conditions (this will be mainly write-ins) and then submitting adjudicated bathes for import to RTR.
 - Managing Election Day and Early Vote ICE results in RTR
 1. Rejecting results in RTR for single precinct Election Day ICE tabulators that contain certified write-in votes, resolving write-in votes and then publishing the results again.
 2. Rejecting and then deleting results from ICE tabulators that were rescanned on ICC and adjudicated in simulated post-election period.
 - Importing all results into RTR, validating and publishing results and then generating reports and comparing the results from these reports with the expected result totals for the test decks.
 - If any vote discrepancies or errors are encountered during this process, the ballots and the procedure must be reviewed as human error is the most likely the cause. Otherwise, the Administrator is informed immediately. Once the problem has been corrected, repeat the entire Logic & Accuracy testing procedure for the affected tabulator(s).
 - If there are no errors or discrepancies, sign and date the forms certifying that the Logic & Accuracy testing has been conducted successfully. These forms should be retained, along with the test decks, as part of the test documentation records for the election.
 - Finally, each of the tabulators are re-zeroed and the results database is purged in order to delete the Logic & Accuracy results from the system prior to the actual election.

These steps are also summarized in the Figure 4.2.

Once the Logic & Accuracy testing is complete and the system has been re-zeroed, all components of the system must be stored in a secure location until the election (or until the first early voting opportunity) in order to ensure that they cannot be accessed or tampered with.

The Logic & Accuracy testing is described in the four subsections below. The process starts with detailed procedure for ImageCast[®] Evolution , then ImageCast[®] Central tabulators, Post-Election Processing and Adjudication and it ends with detailed procedure for results processing in the EMS RTR application.

	VBM	Early	Election Day	
E-7 to E Day	1. Scan all ballots on the ICC connected to all precincts	Scan ballots on one or more ICE tabulators connected to many or all precincts	Scan ballots on ICE tabulators belonging to one or more precincts	
E Night	2. Stop scanning at cutoff time and import results to RTR	Import results to RTR from CF cards after polls closed	Import results to RTR from CF cards after polls closed	
	3. Validate and Publish results and run Election Night Summary Report			
E+1 to E+30	4. Continue with scanning ballots on the ICC connected to all precincts	Delete results from RTR	Reject results for ICE in RTR	
	5. Adjudicate ballots in batches, resolving write-ins and other exceptions.	Rescan all ballots on the ICC connected to all precincts and Early Voting counting group	Resolve write-in names in RTR	
	6. Import adjudicated results to RTR	Adjudicate ballots in batches, resolving write-ins and other exceptions.	OR	
	7.	Import adjudicated results to RTR	Delete results from RTR	
	8.		Re-scan all ballots on the ICC connected to all precincts and Early Voting counting group	
	9.		Adjudicate ballots in batches, resolving write-ins and other exceptions.	
	10.		Import adjudicated results to RTR	
	11.	Validate and Publish results and run Canvass SOV Report		

Figure 4.2: Use Procedure Workflow

4.3.2.1 ImageCast® Evolution Logic and Accuracy Test Procedures

This section describes the Logic & Accuracy testing procedure for the ImageCast® Evolution (referred to as ICE) tabulators. The procedure consists of loading election files to an ICE tabulator and testing of these election files by scanning ballots and verifying the reports in RTR. This procedure is repeated for each ICE tabulator programmed in the Election Project.

NOTE: The ballots from **ICE tabulators handling multiple precincts** and **single precinct ICE tabulators containing unqualified write-ins**, if such tabulators exist, will then be re-scanned on the appropriate ICC tabulators. The originally imported results for such tabulators will be deleted in RTR. The ballots will then be adjudicated and imported into RTR, as described in Section 4.3.2.3. After testing is complete, the CF cards used will be re-zeroed and stored for later use in official ballot processing.

NOTE: **Make sure to test every tabulator that is defined in the Election Project (including any spare tabulators defined, that might be used for election day replacement).**

1. Burn the CF cards and corresponding iButton for ICE to be tested.
For instructions on how to burn the CF cards and iButton please see Sections C.2.6.1 and C.2.6.2.
2. Insert the memory card containing the Election Project into the CF1 card slot of the ICE tabulator, and the Initialized backup memory card into the CF2 card slot on the tabulator.
For more details on how to do this, please see step 2 in Section 3.1.1.
3. Power up the ICE tabulator by lifting the LCD monitor into the operating position.
For instructions on the power on procedure, see steps 3 through to 7 in Section 3.1.1.
4. When prompted by the LCD screen, insert the iButton Security Key and enter the appropriate password.
For more details, see step 8 and 9 in Section 3.1.1.
5. Visually confirm that the date and time are correct by looking at the lower left section of the ICE LCD screen.
6. Open the polls.
For instructions on how to open polls, see steps 12 through to 21 in Section 8.3.1.
7. Prepare the ICE for scanning by activating the ‘Standard Voting’ session.
For instructions on how to activate the ‘Standard Voting’ session on the ICE, follow the steps in Section 8.4.2.1.
8. Tabulate the pre-marked test deck of Logic & Accuracy Testing ballots into the ICE tabulator by feeding the test deck and then return here to continue with next steps below. **NOTE:** Please note and confirm the tabulators’ handling of any exception ballots per DCF/MBS that were set according to jurisdictional procedures.
9. Start an ‘Accessible Voting Session’ and vote a predefined voting pattern for every language defined in the Election Project. Test every candidate position at least once, and verify that the audio message matches the visual ballot display.
Please refer to Section 8.4.2.2 for instructions on how to run an AVS session on the ICE.
10. After all ballots have been tabulated and an Accessible Voting Sessions have been completed, insert the iButton Security Key and close the polls.
For instructions on how to close the poll, see steps 2 through 6 in Section 8.7.1.
11. Allow the two result tapes to print and confirm that you do not need another copy.
For more details on printing results tape, see steps 7, 8 and 9 in Section 8.7.1.

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12. Power down the unit by pressing the ‘Shut Down’ icon at the top right corner of the screen.
For more details, see step 11 in Section 8.7.1.
 13. On the right side of the ICE, open the CF1 and the CF2 card slot doors, and remove both cards from the tabulator. Place both cards in the envelope provided. These cards will be used for tally in the Results Tally & Reporting application.
 14. For each tabulator tested, confirm that the tabulator-level result reports match the expected results from the pre-marked test deck.
 15. Open the EMS Results Tally & Reporting application (referred to as RTR).
See Section 9.4.1 for instructions on how to open the RTR application. If the project was created by the Dominion Voting’s Service Bureau, the RTR user name and password will be provided to the jurisdiction. Jurisdictions programming their own elections will have to have their Administrator create an RTR user account and activate it in EED as described in Section 14.2.4.
 16. Open the appropriate Election Project and enter your login credentials.
See Section 9.4.2 for more details.
 17. Load the results files, audit log files and result images (if enabled and required) from ICE tabulators.
See Sections 9.4.4 on how to load results from memory cards. Once all result files are uploaded, return here and continue with the next step.
 18. Validate and publish results files in the RTR application.
See Section 9.4.6 on how to validate and publish results in RTR.
 19. Create the Election Summary Report.
For instruction on creating Election Summary Report, see Section 9.5.
 20. Confirm that the results from the Election Summary Report from RTR matches the tabulator summary reports and the expected test deck results.
 21. Review a subset of Audit Marked images in order to confirm that ballot image files are clear and readable and to verify that the system is interpreting the individual ballots correctly. The images can be found in each batch folder on the EMS server - D:\Adjudication\
Project_Name\Results\Tabulator_x_x_x_x_x\Batch_x_x_x\Images.

4.3.2.2 ImageCast® Central Logic and Accuracy Test Procedures

This section describes the Logic & Accuracy testing procedure for the ImageCast® Central (referred to as ICC) tabulators. The procedure consists of loading each set of ICC election files and testing these election files by scanning test decks and verifying the results reports. The election files for each ICC tabulator are loaded, test decks scanned, adjudicated and the results uploaded to EMS RTR. The testing procedure is repeated for each of the ICC tabulators defined in the project. After testing is complete, the test results are archived.

NOTE: Make sure to test every tabulator that is defined in the Election Project (including any spare tabulators defined, that might be used for election day replacement).

1. Before you begin, ensure that the ICC workstation and scanner are powered on and ready to load election files.
Refer to Section 6.2 for more instructions. If the ICC workstation is already set up, continue with the next step.

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2. The election administrator will need to copy sets of ICC election files from the EMS Server to the ICC workstations (if there is more than a single ICC scanner used by a jurisdiction) and prepare each set of election files to be loaded on ICC workstations.

Please refer to Section 14.3 for instructions on transferring and preparing the ICC election files.

NOTE: If the election project has been prepared by the Dominion Voting Systems Service Bureau, the prepared ICC election files will be provided along with the election project. The only step that must be performed is copying the files to the ICC workstation.

After the ICC election files have been copied over, continue to the next step.

3. Ensure that the administrator is in possession of a labelled iButton that corresponds to each set of ICC election files.
For instructions on creating iButtons see Section C.2.6.2.
4. The election administrator will need to deploy each set of election files to be tested, by moving the appropriate 'DVS' folder to the root of the C: drive.
Follow the steps in Section 14.4.2.
5. Open ICC application.
See Section 6.4 for instructions on how to open the ICC application.
6. Print the Zero report by selecting the 'STATUS' icon.
For instructions on how to print the Zero report see steps 7 and 8 in Section 6.10.
7. Configure the server path.
For more details on configuring the server path, see Section 6.5.
8. Access Supervisor mode in the ICC application.
See Section 6.6 on how to access Supervisor mode.
9. Set Scanner Properties and ICC Scan Options.
For instructions on setting Scanner Properties and Scan Options, see Section 6.6.1) and Section 6.6.2), respectively.
10. If this is the first tabulator tested, the multi-feed settings need to be verified. However, this verification can be skipped for every next tabulator under test.
For instructions on how to verify multi-feed settings, see Section 6.2.1.
11. Tabulate and process the pre-marked test deck of ballots into the ICC for that precinct.
See Sections 6.8.1 and Section 6.8.2 on scanning ballots and accepting and discarding batches.
12. Close the poll.
See Section 6.9 on instructions for how to close the poll.
13. Print results report.
See step 2, 7 and step 8 in Section 6.10.
14. Exit the ICC application by clicking on the **EXIT** button. The confirmation dialog will appear. Click **Yes** to exit the application.
15. Have the Administrator back up the entire DVS directory.
See Section 14.4.1 for further instructions.
16. Repeat steps 5 through to 13 for each ICC tabulator.

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17. For each tabulator tested confirm that the tabulator-level result reports match the expected results from the pre-marked test deck.
 18. Open the EMS Results Tally & Reporting application (referred to here as RTR).
See Section 9.4.1 for instructions on how to open the RTR application. If the project was created by the Dominion Voting's Service Bureau, the RTR user name and password will be provided to the jurisdiction. Jurisdictions programming their own elections will have to have their Administrator create an RTR user account and activate it in EED as described in Section 14.2.4.
 19. Open the appropriate Election Project and enter your login credentials.
See Section 9.4.2 for more details.
 20. Load the results files, audit log files and result images (if enabled and required) from the ICC tabulators into the RTR application.
See Section 9.4.5 on how to load results from directory. Once all result files are uploaded, return here and continue with the next step.
 21. Validate and publish results files in the RTR application.
See Section 9.4.6 on how to validate and publish results in RTR.
 22. Create the Election Summary Report.
For instruction on creating Election Summary Report, see Section 9.5.
 23. Confirm that the results from the Election Summary Report from RTR matches the tabulator summary reports and the expected test deck results.
 24. Review a subset of Audit Marked images in order to confirm that ballot image files are clear and readable and to verify that the system is interpreting the individual ballots correctly. The images can be found in each batch folder on the EMS server - D:\Adjudication\Project_Name\Results\Tabulator_x_x_x_x\Batch_x_x_x\Images.

4.3.2.3 Adjudication and Post-Election Processing Logic and Accuracy Test Procedures

Up to this point, the L & A procedure covered testing of Pre-election and Election Day period activities. This section describes the procedure for testing the Post-Election Day period activities. In this period the adjudication of Absentee/All Mail ballots takes place and additional processing of ballots from ICE tabulators might be required.

1. **NOTE: This step only applies in case you have Early Vote ICE tabulator(s) in your L& A test handling more than one precinct that contain ballot(s) with certified or uncertified write-in in votes.**
Reject and then delete result files for those ICE tabulators from the RTR. Then, rescan ballots from such tabulator(s) on the appropriate ICC tabulator.
For detailed instructions on how to do this, see Section 11.5.
2. **NOTE: This step only applies in case you have Election Day ICE tabulator(s) handling more than one precinct that contain ballot(s) with write-in votes AND/OR Election Day ICE tabulator(s) handling one precinct that contain ballot(s) with unqualified write-in votes.**
Reject and then delete result files for those ICE tabulators from the RTR. Then, rescan ballots from such tabulator(s) on the appropriate ICC tabulator.
For detailed instructions on how to do this, see Section 11.6.

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3. The Adjudication Administrator should log into the EMS Server, open and configure the Election Project and then start adjudication.
For introductory information on adjudication and a description of user roles such as the Adjudication Administrator, read the start of Chapter 10 and Section 10.1.1, and then return here. For instructions on how to open and configure an Election Project and start adjudication, see Section 10.2 and then return here.
 4. The General Adjudication User(s) should log into the remote client workstation(s) and adjudicate ballots. This step in the procedure can be done in parallel with the next step or they can be executed sequentially as listed.
For instructions on how to adjudicate ballots, see Section 10.3, and then return here.
 5. The Adjudication Administrator performs administrative tasks, such as managing batches, running reports and submitting batches to RTR for tallying.
For instructions on how to execute administrative activities, see Section 10.4 and then return here.
 6. **NOTE: This step only applies in case you have an Election Day ICE handling only one precinct, that contain ballots with certified write-in(s).**
Resolve write-in votes for such tabulators in RTR.
For instructions on how to resolve certified write-ins in RTR, see Section 11.8.1.
 7. Import all adjudicated results into RTR.
For instructions on how to import adjudicated results into RTR, see Section 11.10.
 8. Run the Statement of Votes Cast report in RTR.
For instructions on how to run this report, see Section 11.11.
 9. Compare and verify that the Statement of Votes Cast report matches the expected results.

4.3.3 Logic and Accuracy System Test Acceptance Criteria and Completeness

Logic and Accuracy testing is only complete when all results are accurate. Any errors found should be corrected, and the appropriate tests should be repeated until accurate results are achieved.

To verify the completeness of the System Logic & Accuracy Test, confirm the following:

- That the tabulator-level result reports match the expected results from the pre-marked test decks.
- That exception ballots are properly handled by the tabulator per the DCF/MBS settings.
- That the individual tabulator reports from RTR match the tabulator level result reports.
- That the summary report for each counting group defined in the Election Project matches the sum of all individual tabulator level reports for that group.
- That the Statement of Votes Cast report after adjudication of ballots matches the expected results.
- That the ballot image files are clear and readable from both ImageCast[®] Central and ImageCast[®] Evolution .
- That the tabulator “Counting Groups” are configured correctly, and according to jurisdiction preference, with regards to separating the ImageCast[®] Central count results from Precinct results. This is imperative for obtaining the correct X of Y values in percentage of precincts reported.

4.4 Backing up the Logic and Accuracy Test Results

Before resetting the system for election day, make sure that the EMS Administrator has backed up the results from the entire system. This includes the following:

1. A backup of the Election Project containing the results from the executed L&A System Test. See Section 14.2.1 on how to back up a project. The project package created during this back up procedure must be manually copied and saved to a dedicated folder on the EMS Server. Name this folder distinctly so it can be identified in the future.
NOTE: Do not rename the project package.
2. A backup of the ImageCast[®] Evolution by storing the labeled CF cards in a safe place. ICE results that were imported into the EMS RTR during the L&A test will be preserved within the backed up Election Project package. The CF cards need to be clearly labeled so that they can be safely returned into their respective ICE units during the preparation for Election Day.
3. A backup of the entire Adjudication folder from the D:\drive and databases on the EMS server. See the start of Section 14.5 for general information on backing up Adjudication. For instructions on how to back up the Adjudication databases, see Section 14.5.1. For instructions on how to back up the Adjudication folder, see Section 14.5.2.
4. A backup of all ICC election files containing results from the L & A test by **moving** the entire **C:\ICC Election Files** folder to a safe place.
NOTE: After backing up, make sure that the Administrator deploys the master copy of ICC Election Files to the C: drive of ICC workstations so that the system is ready for Election Day.

4.4.1 Stopping Adjudication After Logic and Accuracy Testing

Once L & A is complete, the Adjudication Administrator should log into the EMS server and stop adjudication.

For instructions on how to do this, see Section 10.4.7, and then return here.

4.4.2 Retention and Documentation of Test Materials

Reports generated by products within the Democracy Suite[®] product line during logic and accuracy testing should be retained along with test decks, and any supplementary testing materials, for the retention period required by California law. Place all documentation in envelopes and/or boxes. Seal, initial, and date the envelopes and/or boxes, as required by California law. This retention period should take place in a secured location with restricted access to those designated by the jurisdiction. If the Democracy Suite[®] system is used in a federal election, testing materials must be retained for a period of 22 months as required by federal regulation.

A listing of the available reports on ImageCast[®] Evolution can be found in Appendix G. A description of available reports on ImageCast[®] Central is available in Section 6.10.

Chapter 5

Post-L & A Preparation for Election Day

After successful completion of L & A System Test, election equipment must be prepared for election day.

5.1 Election Project Backup

The jurisdiction should send the initial backup of Election Project to the Secretary of State pursuant with the California election code.

5.2 Purge the System of Test Results

Once testing is complete, the entire system must be purged prior to using it for the election. The Election Administrator should ensure that the L & A test results are purged from the following locations:

1. Purging the ImageCast[®] Evolution tabulator level results from each individual memory card. Refer to Section F.1. Leave the CF cards inside the ImageCast[®] Evolution , so that the unit can be physically secured for the Election Day as described in Section 5.4.
2. Purging the Results Tally & Reporting database. Refer to Section 9.4.2 for instructions on how to open an election project in RTR and 14.6.1 to purge the results.
3. Purging of all Adjudication files from the EMS Server by deleting the contents of the D:\Adjudication folder. Refer to Section 14.6.2.
4. ImageCast[®] Central files were backed up and cleared in Section 4.4 and a new copy of the master set of election files (created in Section 14.3), were deployed at that time.

5.3 Hardware Maintenance and Preparation For Use

5.3.1 ImageCast[®] Evolution Maintenance and Preparation

The ImageCast[®] Evolution does not require any software or preventative periodic maintenance tasks such as database performance analysis, software backup, or database tuning. However, it is recommended to periodically execute each of the following:

-
- Paper transport cleaning
 - Internal printer cartridge removal/replacement/storage
 - Internal battery recharging

5.3.1.1 Maintenance Equipment

Special purpose test and maintenance equipment for Technicians, as well as parts and materials required for fault isolation, diagnostic and maintenance purposes, are listed below:

Basic Tool Kit

- T7, T10 and T20 Security Torx screw drivers
- 9/32" Socket wrench
- Size #1 and Size #2 Phillips Screwdrivers
- T10 and T20 Torx Screwdrivers
- Extra hardware (T7, T10 and T20 screws)
- Pair of Pliers
- Two (2) extra iButton security keys
- DB9 Serial Cable
- PC with Windows 2000/NT/XP/Vista/7 OS and a Serial Port for Diagnostics debugging

Parts and Materials

- Dust cloth and Alcohol(>70% Ethanol)
- Diagnostics Test ballot
- Two (2) Thermal Printer Paper rolls (3" 75ft)
- Two (2) power supplies (19VDC Adaptor)
- Two (2) 14.8VDC Battery Packs
- Two (2) Audio Tactile Interface (ATI) units
- Two (2) Contact Image Sensors (CIS)
- One (1) Main Processor/Controller Board
- One (1) Scanner Controller Board
- Cotton swabs or Soft, Lint-free piece of material
- Distilled/bottled water
- Calibration Test Ballot
- Two (2) inkjet printer cartridges

5.3.1.2 ImageCast® Evolution Cleaning Procedures

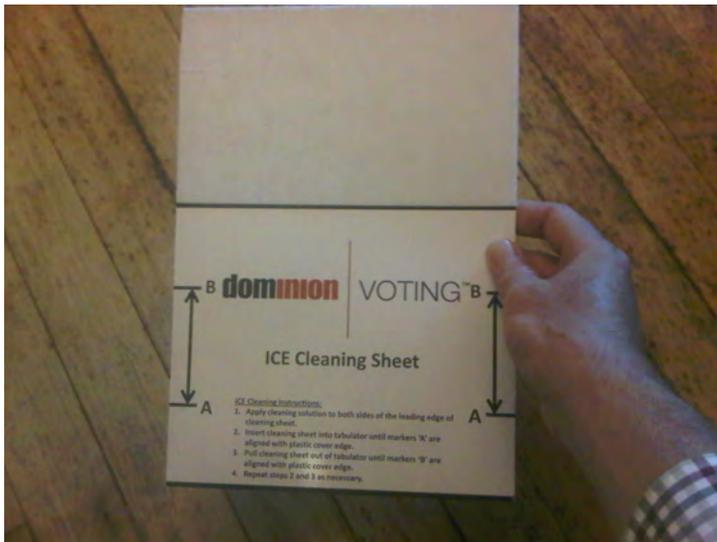


Figure 5.1: The ImageCast® Evolution Cleaning Sheet

This section describes the procedure for cleaning the paper path of Dominion Voting Systems ImageCast® Evolution using the specified Cleaning Sheet. To perform the cleaning procedures, be sure to obtain a DVS Specified Cleaning Sheet and a sealable eye-dropper or squirt bottle with cleaning solution: >70% Ethanol (Ethyl-alcohol).

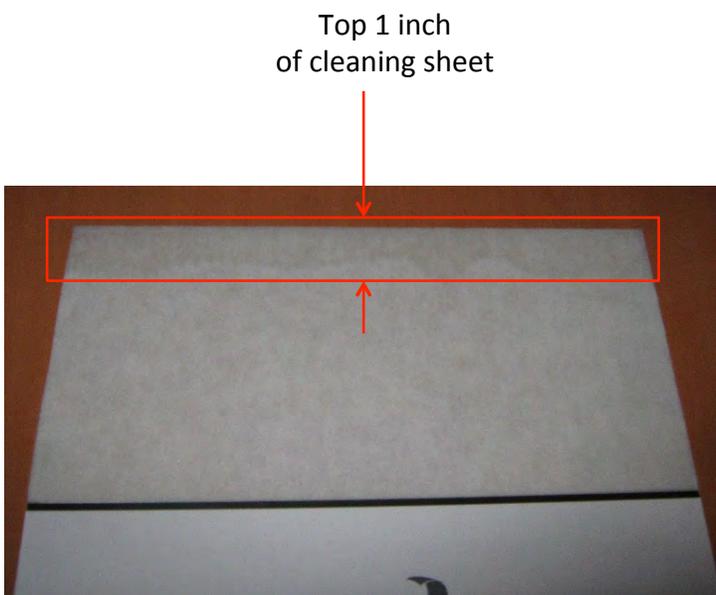


Figure 5.2: The Leading Fabric Edge

Step 1: Power down the unit, collapse the Touchscreen Monitor into its storage position and turn OFF the Service ON/OFF switch. Ensure that all LED lights on the unit are *off*.

Step 2: Fill the eye-dropper with cleaning solution and use it to place one horizontal line of solution along the top 1" of the leading fabric edge of the sheet as seen in Figure 5.2.

Step 3: Insert this end of the DVS Specified Cleaning Sheet into the tabulator.



Figure 5.3: Inserting ICE Cleaning Sheet

Step 4: Continue to feed the sheet into the tabulator until the “A” line on the cleaning sheet is aligned with the bottom surface of tabulator’s entry slot cover.

Step 5: Pull the cleaning sheet until “B” line on the cleaning sheet is aligned with this plastic cover edge.

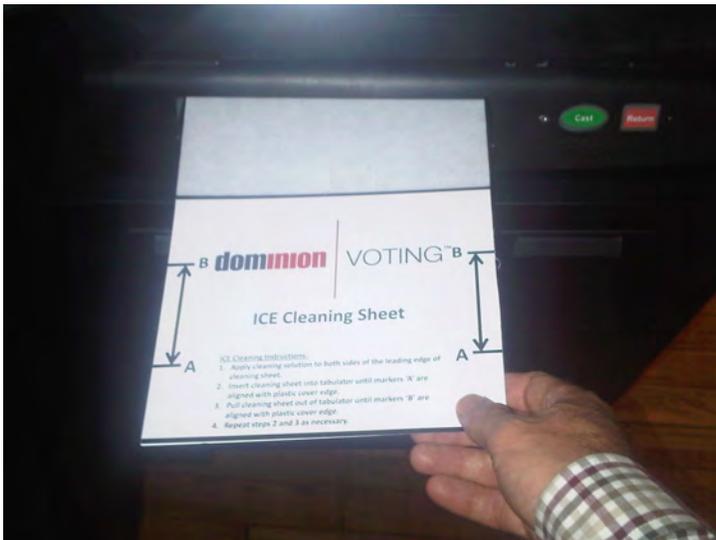


Figure 5.4: Feeding the ICE Cleaning Sheet Back and Forth

Step 6: Repeat steps 4 and 5 as required in a back and forth motion. Note that the leading edge of the cleaning sheet passes over the upper and lower scanners as the sheet is moved between the “A” and “B” marks.

Step 7: Lift the Touchscreen Monitor into its operating position and power up the unit by turning ON the Service switch.

Step 8: Run several (10) blank sheets or ballots through the main path to remove any residual cleaning solution.

Step 9: Verify the scan quality by scanning in valid ballots, and repeat the procedure if required.

5.3.1.3 Internal Printer Cartridge Removal/Replacing and Storage

If time between the ImageCast® Evolution usage is expected to exceed two months, it is recommended that the Integrated Printer’s inkjet cartridge be removed and stored appropriately to prevent it from drying out.

Removing/Replacing Printer Inkjet Cartridge

1. Navigate to the Diagnostics menu on the ImageCast® Evolution’s touchscreen.

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2. Press **Replace** under the 'Cartridge Replacement' menu. This will initiate the Cartridge Carriage alignment procedure to allow easy accessibility of the ink cartridge for removal.
 3. To access the Inkjet Printer from the rear of the tabulator, unscrew the two T20-type Torx Security screws on the rear access door.
 4. On the printer baffle, press the two tabs along the center of the baffle inwards and pull outward to open the door.
 5. Press the latch tabs on the cartridge release cover and lift it upward.
 6. Using your thumb, slightly press down on the front top edge of the inkjet cartridge to tilt and slide it out of the carriage.
 7. Remove the replacement print cartridge from its packaging.
 8. Carefully remove the plastic tape covering the ink nozzles. **NOTE:** Do not touch the print cartridge ink nozzles or copper contacts. Touching these parts will result in clogs, ink failure, and bad electrical connections.
 9. Hold the print cartridge so that the electrical contact points are facing toward the printer, and then slide the print cartridge into the carriage.
 10. Push down on the cartridge release cover until it snaps closed.
 11. Close the Printer Access door.
 12. Secure the Rear access door back in place with the two T20-type Torx Security screws.
 13. On the Touchscreen LCD, press the **I'm Done** button.

Storage Procedure

1. Place the cartridge in a standard 4 1/8" x 9" paper envelope such that its contact and nozzles do not touch the envelope. Squeeze out the air in the envelope before sealing it.
2. Place the paper envelope in an airtight container such as a rigid sealed plastic container, or a resealable plastic bag.
3. Place a water-soaked sponge in the plastic container/bag. (squeeze out air in the bag before sealing it).
4. Store the cartridge in a dark area at room temperature (15-35 degree Celsius).

It is recommended that a printing test is run prior to the machine's deployment. This test ensures that the print quality meets expected standards.

5.3.1.4 Installing the Audio Tactile Interface or the A.T.I

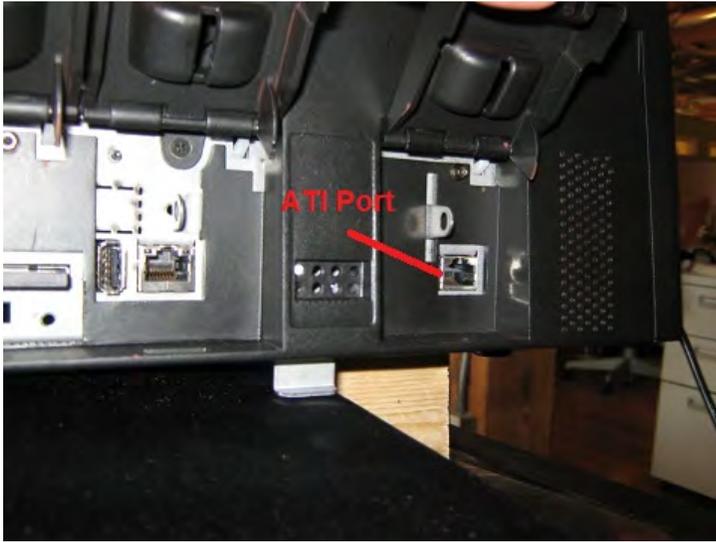


Figure 5.5: A.T.I. Port on the ICE.

1. The A.T.I. device needs to be plugged in before powering up the unit. Open and lift up the fourth (4th) door on the right side of the ICE to expose the A.T.I. port.



Figure 5.6: A.T.I. Device Plugged into the ICE.

2. Plug in the A.T.I. cable into the A.T.I. port.



3. Connect the headphones to the headphone jack on the bottom right of the ATI.

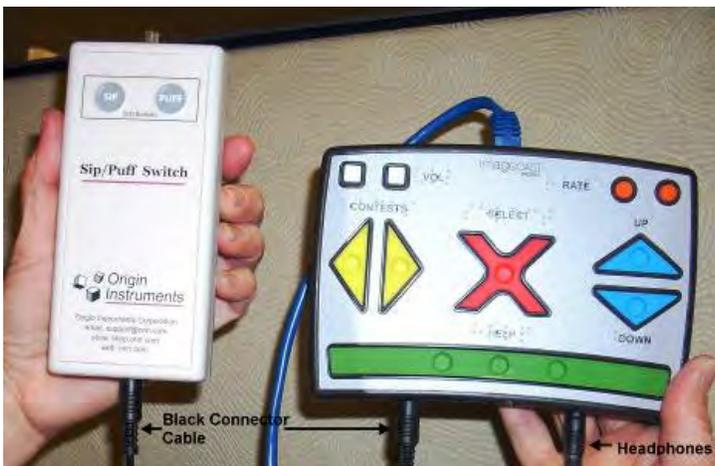
Figure 5.7: Connect the headphones to the headphone jack at the bottom of the ATI.

5.3.1.5 Connecting the Paddles and Sip & Puff



1. Paddles can be connected to the ATI via the 3.5 mm Sip & Puff jack located on the unit.

Figure 5.8: Connecting the Paddles to the ImageCast® Evolution



2. The Sip & Puff can be connected to the ATI via the 3.5 mm Sip & Puff jack located on the unit.

Figure 5.9: Connecting the Sip/Puff to the ImageCast® Evolution

5.3.1.6 Internal Battery Recharging

In order to obtain maximum battery life, periodic maintenance of the internal back-up battery is important. It is therefore recommended that the internal back-up battery be charged for at least 12 hours every eight months when the unit is in power-off mode/storage.

It is equally important to ensure that the internal battery is fully charged before the unit is deployed on Election Day.

The Battery Status is indicated using visual indicators on the ICE side panel.

To charge the battery, connect the unit to a standard 120V, 60Hz AC Power Supply and ensure that the Touchscreen LCD is in its horizontal position and the Service Switch in the ON position.

5.3.2 ImageCast[®] Central Maintenance and Preparation

Maintenance procedures for the ImageCast[®] Central scanner configurations can be found in commercial off-the-shelf product documentation.

5.4 Physical Security

Once the system has been purged of L & A results and the ImageCast[®] Evolution maintenance and preparation has been completed, all equipment needs to be physically secured in final preparation for the Election Day. Please refer to Section F.2 for these procedures.

Chapter 6

Absentee/Mail Ballot Procedures (Central Tabulation)

Absentee/Mail Ballot tallying procedures are accomplished within the Democracy Suite[®] platform through the use of the ImageCast[®] Central high speed scanner (Canon DR-X10C) and ImageCast[®] Central application. The ballots are removed from envelope, inspected, and prepared as batches for scanning on the ImageCast[®] Central . All ballots are then scanned as per procedures explained in this chapter. Absentee/Mail ballots may be scanned starting from seventh day prior to Election Day until the jurisdictionally determined ‘cut off’ time during the Election Day.

6.1 Preparing Absentee/Vote by Mail Ballots for Tally

Absentee ballots must be properly prepared for ballot tally. Absentee ballots improperly prepared can cause ballot jams and can damage Absentee ballots. Perform the following steps to properly inspect Absentee ballots and to ensure proper functioning of the ImageCast[®] Central :

1. Ballots must be inspected for foreign objects such as staples, tape, or paper clips. All foreign objects must be removed from the ballots. If the ballots have stubs, these should also be removed.
2. Folded ballots must be unfolded, oriented with folds in the same direction, and re-folded in the opposite direction, against the crease, to flatten the ballot.
3. Ballots must be inspected for damage, such as torn or frayed edges or cuts from opening the envelope. The readability of the ballot may be questioned if the ballot markers or voting areas on the ballot have non-acceptable marks. For example:
 - Bad or illegible printing on the ballot.
 - Voter marking in the ballot ID, or ballot marker areas of a ballot.
 - Damaged ballot.
 - Wrong marking pen used (e.g red ink or highlighters).
 - Greasy fingerprints, spots, or other contamination.
 - Incorrect ballot trimming.
4. All damaged or unreadable ballots should be dealt with according to your jurisdiction’s procedures.

6.2 Setting up the ImageCast® Central Workstation and Scanner

Setting up the ImageCast® Central workstation and scanner was performed during the installation of the system as per *Dominion Voting Systems Democracy Suite Installation Procedures*, Chapter 3.

The following steps should have been executed during that process and are repeated here for completeness. If your ImageCast® Central system has been set up, go to Section 6.3.



Figure 6.1: ImageCast® Central Application on Desktop

1. Attach the power cord into the ImageCast® Central workstation, and plug it into a working AC Outlet. Plug the mouse, keyboard, CF card reader, and iButton security key reader into the USB ports of the workstation and arrange them for comfortable and accessible use.
2. Plug in the scanner and attach the USB cable to the Kofax card USB port on the back of the scanner. Plug the other end of the scanner USB cable to a USB port on the workstation.
3. Power on the scanner and wait for 'READY' to appear on the scanner LCD.
4. Power on the ImageCast® Central workstation.
5. Log into the ImageCast® Central workstation as the "icadmin" and enter your password.

6.2.1 Setting up the Canon DR-X10C Scanner

6.2.1.1 Enabling Multifeed

Enabling multifeed detection specifies that the scanner should analyze the length of each page to detect pages that does not match the paper size selected in the ImageCast[®] Central application. If a change in page length is detected, a multifeed condition is reported. This setting is appropriate for batches that are expected to consist of identical page sizes.

Ultrasonic detection allows for the scanner to properly detect double feeding of ballots by the thickness of the paper. This feature detects if multiple ballots are drawn into the scanner and prevent them from scanning. If your election project uses ballots of varying lengths, the Detect by Length option should be disabled.

This setting is configured in the VRS application, and instructions to reconfigure the scanner can be found in the *California Installation Procedures, Chapter 3, Section 3.7.6 - Additional Scanner Settings for ICC Use*. In addition, the following steps should be performed on the scanner itself to set the Multifeed option. In order to do so, the Double Feed Retry must be turned off.

6.2.1.2 Stand-by Mode

Verify that the “Stand-by Mode” is set to maximum (240 minutes).

1. Press **Menu** button on the scanner.
2. Use the arrow buttons to change menu item until you reach “Stand-by Mode” item.
3. Press the **Enter** button to activate the selection. Brackets will be flashing and you can use the arrow keys to navigate to the 240 option on the screen.
4. Press **Enter** to save the setting.

6.3 Loading an Election to the ImageCast[®] Central System

ImageCast[®] Central election files were prepared in Section 14.3 and a new copy was transferred to the ImageCast[®] Central workstation after L & A testing (see Section 4.4, step 4). They are located in the **C:\ICC Election Files** folder.

To load election files for Absentee/Mail tabulator, do the following:

1. Backup and remove the existing DVS folder if required (see Section 14.4.1).
2. Navigate to **C:\ICC Election Files** and open the desired tabulator folder.
3. **Move** the DVS folder to the root of the C: drive.

NOTE: Once finished scanning on the tabulator, make sure you move the ‘DVS’ folder back to it original location in ‘C:\ICC Election Files,’ before loading election files for another tabulator. See Section 14.4.1.

6.4 Opening ImageCast[®] Central Application

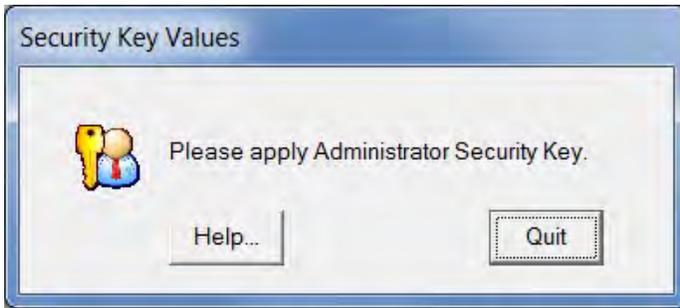


Figure 6.2: 'Apply Administrator Security Key' Prompt

1. Start the application from the shortcut on the task bar. When prompted, enter the Windows administrative password and ICC administrative passcode.
2. If this is the first time you are using the ImageCast® Central, a dialog box may appear asking for the Local Configuration Path. Enter "C:\DVS\" into the Local Path dialog or browse to that location. Once entered, the dialog box will disappear, and the ImageCast® Central application will begin running its power-on diagnostic tests.
3. Apply the iButton security key when prompted by the application during the initial execution. This action will decrypt the election files. **NOTE:** The application will not continue if an incorrect security key has been applied. Errors encountered here indicate that the iButton security key needs to be re-programmed in EMS EED with the correct coding associated with the election you wish to load. For instructions on how to program the iButton, please see Section C.2.6.2.

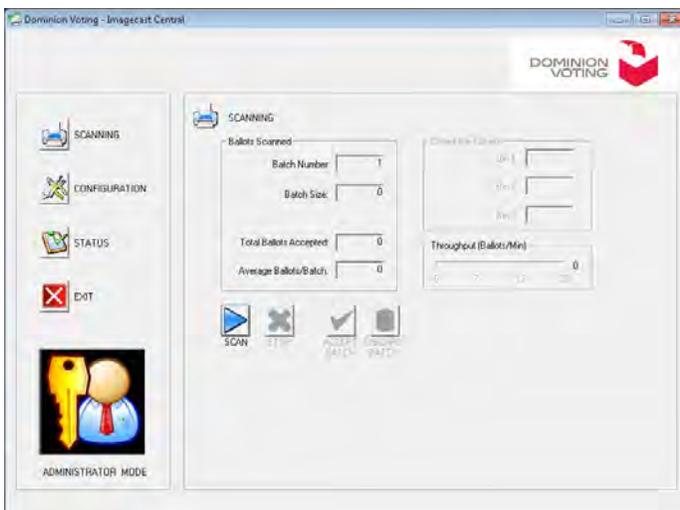


Figure 6.3: The Scanning Menu in Administration Mode

4. Once the passcode is correctly entered, the ImageCast® Central application enters Administrator Mode and presents the **Scanning** menu as depicted in Figure 6.3. This menu provides information on the number of ballots scanned, the batch number and size, and the amount of ballots accepted. The application remains in Administrator Mode unless the iButton security key is removed. If removed, the ImageCast® Central application enters User Mode.

6.5 Configuring the Server Path

Navigate to the **Configuration** menu found on the left side of the application screen. The 'Paths' area in Figure 6.4 depicts both the Local and Server Paths. By default, the Local Path is set to "C:\DVS", which is also the directory out of which the application runs.

Set the Server Path to the location of the ImageCast® Central Batches folders on the EMS server by typing `\\EMSServer\Adjudication\Project_Name` into the text area labeled 'Server Path,' where 'Project_Name' is the name of your Election Project. Click on the 'SCANNING' icon and the dialog box asking for confirmation of the of the server path change appears. Click **Yes** to confirm the change.

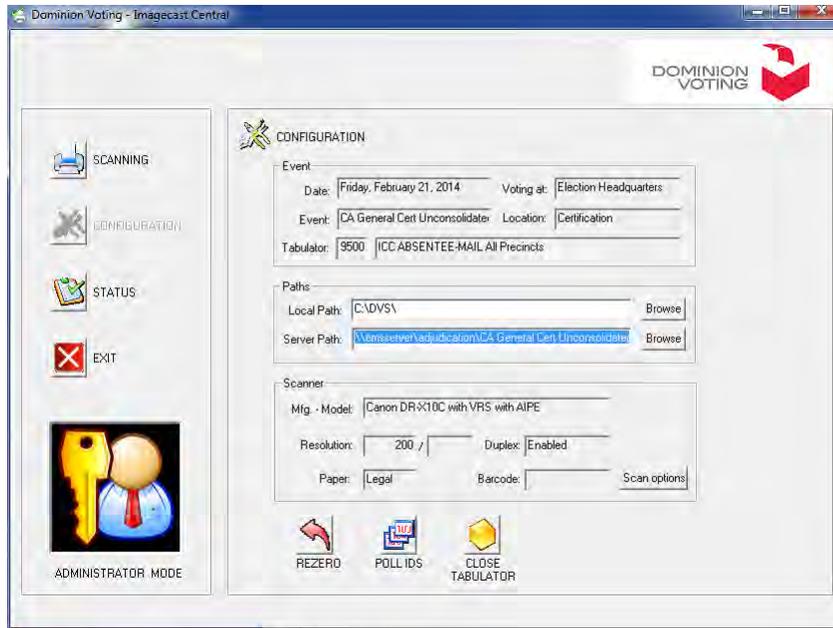


Figure 6.4: The Configuration Screen is used to set the local and remote results paths

6.6 Accessing Supervisor Mode



Figure 6.5: Administrator Mode



Figure 6.6: Supervisor Mode Security Password Dialog

1. To obtain Supervisor access, the presiding election official must connect the iButton Security Key to the reader.
2. Enter the Administrator passcode and click **OK**.
3. At the Configuration menu, click on the **Administrator Mode** icon (the little bald man), as seen in the bottom left corner of Figure 6.5. This will prompt a Security Password dialog to appear, as seen in Figure 6.6.
4. Click **OK** to enter Supervisor Mode. A **Supervisor Mode** icon (a man with brown hair) appears in place of the **Administrator Mode** icon.

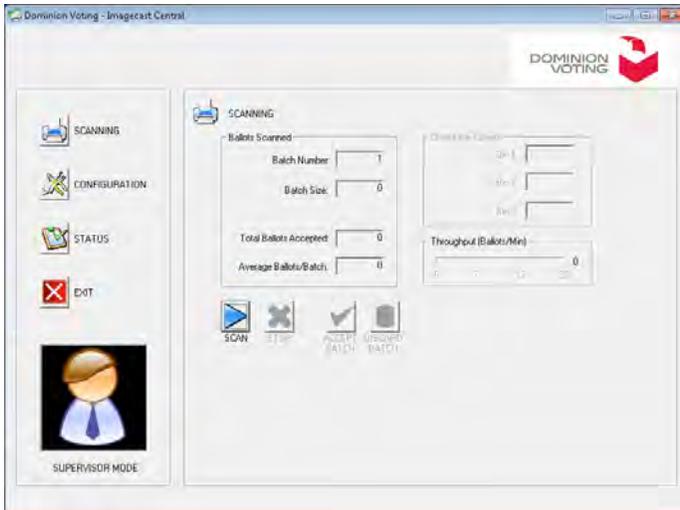


Figure 6.7: Supervisor Mode

5. If the user wishes to return to **Administrator Mode**, simply click on the **Supervisor Mode** icon. The **Administrator Mode** icon will take its place, indicating that the application has returned to Administrator Mode.

6.6.1 Setting Supervisor Options

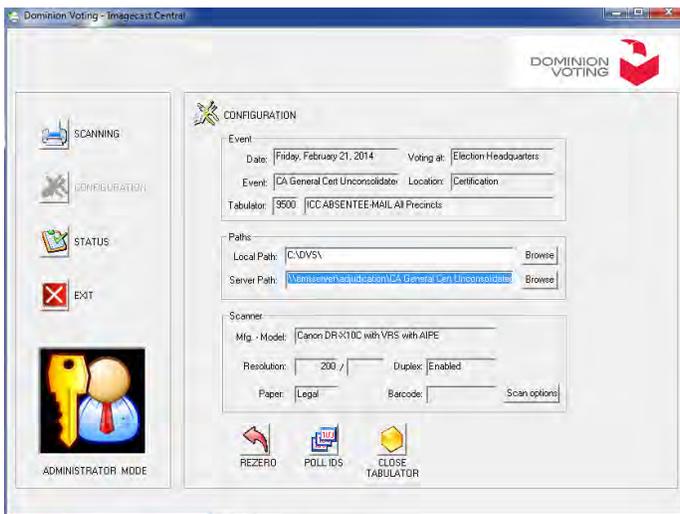


Figure 6.8: Supervisor Mode - Configuration Menu

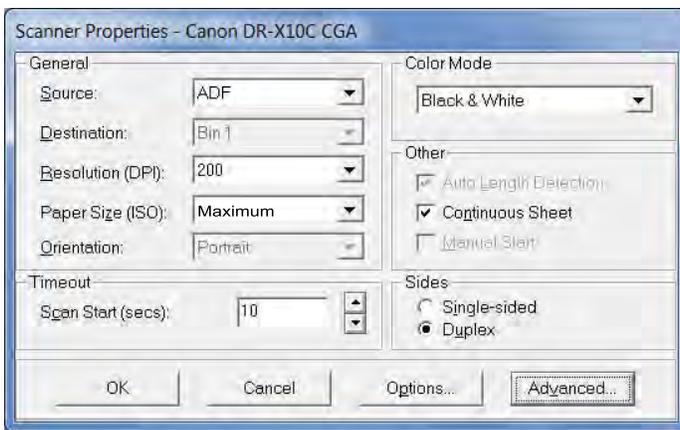


Figure 6.9: The Scanner Properties Menu - DR-X10C

1. Click **CONFIGURATION**. If this button is greyed out, you are already in the Configuration Menu.
2. The Configuration Menu appears as shown in Figure 6.8.
3. Click the **Properties** button on the right hand side of the screen under the **Scanner** area.

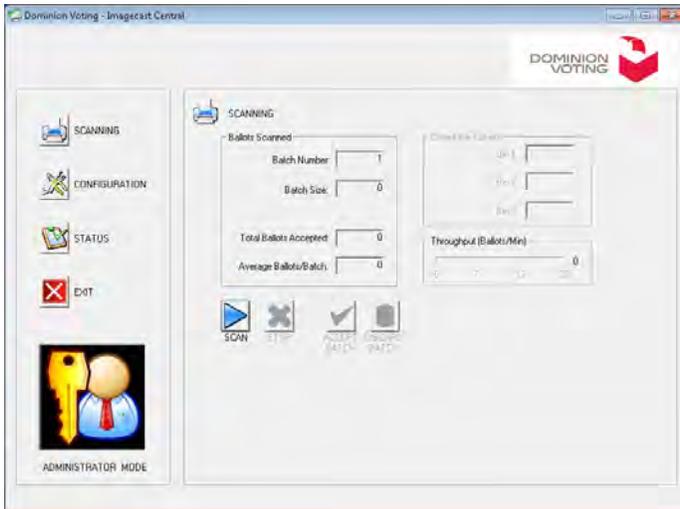
4. The Scanner Properties dialog box appears.
5. Set the Paper Size to **Maximum** and click **OK**.
6. Click **OK** to confirm the prompt informing of the changes applied.

6.6.2 Configuring Scan Options

The ImageCast[®] Central can be configured to stop scanning on various types of voting errors. These errors include misreads and defective ballots. The user must have Administrator or Supervisor privileges to configure scan options.

When Adjudication application is used, there is no need to stop on any conditions since these can all be handled by Adjudication. Therefore, the supervisor needs to turn off any such condition.

To turn off “Stop On” conditions in the ImageCast[®] Central application and Canon DR-X10C scanner, perform the following:



1. Click **CONFIGURATION** located on the left side of the ImageCast[®] Central application screen.
2. The ‘CONFIGURATION’ screen appears as shown in Figure 6.8.

Figure 6.10: Initial View Upon Successful Startup

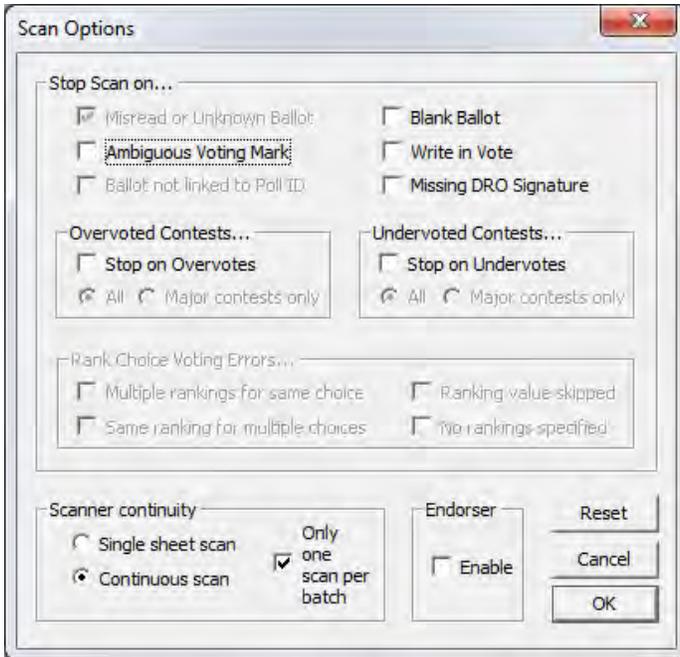


Figure 6.11: Configuration Menu

3. Click **Scan Options**.
4. The “Scan Options” dialog appears. Unselect any stop on conditions checked in the “Stop Scan on..” section of the dialog.
5. Confirm that the ‘Continuous Scan’ and ‘Only one scan per batch’ options are selected and click **OK**.

6.7 Producing a Zero Report

To produce a Zero report, see steps 7 and 8 in Section 6.10.

6.8 Scanning Mode

Scanning Mode is the basic operator mode. In this mode, ballots can be scanned, batches can be either accepted or discarded, and the status menu can be accessed. Note that all scanner settings must be configured by either authorized Administrators or Supervisors prior to scanning ballots.

Users privileges are limited to protect the integrity of the election process. Once the Administrator removes the iButton security key from the iButton security key reader, the security level defaults to Scanning or User Mode.

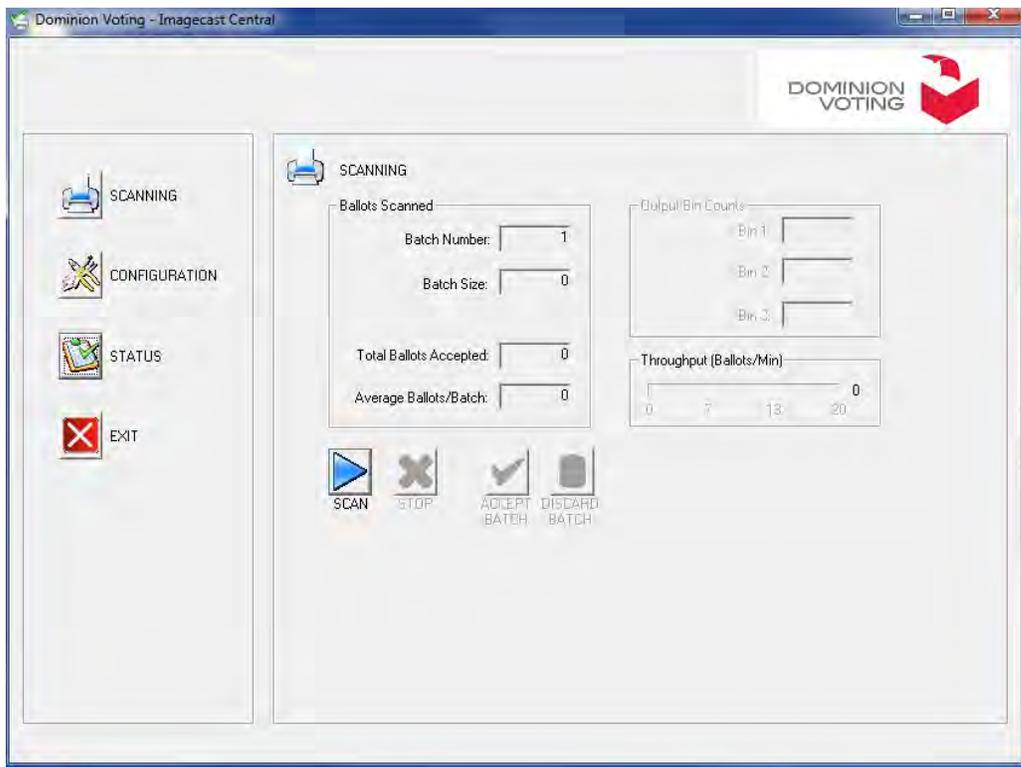


Figure 6.12: The Scanning Mode shows basic status and scanning functions

6.8.1 Scanning and Accepting Batches

NOTE: The scanner should be cleaned prior to beginning scanning and after every 2000 ballots scanned.

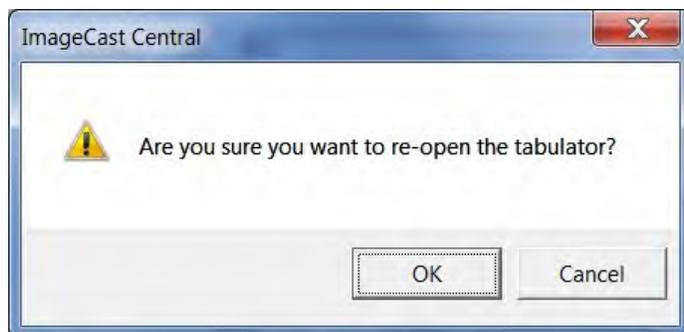
The scanning process for the Absentee and All Mail ballots may start 7 days prior to Election Day and is continued until the jurisdictionally defined ‘Cut Off’ period, at which time the results scanned up to that point are reported in on the Election Day. All incoming Absentee and All Mail ballots are scanned on the Absentee\All Mail ImageCast[®] Central tabulator(s) that are connected to all precincts.

To begin scanning, navigate to the Scanning menu by clicking the **SCANNING** button. If the **SCANNING** button is greyed out, then the tabulator is closed and needs to be reopened in order to continue. If this is the case, perform the steps 1 through to 6 below. If the **SCANNING** button is not greyed out, and the tabulator is open, proceed to step 7 to start scanning ballots.



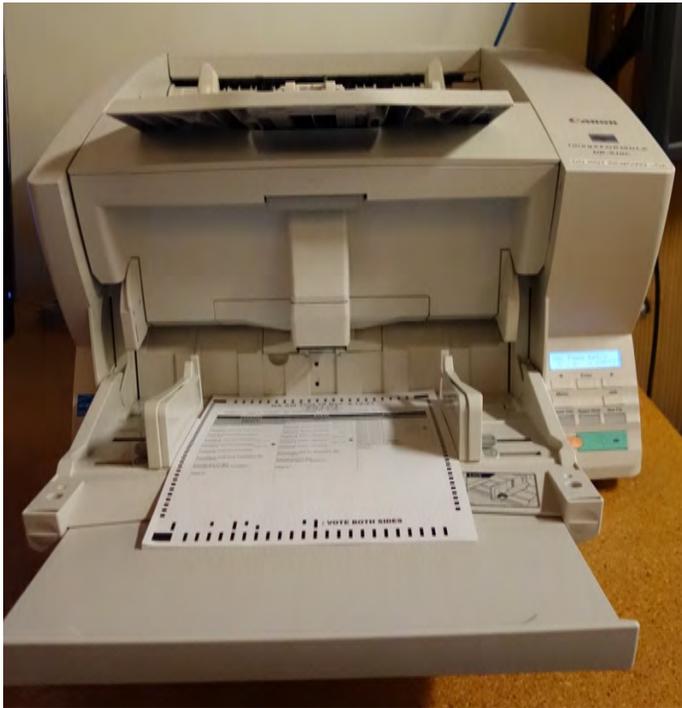
1. Click **CONFIGURATION** on the left side of the application screen.
2. Click **RE-OPEN TABULATOR** the bottom right of the Configuration menu as shown in Figure 6.13.

Figure 6.13: The Configuration Menu in Administrator Mode after the Tabulator is Closed



3. The confirmation prompt, shown in Figure 6.14, will appear.
4. Click **OK** if you wish to re-open the tabulator. If not, click **Cancel**.
5. Click on the Supervisor icon to change to Administrator Mode.
6. At this point, you can now commence scanning.

Figure 6.14: The Re-Open Tabulator Prompt



7. Load a stack of ballots, approximately 1 to 1.5 inch thick, into the scanner feed tray.

Figure 6.15: Paper correctly loaded into the Canon DR-X10C

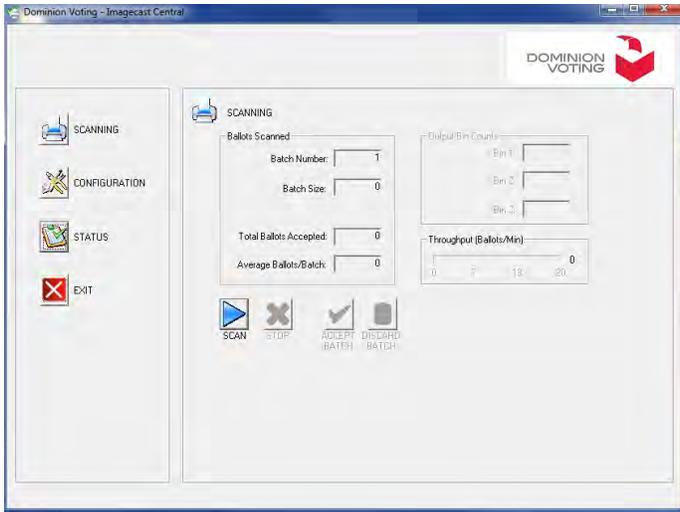


Figure 6.16: The Scanning Mode screen

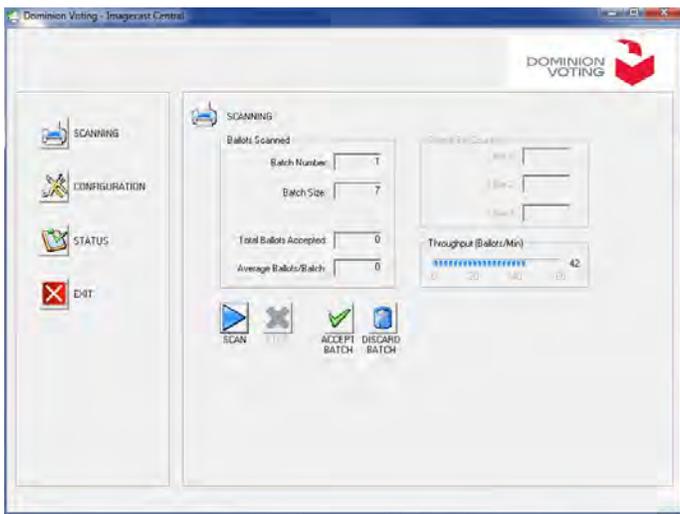


Figure 6.17: The Scanning Mode screen after ballots have been scanned

8. Click **SCAN**.
9. The scanner will begin to scan the ballots the user has loaded into the scanner while the ImageCast® Central application counts the ballots in real-time. This information can be tracked in the 'Ballots Scanned' field within the **Scanning** menu. **NOTE 1: If the tabulator displays and 'Invalid Ballot' error (see Section D.2.1.2) this means that one or more ballots scanned belong to a precinct that is not handled by that tabulator. If this is the case, check that the ballots in the batch belong to the precinct the used tabulator is handling.**

10. Once all of the ballots loaded into the scanner have been scanned, the user has the option to either click **ACCEPT BATCH** or **DISCARD BATCH** on the Scanning menu. Accepting the batch saves the results and ballot images in two separate folders within C:\dvs. Each batch will be numbered in the order it was scanned and processed.
11. To Accept a batch, click **ACCEPT BATCH** at the bottom of the Scanning menu, as shown in Figure 6.19. Put all of the scanned ballots from the output tray of the scanner into the pre-labeled completed batch envelope, and put it into the box of counted batches.

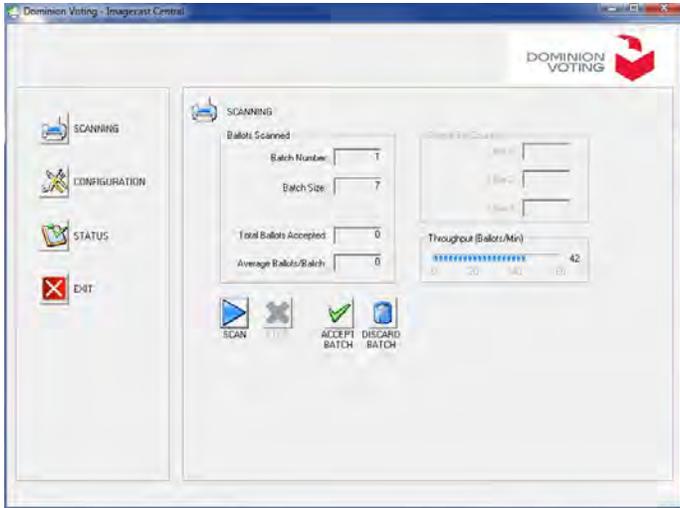


Figure 6.18: Accept Batch dialog

12. A prompt, similar to the one depicted in Figure 6.18, will appear asking the user to confirm that they wish to accept the scanned batch.
13. Click **OK** to either confirm, or **Cancel** to return to the Scanning menu.
14. To discard a batch, see instructions in Section 6.8.2.

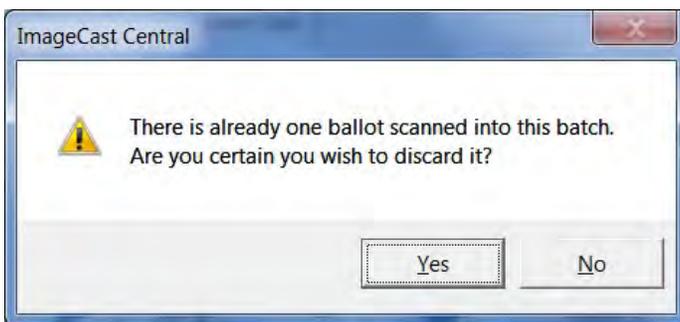
6.8.2 Scanning and Discarding Batches

In some cases, a user may want to discard a batch. An example of such a situation is when a batch is accidentally scanned twice or when the tabulation of the batch is brought into question. To discard a batch:



1. Once a batch has been fully scanned, click **DISCARD BATCH** located at the bottom of the Scanning menu as shown in Figure 6.19.

Figure 6.19: The Scanning Mode screen after ballots have been scanned



2. A prompt appears. Click **Yes** to confirm or **No** to return to the Scanning menu. Clicking **Yes** excludes the batch from the results totals and requires the batch to be re-scanned.
3. If you have not accepted or discarded a batch and you click **SCAN** again, the prompt will appear asking whether or not you wish to add the batch.

Figure 6.20: The Discard Batch Prompt

6.8.3 Spoiling a Batch

Sometimes an ICC operator may mistakenly accept a batch. This batch may have been incomplete, contained ballots from the wrong Counting Group, contained ballots that have already been counted or some other reason.

If the batch has been scanned, but not yet accepted, discard the batch as explained in Section 6.8.2.

If a batch was incorrectly accepted and needs to be excluded from tally (the batch must be spoiled):

1. Stop scanning and inform the ICC Administrator of the error immediately.
IMPORTANT: Do not rezero the tabulator. Do not attempt to manually delete the batch.
2. The ICC Administrator will record the number of the batch to be spoiled, using the procedures established by your jurisdiction.
3. Once the ICC Administrator has verified the current batch number and recorded the batch number to be spoiled, they may give approval to continue scanning batches.
4. The ICC Administrator will inform the Adjudication Administrator of the batch number(s) to be spoiled for each tabulator.
5. If Adjudication has not yet been started, the Adjudication Administrator will spoil the batch(es) in Adjudication once it is started and before the Adjudication users begin receiving ballots. See Sections 11.1.1 and 10.4.3.3.
6. If Adjudication is already in progress, the Adjudication Administrator should spoil the batch in Adjudication as soon as it becomes available in the **Batch Management** screen, using the procedure described in Section 10.4.3.3.

After scanning has been completed for all ICC tabulators, the Election Administrator will reconcile the number of batches and ballots tabulated.

NOTE: If a large number of batches, or all batches from a tabulator, must be spoiled, please contact your Dominion Voting technical representative for assistance in resolving the issue.

6.9 Post-Tabulation Report and Closing Procedures

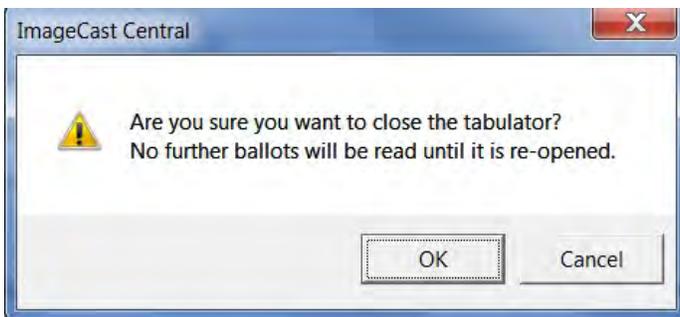
6.9.1 Closing the Tabulator

Once scanning is completed on the tabulator, it can be closed. The tabulator can be re-opened at any time to resume the scanning. To close the tabulator, apply the iButton to enter the Administrator or Supervisor mode, and perform the following:



1. Navigate to the Configuration menu by clicking **CONFIGURATION** on the left side of the application's screen.
2. Click **CLOSE TABULATOR** on the bottom of the Configuration menu as shown in Figure 6.21.

Figure 6.21: The Configuration Screen in Supervisor Mode



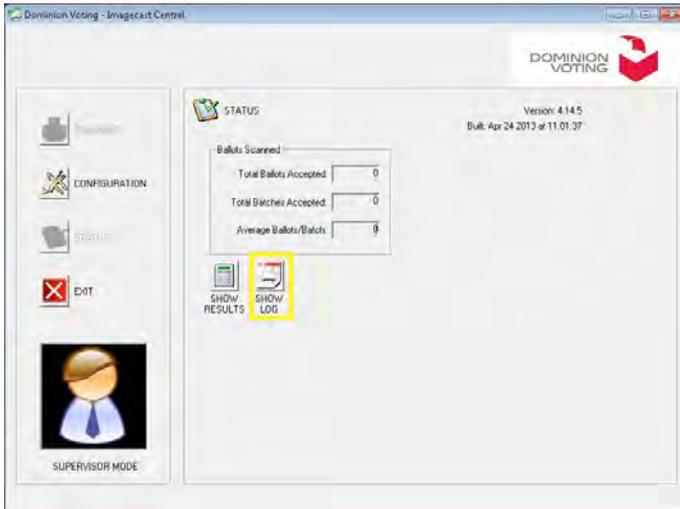
3. You will receive a message prompting you to confirm your decision to Close the Tabulator. Click **OK**.

Figure 6.22: Closing the Tabulator Confirmation Message

6.9.2 Producing Result Reports

To create the Result Report at any time or when the scanning of Absentee/Mail ballots has been completed, follow steps 7 and 8 in the Section 6.10.

6.10 Producing Reports from the ImageCast® Central System



1. Close the tabulator using the **CLOSE TABULATOR** button on the Configuration screen. A widow will open confirming the tabulation closure, click **OK**.
2. Navigate to the Status menu by clicking on the **STATUS** icon.
3. The confirmation dialog for the change in the server path might appear. If it appears click **Yes** to confirm the changes.

Figure 6.23: The Status Menu in Administrator Mode

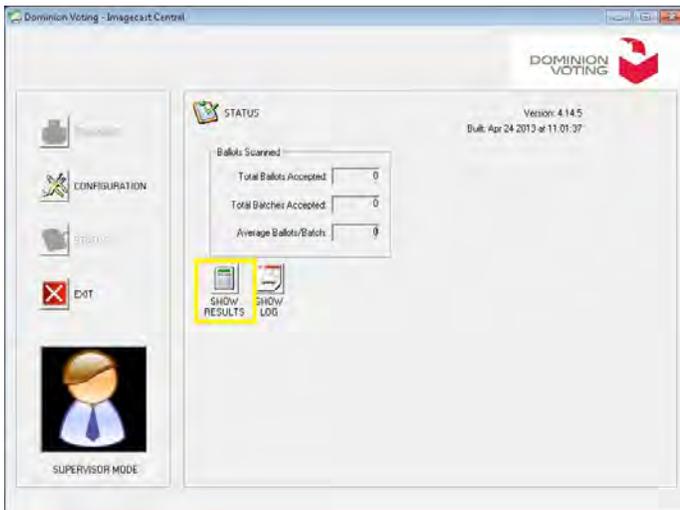


Figure 6.24: The Status Menu in Administrator Mode

4. Click **SHOW RESULTS** located at the bottom of the Status menu as shown in Figure 6.24. The 'Display Batch Results' dialog appears in a new window.
 - If you are producing a Zero Report, verify that the 'Display all ballot ids and Precincts (even those with no ballots scanned)' option is selected and click **OK**.
 - If you are producing a Results Report, select the Batch, Results, and Contest display options desired, and then click **OK**.
5. The result data will be shown in Notepad. Save this file as Zero report if produced prior to running an election to prove that no results are present on the ImageCast® Central system, and print a copy for auditing purposes. If the result report is produced after running an election and closing the poll, save the report, and name it accordingly.

6.10.1 Loading Election Files for a New Tabulator

Once finished scanning on the tabulator, have the Administrator move the 'DVS' folder back to its original location in C:\ICC Election Files, before loading election files for another tabulator.

To switch tabulators you wish to scan on, follow instructions in Section 6.3.

Chapter 7

Procedures for Early Voting ImageCast[®] Evolution

Democracy Suite EMS allows for the programming of specific ImageCast[®] Evolution tabulators for use in-office Early Voting or in Vote Centers. Ballot tabulation for a specific precinct, a range of precincts, or all of the precincts in the election may be programmed.

The setup and use of an Early Vote ImageCast[®] Evolution tabulator is same as use of an Election Day ImageCast[®] Evolution tabulator as described in Chapter 8, with the exception that the tabulation will take place for a period longer than one day.

NOTE: When powering up the Early Vote ImageCast[®] Evolution for the first time, the Zero Report tape is printed. An Early Vote ImageCast[®] Evolution is connected to many or all precincts and, therefore, may contain a very large number of Ballot IDs that would require many rolls of thermal printer paper in order to print the full report. You may be provided with an option to cancel/disable the printing of the report (see below for steps on how to use this functionality to avoid printing of the zero tape). An alternative to the printed report tape is accessing the Report on LCD screen through the Utility option from the Administrative Menu.

To turn off printing of the tape do the following:

1. When powering up Early Voting ICE, apply the iButton Security Key when prompted to do so.
2. Enter the Administrator user name and password and once logged in, the Poll-worker Menu will appear.
3. Press 'Open Poll' to open the Poll Management screen. You will be presented with the following three options:
 - Poll Status
 - Print Zero Tape
 - Number of Copies to Print
4. To change the option on 'Print Zero Tape' from 'Print' to 'Don't Print', simply press the change button. Pressing 'Change' a second time will change it back to 'Print'.

Depending on the size of the election and the number of ballot styles an Early Vote ImageCast[®] Evolution is handling, it may be impractical to close the polls and power down the Early Vote tabulator after

the end of each Early Voting day due to the length of time it takes to load election files on the tabulator during the power up process. If this is the case, the Poll should be closed at the end of the day, however, the ImageCast[®] Evolution tabulator should stay turned on. Follow the procedure in Section 8.7.1 for instructions on how to close the poll.

After the Poll has been closed, the Administrator should physically secure the ImageCast[®] Evolution tabulator as per jurisdictional procedure, until the start of the next day, when the tabulator is taken out of the secured area and the Poll is re-opened on the tabulator to continue with the operation. Follow the procedure in Section 8.3.1 for instructions on how to reopen the poll.

In case your Early Voting ImageCast[®] Evolution tabulator is handling the number of ballot styles which allows the tabulator to load the election in a reasonable amount of time, then the procedure for operating an Early Vote ImageCast[®] Evolution is as follows:

1. Apply the iButton Security Key to get to the Administrative Menu screen.
2. In the Administrative Menu, press the circular power button icon in the top right corner of the screen and select the option to Shut Down the unit.
3. This will initiate the countdown until the machine has fully powered down.
4. Close the privacy screen flaps, and place the LCD monitor in the horizontal storage position.
5. Replace the ballot box cover onto the ballot box, and then lock it and seal it until the next day.
6. Next day, remove the seals, unlock and remove the ballot box cover.
7. Lift up the LCD monitor into the vertical position and the unit will begin to power up.
8. Open the privacy screen flaps and insert the iButton Security Key when prompted to do so.
9. Enter the Administrative user name and password to get to the Administrative Menu screen.
10. Press the Open Poll from the Administrative Menu and the message will appear warning that the poll was already opened and that the results are not zero. Confirm by pressing 'OK'.
11. The tabulator will start printing a status report. Cancel the printing of the status tape if your election has a large number of Ballot IDs.
12. Confirm the Cancel option and the poll will be reopened.
13. In Administrative Menu, press on the 'Standard Voting' option and then press **Start** button.
14. Press **OK** to confirm and ImageCast[®] Evolution is ready to resume scanning.

Voting on the Early Vote ImageCast[®] Evolution continues until the jurisdictionally defined 'Cut off' time. At this point, the Administrator closes the poll on an Early Vote ImageCast[®] Evolution by following the procedures outlined in the Section 8.7.

The Administrator will remove the CF cards from the Early Voting ImageCast[®] Evolution tabulator (Section 8.7) and securely store them in a labeled and sealed transport container.

The Election Official will then remove all of the ballots from both the Secondary and Main ballot box chambers of the ballot box and safely store them in clearly labeled bins/boxes.

The ballots and the CF cards will be sent to the central location for processing if not located there in the first place.

The results from Early Vote ICE tabulators will be imported, validated and published in RTR on Election Day.

NOTE: If there were any ballots with write-in votes cast on an Early Voting ICE tabulator, then all ballots from that tabulator will need additional processing in the Post-Election period.

Additional processing involves:

- Rejecting and then deleting the results for such Early Vote ICE tabulators from RTR.
- Rescanning all ballots from such tabulators on the appropriate ICC tabulator (such as “Early Vote ICC”).
- Adjudicating rescanned ballots with outstack conditions (resolving write-in votes).
- Importing adjudicated results into the RTR, publishing them before running final reporting.

Chapter 8

Election Day Procedures

8.1 Precinct Supplies, Delivery and Inspection

Tabulator delivery and Election Day poll worker procedures should follow jurisdictional practices in conformance with State Election Code. Sections starting from 8.1.1 through to Section 8.2 provide some general information about delivery, supplies and handling procedures for ImageCast[®] Evolution .

Election Day procedures for the ImageCast[®] Evolution begin with the Section 8.3.

8.1.1 Precinct Supplies

Prior to Election Day, the Precinct Board ensures the precincts have the correct supplies, and ensures that each Polling Place is ready for operation by performing the following tasks:

- Checking all pads of paper ballots to ensure that ballot style identification numbers, serial numbers, and precinct numbers (if used) printed on the paper ballots are correct.
- Reporting any problems to the Election Official responsible for the election.
- Having supplies necessary for the conduct of elections that shall be delivered as follows at Polling Places:
 - Paper ballots shall be in the quantity and manner required by the California Elections Code, as well as demonstrator ballots marked for demonstration use only.
 - Demonstration or voting instruction placards.
 - General purpose precinct supplies as provided in the California Elections Code.
 - Secrecy sleeves or envelopes, if ballots are printed on two sides.
 - Marking devices: Sharpie Fine Point Permanent Marker (Black), Staedtler Lumocolor Dry Safe Marker.
 - A certificate of packaging and sealing, in duplicate, together with a postage paid self addressed stamped business reply envelope, or postcard addressed to the responsible Election Official.
 - Sample ballots of each ballot style as required by the California Elections Code.
 - Seals and any other supplies and forms deemed necessary.
 - Tables.
 - Power cords.

- Machine/seal log.
- Voter instructions.
- Machine stickers.
- Machine File Folders for Official Pre-Lat tapes.

8.1.2 ImageCast[®] Evolution and Related Equipment

The following facilities, furnishings, fixtures, and utilities are required at the polling place for the operation of the ImageCast[®] Evolution :

	ImageCast [®] Evolution and power supply
	ImageCast [®] Plastic Ballot Box
	ImageCast [®] Ballots
	Compact Flash Memory Cards
	iButton Security Keys
	Sharpie Fine Point Permanent Markers
	Thermal Printer Paper Rolls
	Replacement Ink Cartridge
	Color-Coded Plastic Security Seals
	Audio Tactile Interface (ATI)
	L-R Paddles (Optional)
	Sip and Puff (Optional)
	Headphones

	Keys for Ballot Box
	120V AC Power Wall Outlet
	Extension Cord (Optional)
	Election tape and Signage, as required
	Voting booths, as required

Table 8.1: ImageCast[®] Evolution Polling Place Hardware Requirements

8.1.3 Delivery of Equipment

The Warehouse Technician must perform a Pre-Election procedure for preparing the tabulators prior to shipment. Summary of these activities include, but may not be limited to, the following:

1. Completing the final inspection sheet (provided by the jurisdiction).
2. Entering the equipment serial number and software version of the Operating System in the daily log.
3. Placing keys (iButton security key and ballot box key) in an envelope with the final inspection sheet.
4. Removing the memory cards that were used for testing, then inserting the Memory Cards for the official election and securing as required by jurisdiction.
(**NOTE:** Verifying the Memory card is installed and coded for the specific location).
5. Checking the printer paper (replacing if needed).
6. Closing the ImageCast[®] units, gathering the envelope containing final inspection sheet and keys.
7. Securing the ImageCast[®] units for delivery to polling places or storage.

8.1.4 Proper Handling/Moving Procedures

The ImageCast[®] Evolution tabulator is designed to be delivered to and from the polling site mounted to the ballot box. The ballot box has 2 lockable swivel wheels and 2 fixed wheels for easy handling and also has convenient handles on all 4 sides of the box to enable lifting or positioning as required.

The ImageCast® Evolution should be removed from the ballot box when in storage. The tabulator also has 2 hand grips located underneath the lengths of its sides to enable a two person lift if required for and moving, installing, or removing from the ballot box.

8.2 Inspection and Polling Place Setup

After the units have been delivered to the polling place, the Poll workers will perform the following inspections:

- Position the ballot box in the appropriate location for use making sure that there is access to the AC power plug.
- Inspect and record all seals are intact as per jurisdictional procedure.

Specific Polling Place Setup Procedures will be provided to or by each respective jurisdiction. However, it is recommended that a two-person team be available for setting-up the ImageCast® Evolution .

NOTE: The programmed Memory Cards will have been inserted into the units in advance by the elections department with all security seals in place prior to shipment to the polling place.

8.3 Opening the Polls

In general, the precinct board would perform the following items when opening the polling place:

1. Complete Oath of Office and Declaration of Intention forms pursuant to the California Elections Code.
2. Assemble voting booths, and in each booth display a copy of materials required by the California Elections Code.
3. Provide a pad of demonstration ballots, markers, and have suitable demonstration materials available.

8.3.1 Opening the Polls: ImageCast® Evolution

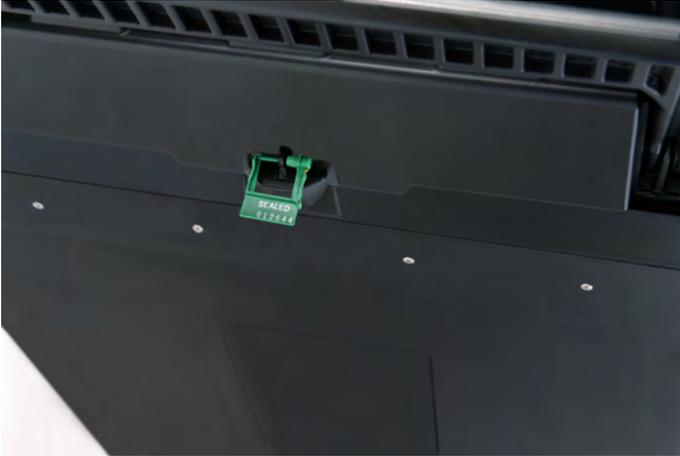


Figure 8.1: Break Green Ballot Box Seals

1. Break the **Green** seals on the Ballot Box in order to remove the ballot box lid and access the ImageCast® Evolution as seen in Figure 8.1.



Figure 8.2: ImageCast® Evolution with applicable security seals

2. Position the ballot box, with the ImageCast® Evolution sitting on top, so that an AC Main socket-outlet is available to the unit. An extension cord can be used if needed.
3. Verify that all **Red** and **Yellow** security seals are intact on the required locations as seen in Figure 8.2.
4. Remove the three yellow seals from the power cord compartment. The poll worker should inspect each of the ballot compartments - main, secondary and auxiliary to ensure that there are no ballots present. Each compartment should then be sealed with one of the yellow padlock seals, and the seal number recorded.



Figure 8.3: ImageCast® Evolution Power Source

5. Plug the unit in the available AC Mains socket-outlet.



Figure 8.4: ImageCast® Evolution Power Source

6. Power up the unit by lifting up the monitor to its operating position. You can adjust the angle of the screen if needed. See Figure 8.4.
7. Open up the privacy flaps to reveal the touchscreen.



Figure 8.5: iButton Security Key Prompt

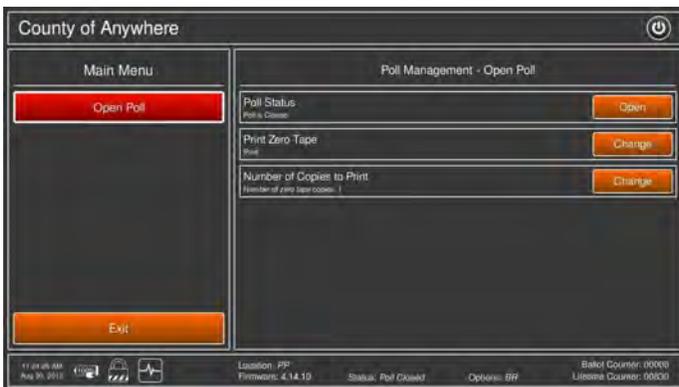


Figure 8.6: Main Menu

8. Once the ImageCast[®] Evolution has powered up, the system will prompt for the iButton Security Key to be applied to the iButton Security Key receptacle as seen in Figure 8.5.
9. Press the iButton Security Key firmly to the receptacle, and hold it in place until the login screen appears on the touchscreen.
10. On the Authorization screen, enter the username and password specific for the project and press **OK**. In the event that the username and password are incorrect, the screen will clear the text and provide a new opportunity to enter the correct username and password.
11. Once logged in, the Poll-worker Menu will appear.
12. Press 'Open Poll' to open the Poll Management screen. You will be presented with the following three options:
 - Poll Status
 - Print Zero Tape
 - Number of Copies to Print

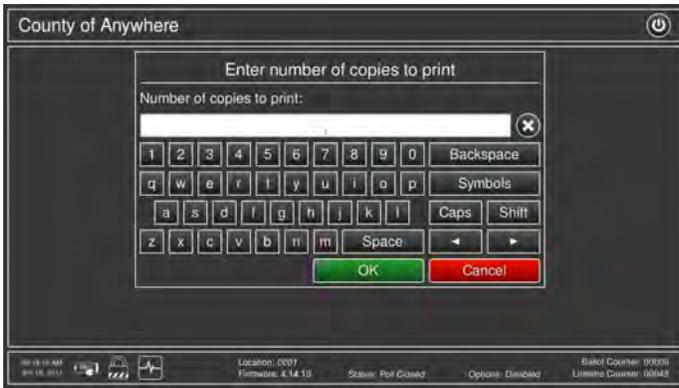


Figure 8.7: Enter Number of Copies to Print

13. To change the number of Zero Tapes to be printed, press **Change** beside the 'Number of Copies to Print' option.
14. You will be prompted to enter the number of Zero Tapes you wish to print, as seen in Figure 8.7.
15. Press **OK** to return to the Poll Management screen.

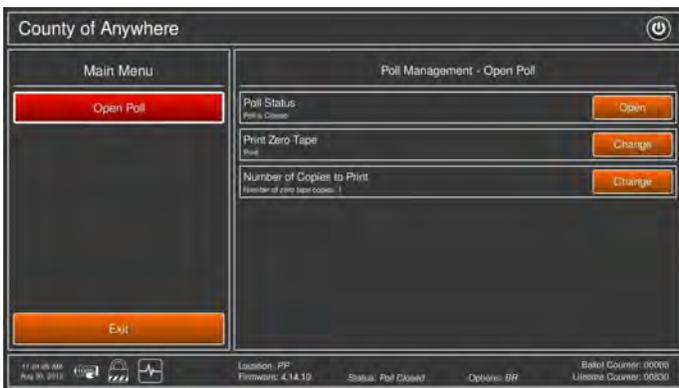


Figure 8.8: Main Menu

16. Press the **Open** button beside the 'Poll Status' option.



Figure 8.9: Open Poll Confirmation

17. A confirmation screen, as seen in Figure 8.9, will appear. Press **OK** to continue.

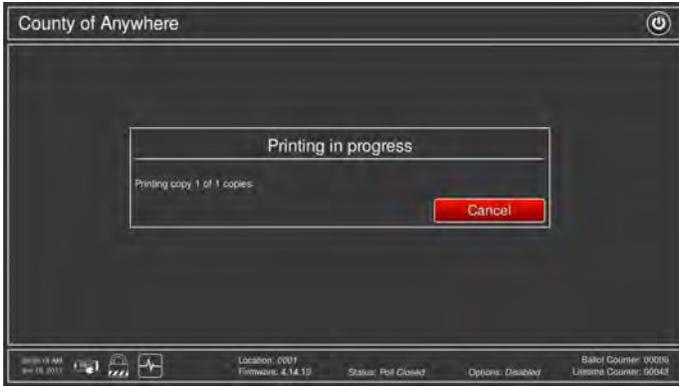


Figure 8.10: Printing of Zero Tape in Progress

18. If the Zero Tape setting was set to "Print" the Zero Tape will begin printing and the Printing in progress screen will appear. Pressing the Cancel button will stop the printing of the tape.



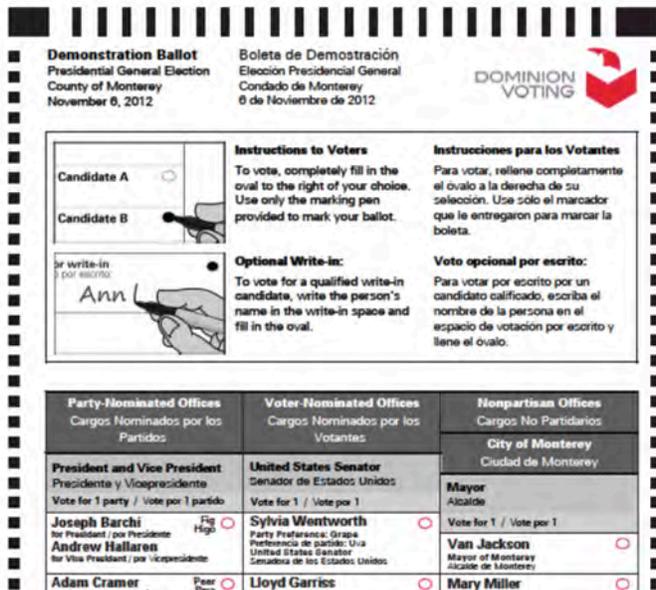
Figure 8.11: Printing of Zero Tape Completed.

19. Once the Zero Tape has been printed, the Printing completed screen will appear. To print more copies of the Zero Tape press **Yes**, otherwise press **No**.



Figure 8.12: Poll Ready for Operation.

20. The Administrative Menu screen appears with the poll open and ready for operation.



21. Place a sample ballot in a location that is visible to voters.

Figure 8.13: Sample Ballot

The following two sections give some general procedural information related to the polling place. The ImageCast® Evolution Election Day procedures continue from Section 8.4.2.

8.4 Polling Place Procedures

In general, the precinct board will perform the following tasks at each polling location on Election Day:

- At least every hour, inspect each booth to ensure there are no electioneering materials present, and that the booth/voting machine is otherwise suitable for voting. As far as possible, defacement conditions shall be corrected according to the jurisdictional practices and in conformance with California Election code.
- Offer to instruct each voter in the proper method of voting, including further instruction and practice time, if necessary, and as applicable.

8.4.1 Election Day Poll Worker Responsibilities

The Poll Worker would be responsible for the following type of assistance when the Voter enters the polling place:

NOTE: No Poll Worker, or any other person, may record the time at which, or the order in which, voters vote in the polling place.

1. Provide the Voter with a ballot, secrecy envelope, and proper marking device to complete the ballot; be sure to include any instructions per jurisdiction or local statute, if required. To ensure a smooth election process, Dominion suggests:

-
- Checking each ballot before giving it to the Voter to ensure there are no torn or faulty edges. Looking for abnormally light printing and improper registration of trim marks. The trim marks show the edges on which the ballot should be cut, or trimmed.
2. If requested by the Voter, use the demonstration ballot to show the Voter:
 - How to complete the oval opposite the Voter's selected candidate name or proposition.
 - The different ImageCast[®] Evolution screen views. This may include explaining the meaning of various message that may appear on the LCD screen and ensuring that the Voter understands all aspects of the voting process.
 3. After the Voter has completed the ballot, instruct the Voter to insert the ballot into the entry slot of the ImageCast[®] Evolution tabulator unit, releasing the ballot after insertion. The ballot will be drawn automatically into the unit.
 4. Ask the Voter to remain at the unit until the ballot is fully processed and deposited into the ballot box.
 - The Voter may wish to ensure that the ballot count has increased by one, indicating that the ballot has been accepted.
NOTE: If the ballot is returned, the count will not increment.
 - If any of the second-chance voting scenarios occur (i.e. blank ballot, overvote, undervote), explain to the Voter that the ballot has not yet been counted, and explain the reason for the warning message.

Change Language: In locations where more than one language option is needed, the Poll Worker may need to assist the Voter with language selection.

Activating Accessible Audio Ballots: In locations where accessible voting features of the ImageCast[®] tabulator units are in use, the Poll Worker will need to activate accessible voting sessions and may need to assist the Voter through the audio process.

Monitoring Voter and Machine Operation: The Poll Worker must monitor the operation of the ImageCast[®] tabulator unit in order to ensure that everything is operating correctly. If there were any technical issues, the Poll Worker would follow procedures provided by the local jurisdiction.

Assisting Voters that Require Physical Assistance: The Poll Worker may also need to assist voters that require physical assistance as per local statutes.

8.4.2 Activating the ImageCast[®] Evolution at the Polling Place

8.4.2.1 Standard Voting Session

To activate the ImageCast[®] Evolution's Standard Voting Session, perform the following:



Figure 8.14: Poll Worker's Main Menu.

1. On the ICE Poll Worker main menu, press the Standard Voting option on the left hand side of the touchscreen.



Figure 8.15: Poll Management - Standard Voting Screen.

2. The Poll Management - Standard Voting screen appears. The Ballot Review option can be Enabled, Disabled or Enabled Once by pressing **Change** next to it.

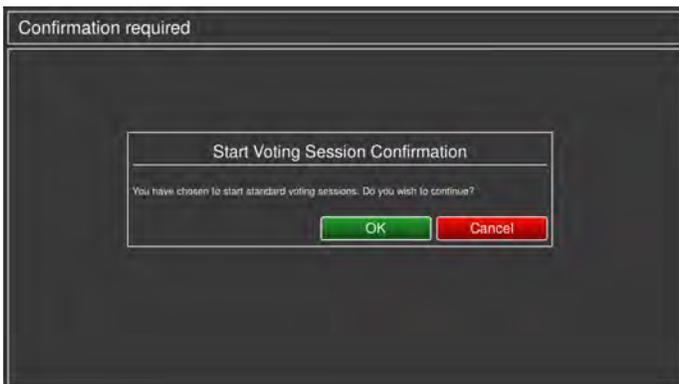


Figure 8.16: Start Voting Session Confirmation.

3. Click **Start** within the Standard Voting Session option box. You will be asked to confirm that you wish to initiate a Standard Voting Session.

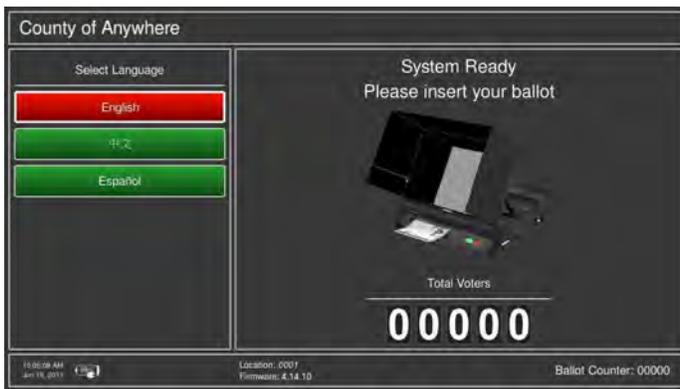


Figure 8.17: System Ready - Standard Voting Screen.

4. The Standard Voting screen appears and the unit is now ready to scan the ballots. If the poll was open for the first time, the Total Voters counter equals zero. If the poll was open while results were not zero, the Total Voters number will not be equal to zero. The aforementioned status appear on the activity status bar. The unit is ready to accept ballots.

8.4.2.2 Accessible Voting Session

To activate the ImageCast® Evolution's Accessible Voting Session, perform the following:



1. Prior to the commencement of an Accessible Voting Session, the Poll Worker should ensure that the voter is comfortably seated in front of the unit, that the required accessories are connected and functioning, and that the screen has been adjusted for maximum visibility.

Figure 8.18: Adjusting the ImageCast® Evolution Touchscreen



2. Log into the Poll worker menu by pressing the iButton Security Key to the receptacle, and entering in the appropriate credentials.
3. On the Poll Worker Menu, select Accessible Voting option on the left hand side of the touchscreen.

Figure 8.19: Poll Workers Menu Screen



Figure 8.20: Poll Management - Accessible Voting Session

4. The Poll Management - Accessible Voting screen appears. The Ballot Review option can be Enabled, Disabled or Enabled Once by pressing **Change** next to it.
5. Press **Start** within the Accessible Voting Session option box. You will be asked to confirm that you wish to initiate an Accessible Voting Session.

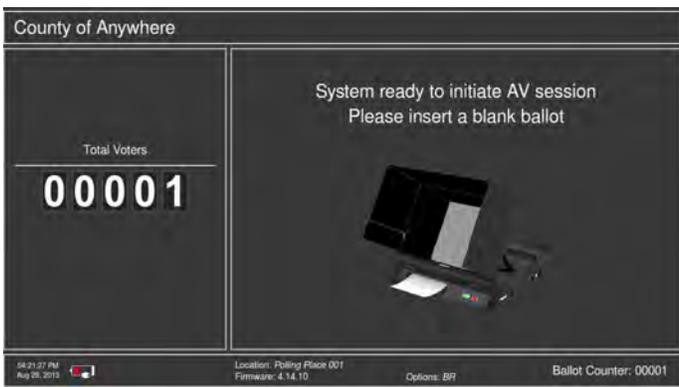


Figure 8.21: AVS-System Ready to be Initialized

6. The Accessible Voting screen appears and the poll worker may insert a blank ballot to initiate the Accessible Voting Session.

8.5 Voting Using the Accessible Voting Option of the ImageCast® Evolution Tabulator

8.5.1 Audio and Visual Voting using the Audio Tactile Interface



Figure 8.22: Instructions for Language Selection

1. After the poll worker has inserted the blank ballot, instructions for selecting languages will be displayed on the screen and played over the audio headphones (if there are multiple languages defined in the project). If only English is present, then this step is skipped.



Figure 8.23: Assistive Input Selection

2. Instructions will be given on how to select the preferred accessible voting device. The ImageCast® Evolution supports three types of accessible voting devices:
 - Audio Tactile Interface (ATI),
 - Sip and Puff (optional)
 - Paddles (optional).



Figure 8.24: Audio Tactile Interface

3. To commence an Audio and Visual Accessible Voting Session using the Audio Tactile Interface, the voter will press the yellow right arrow on the ATI to select it as the assistive input device.

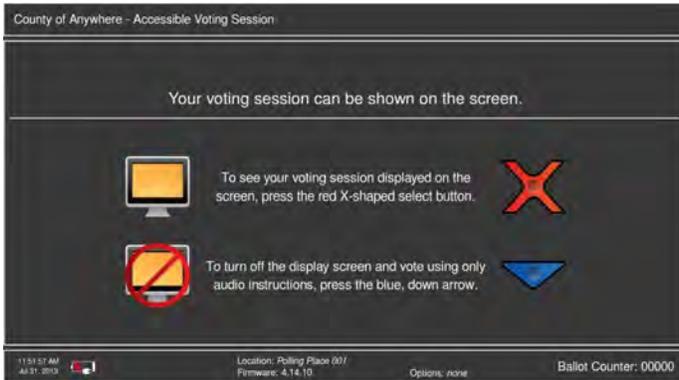


Figure 8.25: ATI: Options to Turn ON/OFF Display Screen

4. The voter will be presented with two on-screen options:
 - The Accessible Voting Session displayed on screen can be activated by pressing the red X-shaped button.
 - The Accessible Voting Session announced via audio only can be activated by pressing the blue down arrow.



Figure 8.26: ATI:Options to Turn ON/OFF Audio.

5. If the voter has selected to display the session on the touchscreen, they can then select to hear the accompanying audio by pressing the red X-shaped button a second time.
6. If the voter wishes to proceed solely with the session displayed on the touchscreen, they can then select to continue their voting session without audio by pressing the blue down arrow.

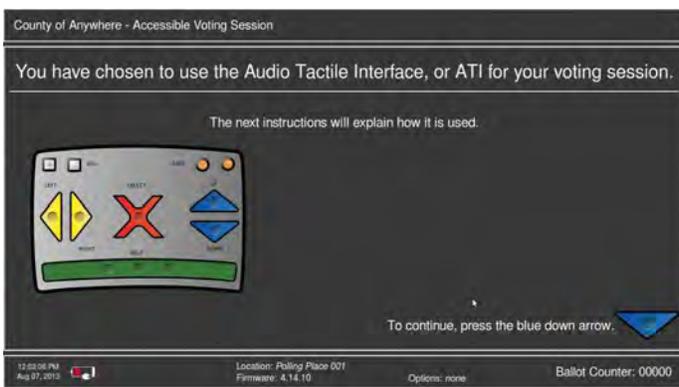


Figure 8.27: ATI Welcome Screen

7. The welcome screen will be presented with accompanying audio.
8. The voter can continue the session by pressing the blue down arrow.

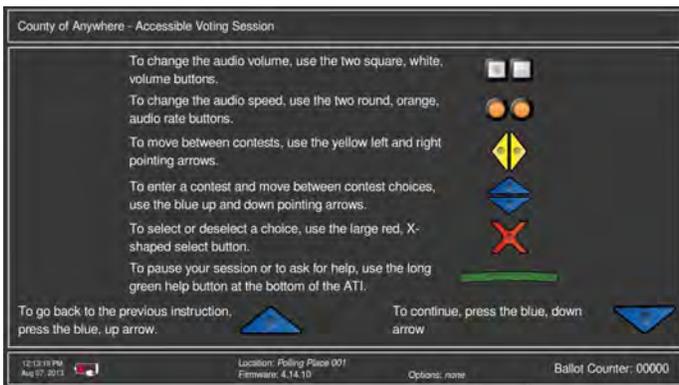


Figure 8.28: ATI Instructions

9. The voter will be presented with instructions on each of the ATI's buttons and their respective functionalities, as seen in Figure 8.28.

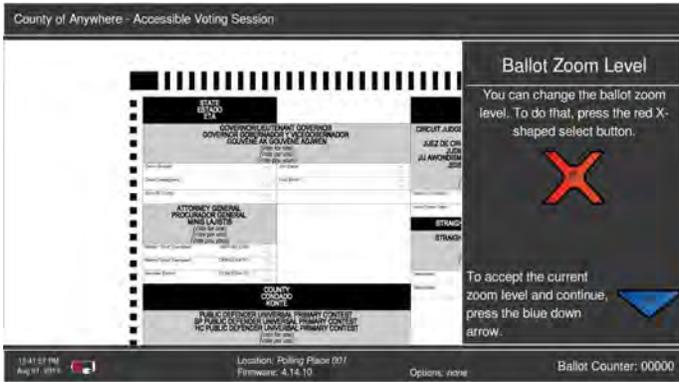


Figure 8.29: Ballot Zoom Level

10. The voter will then set the ballot zoom level by pressing the red X-shaped button. There are three zoom levels available to the voter.
11. The voter can return to the previous screen by pressing the blue up arrow, or accept their zoom levels and proceed to the next screen by pressing the blue down arrow.

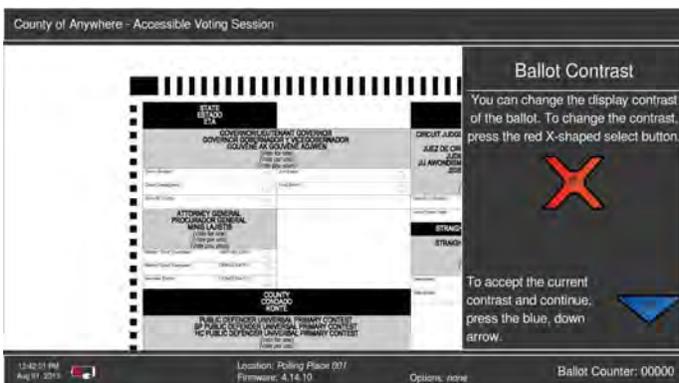


Figure 8.30: Ballot Contrast Level

12. The voter will then set the ballot contrast level by pressing the red X-shaped button.
13. The voter can return to the previous screen by pressing the blue up arrow, or accept their contrast level and proceed to the next screen by pressing the blue down arrow.

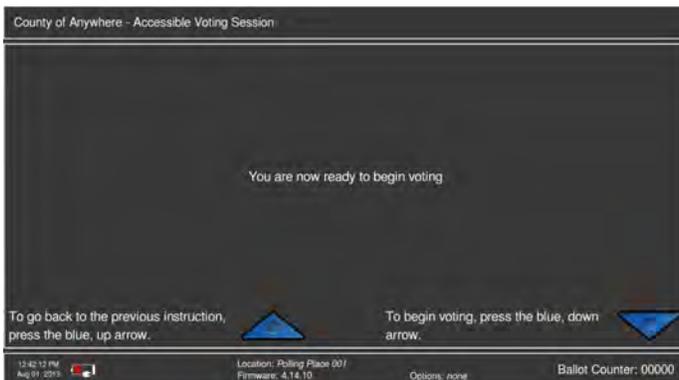


Figure 8.31: Ready To Begin the Voting Screen

14. The voter can commence their voting session by pressing the blue down arrow.

8.5.1.1 Write-In Selections: Audio/Visual Voting Session

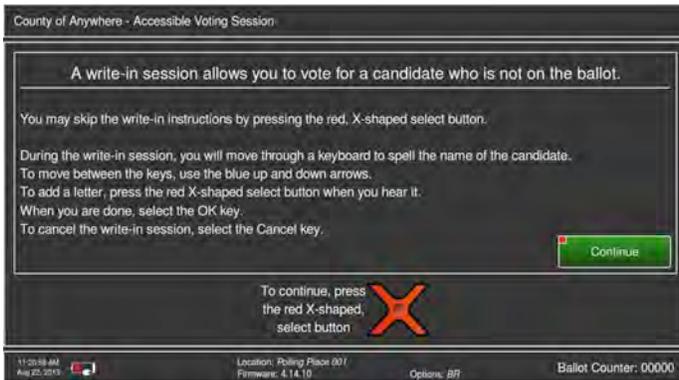


Figure 8.32: Write-in Instructions using the ATI

1. When voter selects the write-in choice on the ballot, they will be presented with on-screen instructions on how to navigate the write-in session, and enter a write-in name on their ballot.



Figure 8.33: Write-in Selections on the ATI

2. An on-screen keyboard will appear, which the voter can navigate by using the ATI in order to enter a write-in name on their ballot.

8.5.2 Audio Only Voting using the Audio Tactile Interface

If the voter decides to turn the display off during their voting session, and commence an audio session only, the voter must press the blue down arrow when presented with the option to do so.

Audio instructions explain to the voter how they will navigate, and make selections to their ballot. The ImageCast® Evolution's LCD screen will read 'An audio voting session is in progress'.

The ATI will operate in the same manner as it does in the Audio and Visual voting session.

8.5.3 Audio and Visual Voting using the Sip and Puff

NOTE ON LANGUAGE: When using the Sip and Puff, the voter will navigate, and make selections to their ballot by either inhaling or exhaling into the assistive device. For the purposes of these instructions, inhaling is described as 'sipping,' and exhaling is described as 'puffing'.

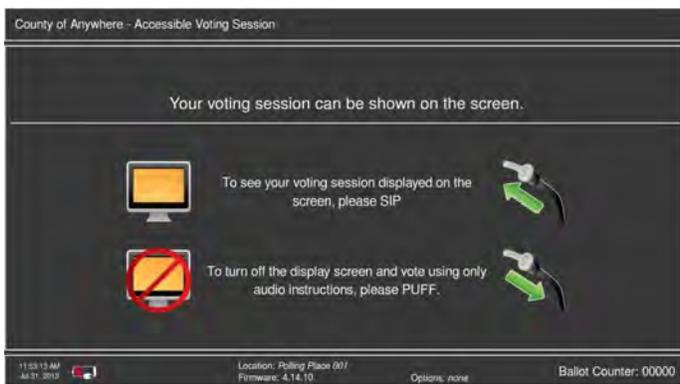


Figure 8.34: Sip and Puff: Options to Turn ON/OFF Display Screen

1. To commence an Audio and Visual Accessible Voting Session using the Sip and Puff, the voter will sip into the device to select it as the assistive input device.
2. The voter will be presented with two on-screen options:
 - The Accessible Voting Session displayed on screen can be activated by sipping.
 - The Accessible Voting Session announced via audio only can be activated by puffing.

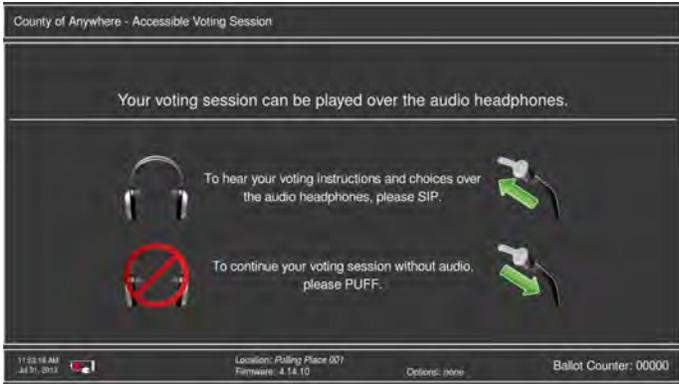


Figure 8.35: Sip and Puff: Options to Turn ON/OFF Audio.

3. If the voter has selected to display the session on the screen, they can then select to hear the accompanying audio by sipping.
4. If the voter wishes to proceed solely with the session displayed on the screen, they can then select to continue their voting session without audio by puffing.

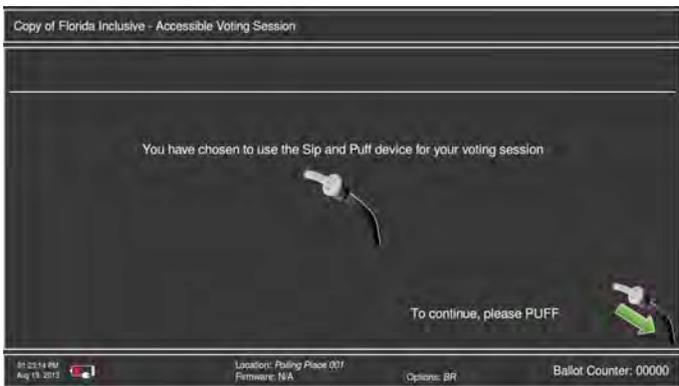


Figure 8.36: Sip and Puff Welcome Screen

5. The welcome screen will be presented with accompanying audio.
6. The voter can continue the session by puffing.



Figure 8.37: Audio Volume Adjustment

7. The voter will be presented with the option to change the audio volume by sipping. Each sip into the device will increase the volume.
8. Once a comfortable volume has been set by the voter, they can puff into the device to continue. If no action is taken, the session will automatically begin after 20 seconds.



Figure 8.38: Audio Rate Adjustment

9. The voter will then be presented with the option to change the audio speed by sipping. Each sip into the device will increase the speed.
10. Once a comfortable speed of audio has been set by the voter, they can puff into the device to continue. If no action is taken, the session will automatically begin after 20 seconds.

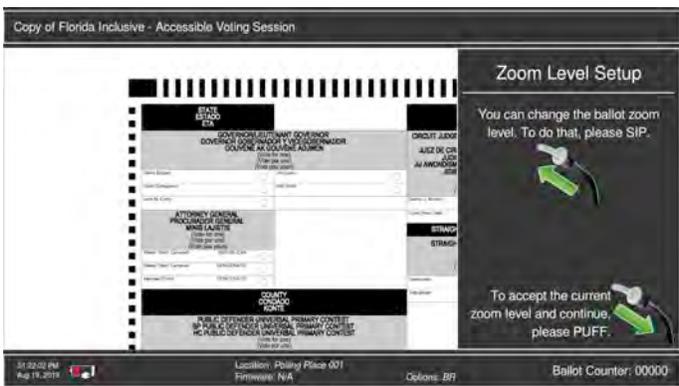


Figure 8.39: Ballot Zoom Level

11. The voter will then set the ballot zoom level by sipping. There are three zoom levels available to the voter.
12. The voter can accept their zoom levels and proceed to the next screen by puffing.

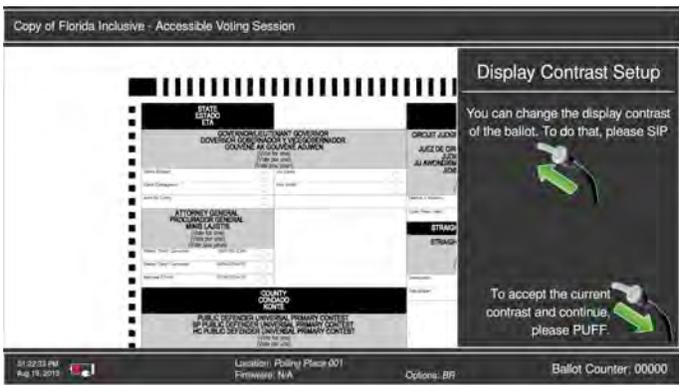


Figure 8.40: Ballot Contrast Level

13. The voter will then set the ballot contrast level by sipping.
14. The voter can accept their contrast and proceed to the next screen by puffing.

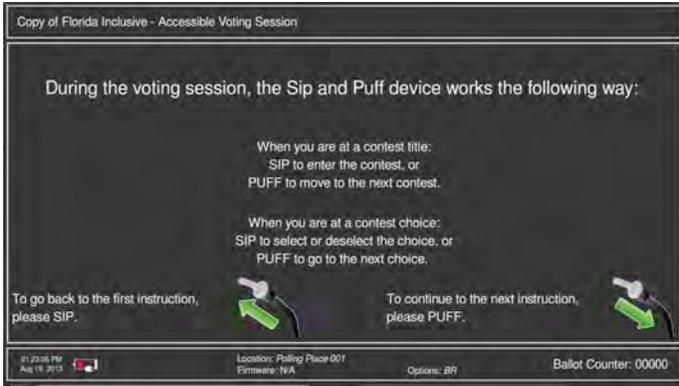


Figure 8.41: Sip and Puff Voting Instructions

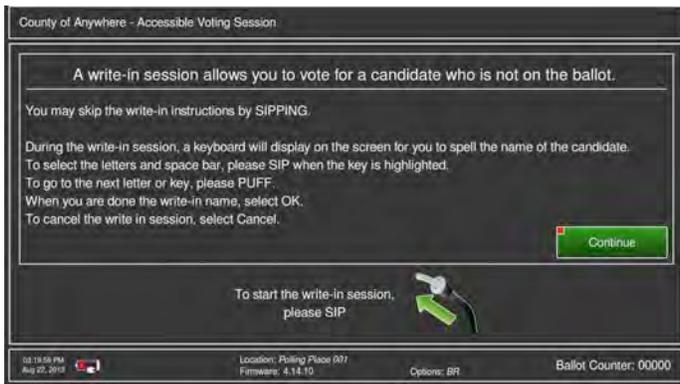
15. The voter will be presented with instructions on how to use the Sip and Puff device as seen in Figure 8.41.



Figure 8.42: Ready To Begin the Voting Screen

16. The voter can commence their voting session by puffing into the device. Sipping will return the voter to the previous screen.

8.5.3.1 Write-In Selections: Audio/Visual Voting Session



1. When voter selects the write-in choice on the ballot, they will be presented with on-screen instructions on how to navigate the write-in session, and enter a write-in name on their ballot.

Figure 8.43: Write-in Instructions for using the Sip and Puff



2. An on-screen keyboard will appear, which the voter can navigate by using the Sip and Puff in order to enter a write-in selection on their ballot.

Figure 8.44: Write-in Selections with the Sip and Puff

8.5.4 Audio Only Voting using the Sip and Puff

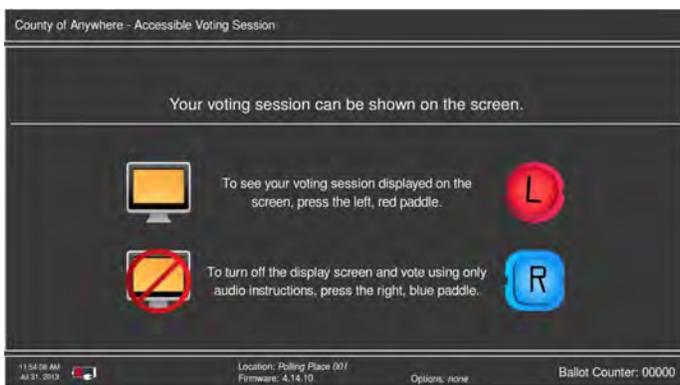
If the voter decides to turn the display off during their voting session, and commence an audio session only, the voter must puff when presented with the option to do so.

Audio instructions explain to the voter how they will navigate, and make selections to their ballot. The ImageCast® Evolution 's LCD screen will read 'An audio voting session is in progress'.

The Sip and Puff will operate in the same manner as it does in the Audio and Visual voting session.

8.5.5 Audio and Visual Voting using Paddles

NOTE ON LANGUAGE: When using Paddles, the voter will navigate, and make selections to their ballot by either pressing a red, circular paddle on their left, or a blue, square paddle on their right. For the purposes of these instructions, the red circular paddle is described as 'the left paddle,' and the blue, square paddle is described as 'the right paddle'.



1. To commence an Audio and Visual Accessible Voting Session using Paddles, the voter will press the right paddle.
2. The voter will be presented with two on-screen options:
 - The Accessible Voting Session displayed on screen can be activated by pressing the left paddle.
 - The Accessible Voting Session announced via audio only can be activated by pressing the right paddle.

Figure 8.45: Paddles: Options to Turn ON/OFF Display Screen



Figure 8.46: Paddles: Options to Turn ON/OFF Audio.

3. If the voter has selected to display the session on the screen, they can then select to hear the accompanying audio by pressing the left paddle.
4. If the voter wishes to proceed solely with the session displayed on the screen, they can then select to continue their voting session without audio by pressing the right paddle.



Figure 8.47: Paddles Welcome Screen

5. The welcome screen will be presented with accompanying audio.
6. The voter can continue the session by pressing the right paddle.



Figure 8.48: Audio Volume Adjustment

7. The voter will be presented with the option to change the audio volume by pressing the left paddle. Each time the left paddle is pressed, the volume will slightly increase.
8. Once a comfortable volume has been set by the voter, they can press the right paddle to continue. If no action is taken, the session will automatically begin after 20 seconds.



Figure 8.49: Audio Rate Adjustment

9. The voter will then be presented with the option to change the audio speed by pressing the left paddle. Each time the left paddle is pressed, the audio's speed will slightly increase.
10. Once a comfortable speed of audio has been set by the voter, they can press the right paddle to continue. If no action is taken, the session will automatically begin after 20 seconds.

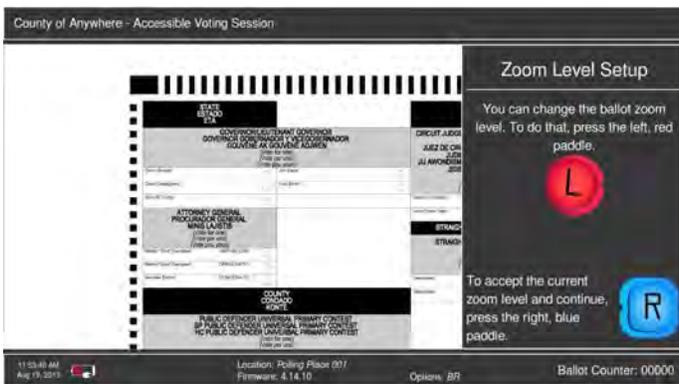


Figure 8.50: Ballot Zoom Level

11. The voter will then set the ballot zoom level by pressing the left paddle. There are three zoom levels available to the voter.
12. The voter can accept their zoom levels and proceed to the next screen by pressing the right paddle.

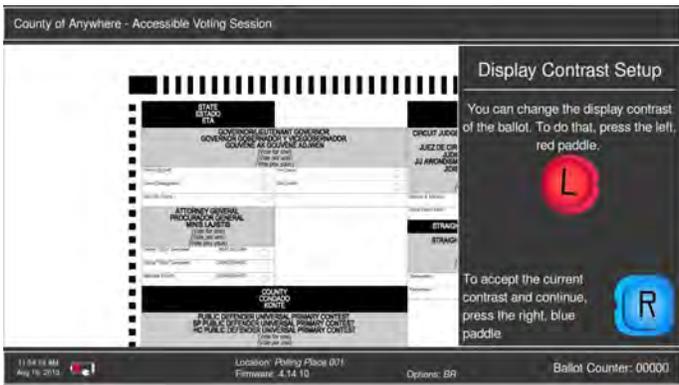


Figure 8.51: Ballot Contrast Level

13. The voter will then set the ballot contrast level by pressing the left paddle.
14. The voter can accept their contrast and proceed to the next screen by pressing the right paddle.

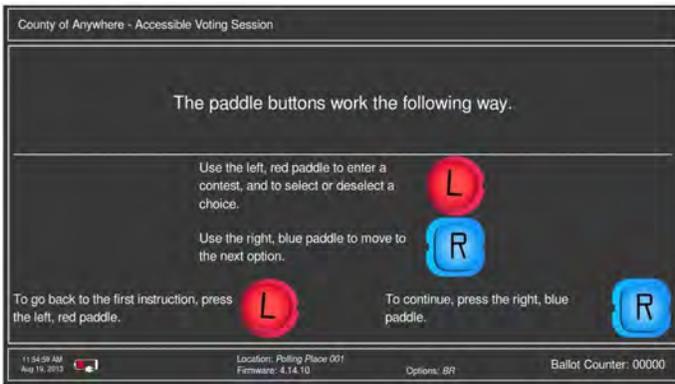


Figure 8.52: Paddle Voting Instructions

15. The voter will be presented with instructions on each Paddle and their respective functionalities, as seen in Figure 8.52.



Figure 8.53: Ready To Begin Voting Screen

16. The voter can commence their voting session by pressing the right paddle. Pressing the left paddle will return the voter to the previous screen.

8.5.5.1 Write-In Selections: Audio/Visual Voting Session

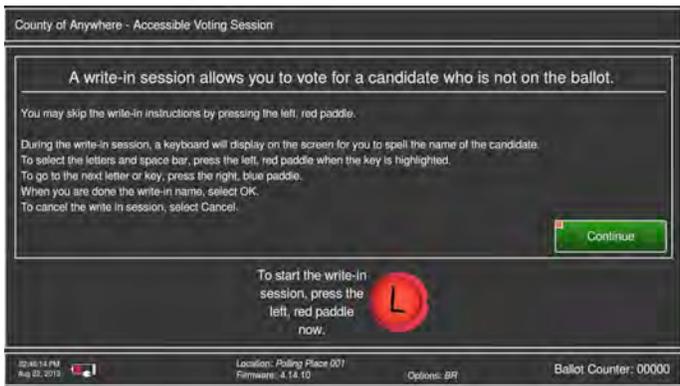


Figure 8.54: Write-in Instructions using Paddles

1. When voter selects the write-in choice on the ballot, they will be presented with on-screen instructions on how to navigate the write-in session, and enter a write-in name on their ballot.



Figure 8.55: Write-in Selections with the Paddles

2. An on-screen keyboard will appear, which the voter can navigate by using the Paddles in order to enter a write-in name on their ballot.

8.5.6 Audio Only Voting using Paddles

If the voter decides to turn the display off during their voting session, and commence an audio session only, the voter must puff when presented with the option to do so.

Audio instructions explain to the voter how they will navigate, and make selections to their ballot. The ImageCast[®] Evolution 's LCD touchscreen will read 'An audio voting session is in progress'.

The Paddles will operate in the same manner as they do in the Audio and Visual voting session.

8.6 Provisional Voting

Provisional voters can mark and review their ballots on ImageCast[®] Evolution . They will be provided with second chance voting if they make any mistakes that will be displayed on the Ballot Review screen of ImageCast[®] Evolution when voting in the Provisional mode. The ballot will be returned to the voter and it will be placed in a marked envelope for processing in the central location after Election Day (see Chapter 11).

If a provisional voter wishes to verify how the ICE will interpret their ballot, the ICE operator can activate 'Provisional Vote' mode for the next ballot. 'Provisional Vote' mode is identical to 'Ballot Review' mode except that the 'Cast' button is disabled so that the only option is to return the ballot to the voter when the review is complete:

1. Press the iButton Security Key to the security key receptacle in order to access the Poll Worker Mode menu.
2. Select "Provisional Vote" option from the menu. This will allow the voter to insert a ballot and review their selections on the Ballot Review screen. The 'Cast' button is disabled so that the ImageCast[®] Evolution will always return the ballot to the voter to ensure that no votes are registered. In addition, depending on configuration, the provisional mode can be enabled only on next ballot or continuously.
3. To resume normal 'Election Run' mode, the attendant must press the security key to the security key receptacle to access the Poll Worker Mode menu, and then select either the "Standard Voting" or "Accessible Voting" option.

8.6.1 Provisional Voting Using the Accessible Voting Features of the ImageCast® Evolution Tabulator

If a voter requires both an Accessible Voting Session, and a provisional ballot, the following steps should be undertaken by the poll worker:



Figure 8.56: Enabling Provisional Voting

1. Guide the voter to the ImageCast® Evolution , and log into the Poll Worker menu by pressing the iButton Security Key to the receptacle, and entering in the the appropriate credentials.
2. Press **Utilities** on the left side of the screen.
3. Press **Provisional Voting** under the Utilities menu as seen in Figure 8.56.
4. Press the **Change** until 'Enabled on Next Ballot' is listed as the Provisional Voting preference.
5. Activate an Accessible Voting Session, as outlined in Section 8.4.2.2.

At this point, the voter can begin making selections to his or her ballot. Once finished, the ballot will be returned to them at the front of the unit. It is advised that the pollworker remain in the vicinity of the voter during their Accessible Voting Session so that the ballot can promptly be placed in a Provisional Voting envelope once it has been returned.

8.7 Closing the Polls and Vote Reporting

8.7.1 Closing the Polls: ImageCast® Evolution



Figure 8.57: Poll-Worker Menu

1. If there are ballots deposited in the auxiliary bin, insert them one-at-a-time into the ImageCast® Evolution for tabulating.
2. Press the **Close Poll** button on the Main Menu of the ImageCast® Evolution touchscreen.



Figure 8.58: Close Poll - Authorization Screen

3. An Authorization Screen will appear. Enter your username and password and press **OK**.

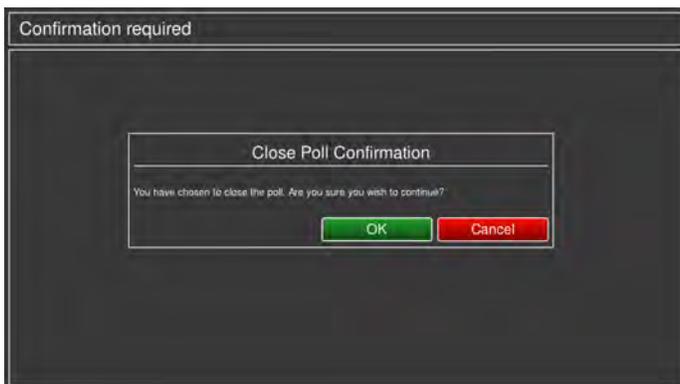


Figure 8.59: Close Poll Confirmation Screen

4. A confirmation screen, as seen in Figure 8.59, will appear. Press **OK** to continue.



Figure 8.60: Auxiliary Bin Prompt



Figure 8.61: Printing of Result Tape Completed



Figure 8.62: Poll-Worker Menu once Polls have been Closed

5. A prompt appears requiring the auxiliary bin to be checked for any additional ballots. Check if the seals on the Auxiliary are intact. If the seals have been broken, then remove the ballots from the Auxiliary bin, place them into a labeled envelope and handle them per jurisdictional procedures.
6. Press **OK** to continue.

7. The results tape will begin to print. You will receive confirmation that the tape has printed successfully, and you will be asked to whether you wish to print additional copies.
8. Tear off the results tape and return it, complete with the signatures of Election Officials, to the Election Board. This is the Official Election Returns tape.
9. Print out additional copies by pressing **Yes**. The required quantity of tapes is based on your jurisdiction's requirements.
10. The ImageCast[®] Evolution's poll has now been closed.



Figure 8.63: Power Down Request



Figure 8.64: Breaking the Ballot Box Seal

11. Press the power button in the top right corner of the screen. Select the Shut Down option to power down the unit. This action will prompt a countdown until the machine has fully powered down. Close the privacy screen flaps, and place the LCD monitor in the horizontal storage position.

NOTE: If the monitor is not placed in the horizontal storage position the system will remain in the 'stand by' mode, which expends the battery power.

12. Break the **Yellow** seal on the Ballot Box door, and unlock it using the provided key.



Figure 8.65: Removing Ballots from the Ballot Box

13. Remove all ballots from the Ballot Box bins. Empty the Main bin first, then remove the seal and empty the Secondary bin. Ensure that the ballots from the Main and Secondary bins (containing write-in votes) are kept separate for further, post-election day, processing at the central location.
14. Place the ballots from the two bins into separate envelopes and label them clearly, noting all necessary detail including, but not limited to, the polling location, tabulator and Ballot Box bin origin.
15. Close the return container and seal it with a tamper-proof seal.



Figure 8.66: Removing the CF1 Card

16. Break the **Yellow** seal on the ImageCast[®] Evolution 's CF1 door, and remove the Compact Flash card. Should you wish to remove the CF2 card, do so at this time. The CF card(s) should be placed in a secure transport envelope/case/bag for transport to the central location.
17. This card containing the vote totals, together with all envelopes containing ballots removed from the ballot box, are transported to the Central Counting Location for accumulation and reporting of vote total results for all precincts.

The step-by-step procedure for the Election night processing continues in the Chapter 9.

8.8 Securing Audit Logs and Backup Records

Election audit trails provide the supporting documentation for verifying the accuracy of reported election results. They present an archival record of all system activity that is related to the vote tally. All thermal printer reports should be retained as part of the election record.

The integrity of voting and audit data is kept on nonvolatile data storage mediums. For the Democracy Suite[®] EMS, data is kept on hard drives. The ImageCast[®] voting devices and audit data are kept on the compact flash memory cards. Both hard drives and compact flash memory cards, can be removed from the system/devices and transported to another location for readout and report generation.

The ImageCast[®] Evolution maintains a real-time log of its operation, including error and audit log events. The election software application has an integrated logging service, meaning it is active from the moment the device becomes operational. The system also has a battery-supported real-time clock (RTC), and an intrusion detection micro-controller which allows system events (such as intrusions) to be monitored and recorded off-line. The system integrates an audit log mechanism that records who did what and when on the device, as well as other system level event information.

8.9 Operating the ImageCast[®] Evolution on Battery Power

The system will shut down and preserve the integrity of votes cast prior to the power failure, and resumes functionality when power is provided or restored without significant or intrusive power-up procedures. In the event of a power failure, the equipment will continue to operate and indicate the battery life on the LCD monitor and side panel LED lights, which are depicted in Figure 8.67.

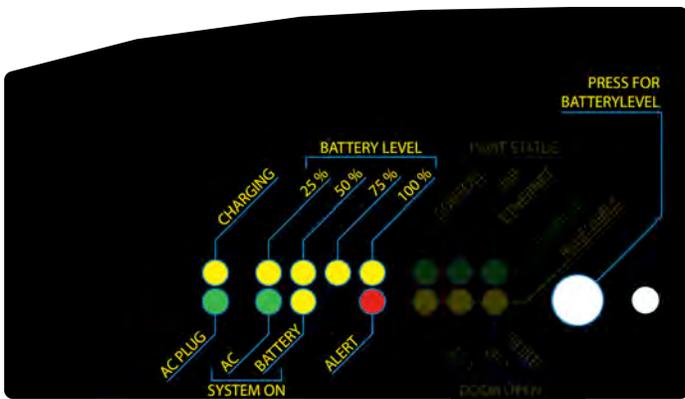


Figure 8.67: LED Battery Status Indicators

A battery power source is provided in the event that the main electric supply is disrupted. The battery power source operates the system and allows for the casting of votes for a period of two hours under normal operating conditions (100 voters per hour, and two AVS voters per hour).

The switch from battery power to AC power (or vice versa) takes place automatically. If the AC power is disconnected or unavailable, the unit will continue to operate on battery power as long as a sufficient charge remains in the battery. When AC power is reconnected or otherwise resumes, the ImageCast® Evolution automatically returns to AC power mode.

8.10 Changing the Printer Paper Tape

8.10.1 Thermal Paper Removal

1. Lift the thermal printer door upward to access the printer module.
2. On the left side of the thermal printer module, press the green release lever into an angled position. This releases the thermal head from the platen roller to allow the paper to be removed or fed in smoothly.

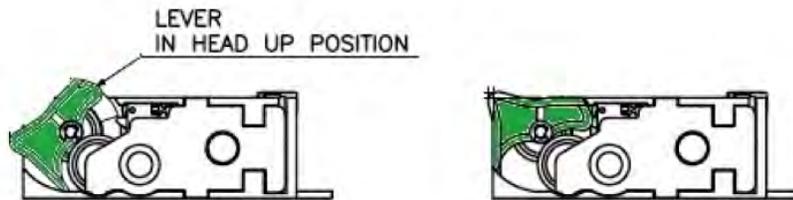


Figure 8.68: Lever in Head Up/Down Position

3. Remove the old partial paper roll (if any) out from the printer compartment.
4. Slide the roll shaft out of the paper roll.

8.10.2 Thermal Paper Installation

Thermal Paper installation can be performed even while the system is powered on although it is recommended that the user read the tabulator handling notes prior to performing any maintenance routine on the machine.

1. Remove the end-holding tape from a new paper roll to free the roll end. Unwind the paper roll past any glue residue from the tape.
2. Cut the edge of a new paper roll relatively straight.
3. Feed the roll shaft through the new paper roll.
4. Place the new roll into position on the paper roll tray such that the paper unreels from underneath the roll and upwards.

Note: Thermal Paper is chemically coated usually only on a single side of the roll. Heat from the thermal printer will therefore print only on that side of the paper. A fingernail swiped quickly across either side of the paper can generate enough heat from friction to produce a mark and thus identify the coated side of the paper roll. This is the side that needs to be placed against the thermal printer head.

5. Feed the straight-cut edge of paper underneath the platen roller. As the paper is fed through, it will find its way between the platen roller and thermal head.
6. Pull the paper up then press the green release lever into the horizontal head down position to secure the paper in place.

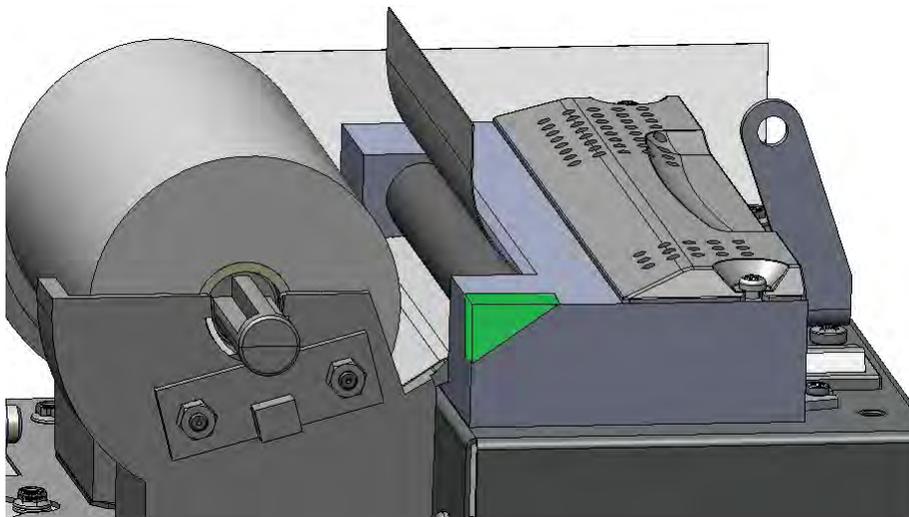


Figure 8.69: Paper Roll Installed

7. Pull the paper one more time and ensure alignment to the platen roller
8. Close the printer door making sure the thermal paper feeds through it.

Chapter 9

Semi-Official Canvass Tabulation and Reporting

This chapter contains suggested procedures that will be a part of a jurisdiction's Election Night standard operating procedures.

9.1 Central Tabulation

Report preliminary Absentee and All Mail ballot results that were scanned on the Absentee/All Mail ICC, up until the jurisdiction's reporting 'cut-off' point.

1. Start the RTR application (see Section 9.4.1) and continue with the step below.
2. Open the Election Project (see Section 9.4.2) and continue with the step below.
3. Run the Zero Report from the RTR (see Section 9.4.3) and continue with the step below.
4. Load the results from all Absentee/Mail ICC tabulators into the RTR application as described in the Section 9.4.5 and continue with the step below.
5. Validate and Publish those results by following the procedure in Section 9.4.6 and continue to the step below.
6. After the Closing of Polls, and after the Early Vote ImageCast[®] Evolution results have been loaded to the RTR (see Section 9.2 below) run the Election Summary Report as described in the Section 9.5.

9.2 Early Vote ImageCast[®] Evolution

Report preliminary Early Vote ballot tally results that were scanned up until the jurisdictionally defined 'Cut Off' point in time as previously mentioned in the Section 7:

1. Unpack the CF cards from the Early Vote tabulators and identify the CF1 card for that tabulator to be uploaded.
2. Start the RTR application (see Section 9.4.1) and then continue with the step below.

-
3. Open the Election Project (see Section 9.4.2) and then continue with the step below..
 4. Load the results from all Early Voting ImageCast[®] Evolution tabulators into the RTR application as described in the Section 9.4.4 and continue with the step below. *NOTE: On Election Day, only the Results files should be loaded into the RTR, since images can prolong the loading process.*
 5. Validate and Publish those results by following the procedure in Section 9.4.6 and continue with the step below.
 6. After the Closing of Polls, run the Election Summary Report. Refer to the Section 9.5.

9.3 Precinct Tabulation (ImageCast[®] Evolution)

After closing of polls on Election Day, the results from precinct ImageCast[®] Evolution tabulators are loaded into RTR as they start arriving to the central processing location.

1. Unpack the CF cards from the Election Day precinct ImageCast[®] Evolution tabulators and locate the CF1 cards for the tabulator to be uploaded.
2. Start the RTR application (see Section 9.4.1) and continue with the step below.
3. Open the Election Project (see Section 9.4.2) and continue with the step below.
4. Load the results from the Election Day ImageCast[®] Evolution tabulators into the RTR application as described in the Section 9.4.4 and continue with the step below. *NOTE: On the Election Day, only the Results files should be loaded into the RTR, since images can prolong the loading process.*
5. Keep on loading the results as the CF cards arrive until a jurisdictionally pre-determined points in time are reached, at which result files loaded until that point are published and reported on (see Section 9.5).
6. Validate and Publish those results by following the procedure in Section 9.4.6 and continue with the step below.
7. To find out how many precincts have been reported on, as opposed to how many are still due to be loaded into the RTR, run the ‘Tabulator Status’ report:
 - Under the ‘Reports’ menu group click ‘Default’.
 - In the ‘Report Name’ drop-down, select the ‘Tabulator Status’ and click on the **Create Report** button.
 - The success dialog window will appear when the report is complete.
 - Click **OK** and then click **Search** to list reports.
 - Double-click on the newly created report to open it to inspect the ‘Load Status’ and ‘Total Ballots Cast’ columns to determine which precincts are missing from the report.
8. Continue the process of loading, publishing and reporting of the results from the Election Day ImageCast[®] Evolution tabulators in the regular intervals until all are loaded.
9. After all results from Election Day ImageCast[®] Evolution tabulators have been uploaded, run the Election Summary Report again to obtain the Final Election Night Summary Report. Refer to the Section 9.5.

9.4 EMS Results Tally & Reporting Use Procedures

The following procedures assume the following:

1. That the RTR User has been created and activated in the EMS EED application. If you have received the project from the Dominion's service bureau, this would have already been set up in the Election Project and the RTR user name and password details would have been provided to the jurisdiction together with the Election Project package. If the jurisdiction is programming their own election project, the EMS Administrator will set up the RTR user according to the procedures specified in 14.2.4.
2. Network parameters have been configured. This should have been set up during the Installation, Readiness and L & A procedures according to instructions specified in 14.2.3.
3. Reporting services are initialized as would be done during the installation procedure following the steps outlines in Section 14.2.5.
4. Any pre-existing results (such as results generated during the L & A procedures) have been purged by the Administrator as specified in the Section 14.6.1

9.4.1 Start EMS Results Tally & Reporting

1. Double-click on the Results Tally & Reporting icon on the desktop.
2. If this is the first time opening Results Tally & Reporting, the **Localization Settings** dialog will appear. Select **Default** as the language option, and click **OK**. The EMS Results Tally & Reporting application opens.

9.4.2 Open Project

To open your Election Project in Results Tally & Reporting:

1. Click **Election Project** and choose **Open Project**.
2. Select the desired election project and click **OK**
3. Enter your username and password.
4. Click **OK**.

9.4.3 Run Zero Report

In order to verify that there are no results in the database:

1. Expand the **Reports** menu and click **Election Summary Report**.
2. Apply the following settings:
 - In the **Contest Statistics** group box, check all items except Double Votes.
 - Uncheck **Cross endorsed totals only**.
 - On the **Percents** option, select Votes Cast.
 - On the **Write-ins** option, select Split.

-
- Sort Candidates per **Global order**.
 - In the **Contest Filter** section, choose **Select All**.
 - Select the **Districts** radio button, and choose **Select All**.
 - In the **Polling location** section, choose **Select All**.
 - In the **Tabulator** section, choose **Select All**.
 - Check all counting groups.
3. Click **Create Report**. Wait until the report is created and verify that there are no results in the database.

If reporting engine returns error:

1. Initialize reporting services (see Section 14.2.5).
2. Once reporting services are successfully configured, click **Create Report** and verify that there are no results in the database.
3. Click **Export** and choose your preferred file type.
4. Save the file.

If the Zero report has any results, notify the Administrator immediately.

9.4.4 Load Content from the Tabulator's Memory Card

1. Connect the card reader/writer to the EMS Results Tally & Reporting workstation.
2. Insert the CF card from Early Vote ImageCast[®] Evolution or Election Day ImageCast[®] Evolution tabulator into the card reader.
3. Click **Actions** and choose **Open Card Management**.
4. The **Drive Selection** dialog appears. Select the correct drive and click **OK**. The **Load Results** dialog opens.
5. Select one of the following options from the **Actions** combo box: **Load Results File**, **Load Ballot Images** or **Load Log File**. **NOTE: On Election Night, due to time constraints, Dominion suggests that only Result Files are loaded.**
6. Click **Load**. The **Progress** window appears. Click **OK** once the process is completed.
7. Repeat steps 4 & 5, until all desired content has been loaded.
8. Close the **Load Results** dialog.
9. Repeat steps 2 through to 8 for all CF cards to be loaded.

9.4.5 Load Results from Directory

1. Click **Actions** and choose **Load Results From Directory**.
2. The **Load** dialog appears. Click **Browse** to browse to the source directory.
3. Expand **Computer** and browse to the **Z:\Project_Name\Results\Tabulator x_x_x_x_x\Results** folder. Ensure that the selected folder is the **Results** folder under the **Tabulator x_x_x_x_x** folder and not the top-level **Results** folder.

NOTE: The **Z:** drive is mapped to the **\\EMSServer\Adjudication** shared folder on the EMS server, as described in Section 2.6.9 in *Dominion Voting Systems Democracy Suite Installation Procedures*.

4. Click **OK**.
5. Leave file types as **Results**.
6. Select the files you wish to load and click **Load**.
NOTE: When you select the tabulator folder to load results from, make sure that the “**Show Loaded Files**” checkbox is selected. The result files that were already loaded will be listed in the window with a “**Load**” column checked. Select only the result files that have not been loaded and click “**OK**”. If you try to upload result files that have already been loaded, the message will be displayed notifying you that results already exist in the database.
7. Once all result files have been loaded, click **OK**.
8. Repeat steps 2 through 7 to import results for each tabulator, taking care to select the **Results** folder within the desired tabulator folder in step 3 above.
9. Click **Close** to close the dialog.

9.4.6 Validate and Publish Results

Results must be in a **Published** state in order to report them.

1. **Publish a selection of result files (that are in Initial state):**
 - (a) Select **Result Files** in the left hand menu bar. The Result Files main activity screen appears.
 - (b) **Tabulator**, **Tabulator Type**, and **Result State** drop down menus may be used to filter the search results.
 - (c) Click **Search** to list results.
 - (d) Select all results that you wish to include in the reports and click **Validate & Publish**.
 - (e) Click **Yes** to confirm your action in the Question dialog that appears.
 - (f) Click **OK** in the Information dialog that appears once the process is complete.

9.5 Election Night Summary Report

To create Election Summary Report, do the following:

1. Expand 'Reports' and click on the **Election Summary Report** option in the **Activities Navigation Panel**. The 'Election Summary Report' context sensitive screen appears.
2. Select the desired criteria in 'Parameters' and 'Filters' sections of the 'Election Summary Report' context sensitive screen and click on the **Create Report** to generate the report. This may take a while, depending on the size of election.
3. The report will be displayed on the right side of the screen.
4. To export and save the report, click on the **Save icon** in the shape of the floppy disc (located on the top right tool bar above the report). Select the format in which you wish to save the report.
5. The Windows browse dialog window will appear. Navigate to the location where you want to save the report, enter the name and click on the **Save** button.

9.6 Integration with County Systems and CalVoter

The RTR application provides the ability to export CalVoter reports based on templates originally created by the CalVoter application. This section of the document describes the steps to successfully produce reports for CalVoter. The following assumes the project is in Ready for Election state, that a user is able to log-in to that project using RTR and the CalVoter templates are available for the Election Project.

9.6.1 SOS Mapping and Export

SOS Mapping provides the California Secretary of State with CalVoter compatible reports. Reports are based on external templates. To ensure that the mapping process and export of CalVoter reports are correct, each template will have to be processed separately using the procedures described in this section.

9.6.1.1 Open Mapping Module

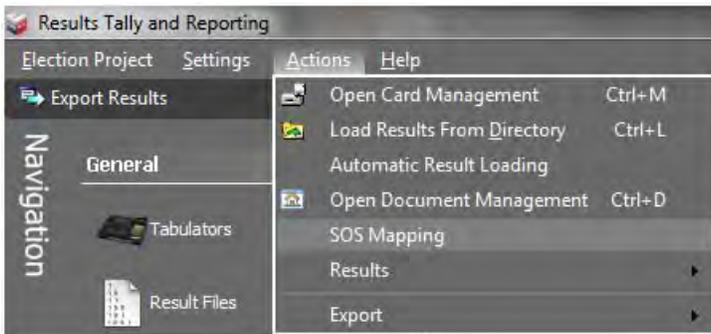


Figure 9.1: Actions Menu - SOS Mapping

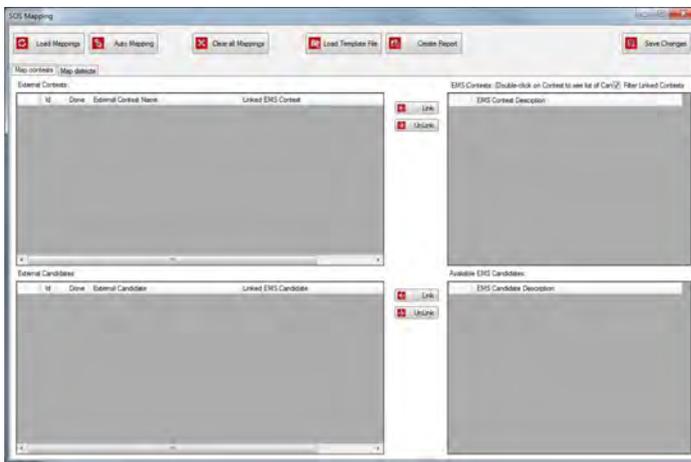


Figure 9.2: SOS Mapping Screen

1. Select **Actions** from the menu, and click on the **SOS Mapping** option.
2. **SOS Mapping** screen will appear.

3. The following options are listed at the top of the screen:

- **Load Mapping:** Retrieves all data entered into the system (including loaded templates, contest/candidates/districts in the EMS system, the mapping between these two data sets).
- **Auto Mapping:** Automatically matches up contests, candidates and districts using a string comparison algorithm.
- **Clear all Mappings:** Clears out all mappings made by the user.
- **Load Template file:** Allows the user to load as many templates as he/she wants into the system. These templates are stored on the NAS.
- **Create Report:** Allows user to select the template, and the type of report allowed for the template.

4. In addition, the dialog has two tabs: Map Contests and Map Districts.

9.6.1.2 Load Template File

1. Click **Load Template File**.
2. Browse for, select the template file, and click **Open**.
3. A **Success** dialog appears. Click **OK**.

NOTE: In case you experience any difficulties with importing of templates, please contact your **Dominion Voting** representative for assistance.

4. The template file is saved in the appropriate location on the **EMS NAS**.
5. Click **Load Mappings**. The tables under “External Contests” and “External Candidates” will be populated with the appropriate information.

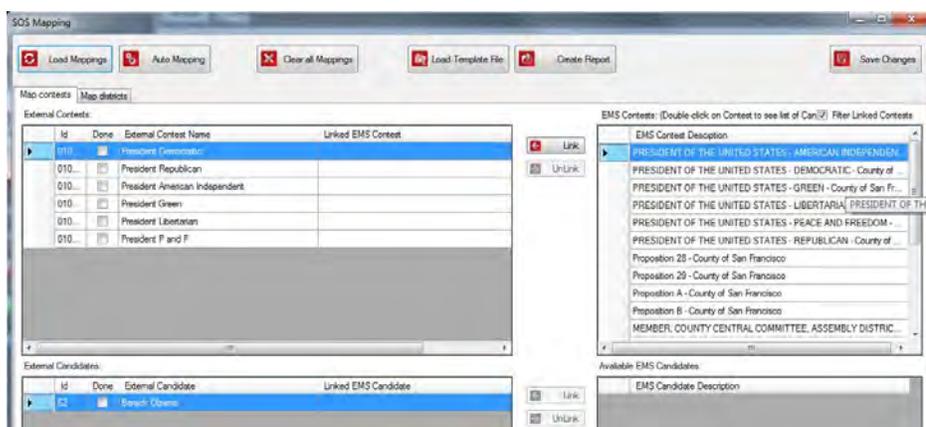


Figure 9.3: SOS Mapping Screen 2

9.6.1.3 Auto Mapping

To help the user map the information more quickly the user can press the “Auto Mapping” button, which will suggest a mapping between contests, candidates and districts based on their naming. The suggested mapping will appear in the interface, and the user must verify that the mapping is correct. If not correct the user must unlink incorrectly mapped contests, candidates and/or districts before linking them to the correct values. For instructions on how to complete the mapping see next section (Section 9.6.1.4). The user must afterwards press “Save Changes” button to store the mapping in the database.

9.6.1.4 Map Contests, Candidates and Districts

The user must now map all contests, candidates and districts in the CalVoter template to the corresponding objects in the EMS project. Districts only need to be mapped if the template loaded is an SSOV template. It is possible in certain cases that the CalVoter template refers to contests, choices or districts that do not exist in EMS. The most common case for this is registered write-in candidates that can be found sometimes in CalVoter templates. These candidates are recognizable by having the “(W/I)” at the end of their name.

NOTE: RTR does not support reporting results for registered write-ins through the SOS Mapping module. These contests will only be partially mapped, however this doesn't prevent RTR from producing correctly formatted CalVoter reports that do include rows for these registered write-ins, however their vote totals will be zero.

It is also allowed to leave complete contests unmapped. The corresponding rows for these contests in the CalVoter reports will also contain zero vote totals. The system will warn the user on creation of reports whether any contests, candidates or districts remain (partially) unmapped but doesn't prevent the successful creation of reports. The contests, candidates and districts can be mapped and unmapped by using the Link/Unlink buttons in the "Map contests" tab:

1. First, make sure that any previous mappings have been cleared as described in the Section 9.6.3.
2. Map the contests by selecting the matching contests in the right and left top windows and then click on "Link".
3. Once the contests are linked, the candidate names will be listed in both left and right sides of the bottom of the screen.
4. Repeat this process for each contest and all of their candidates. Select the matching candidates on the left and right and then click 'Link'.
5. Click **Save Changes** to store the mapping in the database.

NOTE: The order in which candidates are presented in the CalVoter system do not necessarily correspond to the order of candidates in the EMS project. Ensure that the correct candidates are mapped to each other. In case the user is mapping data for a SSOV template there is also mapping to be performed in the "Map districts" tab.

9.6.2 Create Report

- After the mapping has been saved the user can proceed to create reports, by pressing the “Create Report” button.
- This will open a dialog that allows the user to select the loaded template and the report type.
If the loaded template is the Secretary of State’s Election Night Reporting template, or the Secretary of State’s SOV template, the user will have the choice of the following Report Types: REGL, FINL, UPDT or SOVF.
If the loaded template is a SSOV template the user will only have the choice to select ‘SSOV’ as the report type.
Select the type and click on ‘Create Report’.
- The Browse window will appear. Select the location where you want to save the report, name the report adding ‘.txt’ to the end of the name and click on ‘OK’. The output for all these report types will be identical except that the first line will contain the selected report type name.
NOTE: In case you experience any difficulties in saving reports, please contact your Dominion Voting representative for assistance.
- Close the ‘Create SOS Report’ dialog.
- To open the report you just saved, browse to the location where you saved the report and double-click on it. In case you forgot to add the ‘.txt’ suffix to the file name during the saving process, you can still open the file in Notepad or Word Pad applications.

9.6.3 Clear Mapping and Template

After the user is done with creation of reports for the current template and wishes to create a report for another template it is important to perform the following steps before loading a different template:

1. Press “Load Mappings” button so that the screen contains all mapped data.
2. Press “Clear all Mappings” button.
3. Press “Save Changes” button.

NOTE: After that the template file must also be removed from the NAS by performing the following steps:

1. Log-in to the server machine and open File Explorer
2. Navigate to the project folder corresponding to the current project on the NAS.
3. Within the project folder navigate to the \Reports\Templates\subdirectory.
4. Delete all files (txt and sha) files present in this subdirectory.

Chapter 10

Adjudication Use Procedures

This chapter describes adjudication of election results using the ImageCast[®] Adjudication application. Adjudication is the same for L & A and for official election results.

If you are following this chapter for L & A, you should follow its sections in the order specified in Chapter 4, and you should return to the step in Chapter 4 that sent you here afterwards.

If you are following this chapter for adjudicating official election results (after L & A), follow the sections in the order presented and continue to the next chapter as normal.

It is assumed that any pre-existing results have been backed up and adjudication has been stopped as specified in Section 4.4, and that the system has been purged of any such results as specified in Section 5.2. Therefore, there should not be any results or ballot images present for the current election project on the EMS NAS, or in the project's folder under **D:\Adjudication**.

10.1 ImageCast[®] Adjudication Overview

ImageCast[®] Adjudication is a client and server application used to review and adjudicate ImageCast[®] Central ballot images. The application examines voter exceptions such as overvotes, undervotes, blank contests, blank ballots, write-in selections, and marginal marks.

ImageCast[®] Adjudication eliminates the need to physically handle or rescan ballots, which can potentially damage the originals and cause chain-of-custody concerns. The application uses tabulator results files and scanned images to allow election administrators to make adjudications to ballots with auditing and reporting capabilities.

While ballot adjudication is in progress, all clients will receive ballots to adjudicate based on the filtering setup by the Adjudication Administrator in the adjudication project setup steps. Ballots are automatically served to each client when available.

The application works in two basic modes: election project setup and adjudication. Standard adjudication users only have the ability to adjudicate ballots from the client workstations while adjudication administrator users have additional capabilities of viewing configured project parameters and generating reports from the Adjudication client application that is installed on the EMS server.

First, the Administrator needs to select the project and configure the Adjudication application for use. This is done on the EMS server as described in section 10.2.

10.1.1 Adjudication User Types

There are two types of Adjudication users available:

1. **Adjudication Administrator:** The Adjudication Administrator role exists only on the EMS server. This user has administrative rights to the project setup wizard, management screens, reporting, ballot adjudication, ballot re-opening, re-adjudication and the ability to start and stop adjudication. Users in this role are members of the “AdjudicationAdmin” Windows group on the EMS server.
2. **General Adjudication User:** The General Adjudication User can **only** adjudicate Ballots. This role exists on machines other than the EMS server. Users in this role are members of the “AdjudicationUser” Windows group on both the EMS server and the remote workstations.

10.2 Configuring Adjudication on the EMS Server by the Adjudication Administrator

In this section the Adjudication Administrator will log into the EMS server and will select the Election Project and configure various application parameters such as conditions (called outstack conditions) to adjudicate ballots on. After configuring the required options, the Adjudication Administrator will start Adjudication.

10.2.1 Choose Election Project

The **Choose election project** menu lists all projects that exist on the EMS server.

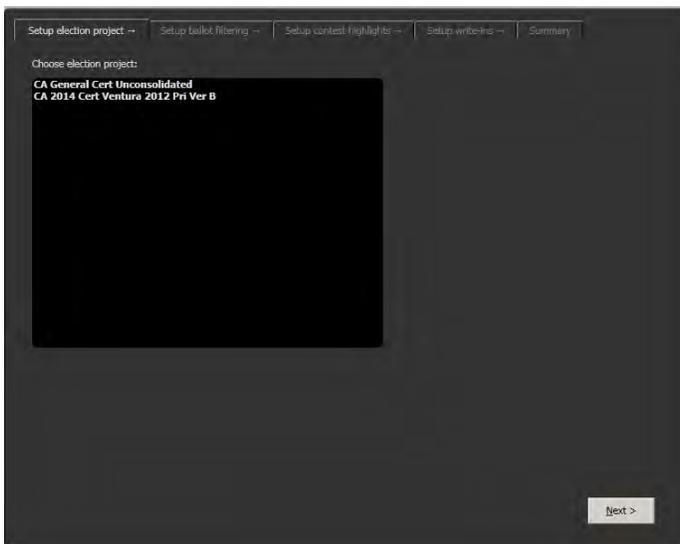


Figure 10.1: Project Selection

To select a project to adjudicate:

1. Login to the EMS server with the user account that has been assigned to the “AdjudicationAdmin” Windows group (typically, this is the “emsadmin” account).
2. Double-click on the ImageCast Adjudication icon on the desktop to open the application.
3. After loading, the application will show the first step in the Election Project Setup Wizard.
4. Select the Election Project by clicking on it and then click **Next**.
5. “Confirm election project choice” dialog will appear. Click **OK** to confirm. Proceed to the next section to continue configuring Adjudication.

10.2.2 Ballot Filtering and Outstack Conditions Overview

The **Ballot Filtering** screen allows the user to select the outstack conditions to adjudicate. Outstack conditions are used to filter ballots that will be served to users for adjudication. These filters assist in streamlining the workflow by reducing the amount of review required during ballot adjudication.

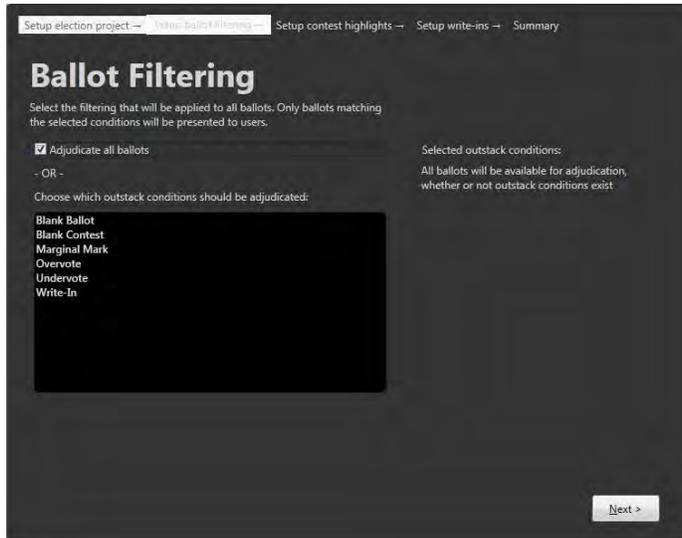


Figure 10.2: Adjudicate all ballots option selected

ImageCast[®] Adjudication uses outstack conditions to virtually separate and categorize ballots based on pre-determined characteristics and criteria. For instance, if you wish to adjudicate write-in contests only, you may filter out all ballots without write-in contests to reduce the overall number of ballots to review. A ballot may have multiple outstack conditions, for instance, both undervotes and write-ins.

Outstack condition: Blank ballot

This condition indicates that a ballot contains no valid votes. No highlighting is applied for this condition. **NOTE:** A blank ballot will always contain blank contests and undervotes. A ballot containing one or more marginal marks may also qualify for this condition.

Outstack condition: Blank contest

This condition indicates that a ballot contains one or more contests where no votes were detected. If a contest contains only marginal marks, this condition will exist. Selecting this will highlight contests with this condition.

Outstack condition: Marginal mark

This condition indicates that a ballot contains one or more choices that were detected as marginal marks (marks that were detected but the tabulator could not determine that they were valid votes). Selecting this will highlight contests with this condition. Additionally, each candidate with a detected marginal mark will have a yellow overlay.

Outstack condition: Overvote

This condition indicates that a ballot contains one or more overvoted contests. Selecting this will highlight contests with this condition.

Outstack condition: Undervote

This condition indicates that a ballot contains one or more undervoted contests. Selecting this will highlight contests with this condition.

The “Adjudicate all ballots” option is selected by default as shown in Figure 10.2. This option results in all ballots being available for adjudication, even those that do not need adjudication. To prevent this from happening, specific filters can be selected.

Instructions on how to select outstack conditions for filtering will be provided in the next section (10.2.2.1), but first, the available outstack conditions will be explained.

Outstack condition: Write-in

This condition indicates that a ballot contains one or more contests with voted write-in candidates. Selecting this will highlight contests with this condition.

10.2.2.1 Selecting Outstack Conditions

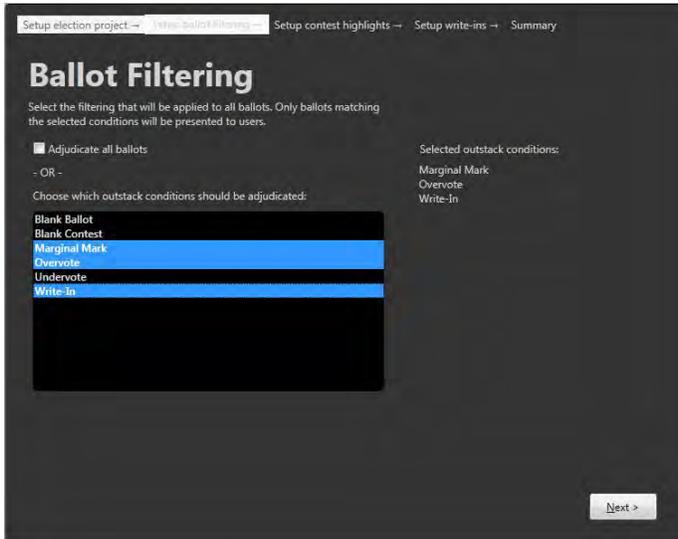


Figure 10.3: Select Outstack Conditions

To select outstack conditions:

1. Unselect the “Adjudicate all ballots” check box by clicking on it.
2. Select the desired outstack conditions by clicking on them. The selections will be highlighted in blue and will appear in the “Selected outstack conditions” list on the right of the **Ballot Filtering** screen.
NOTE: You can select one, many or all outstack conditions. To unselect a condition, click on it again.
3. Click **Next**.

10.2.3 Contest Highlighting

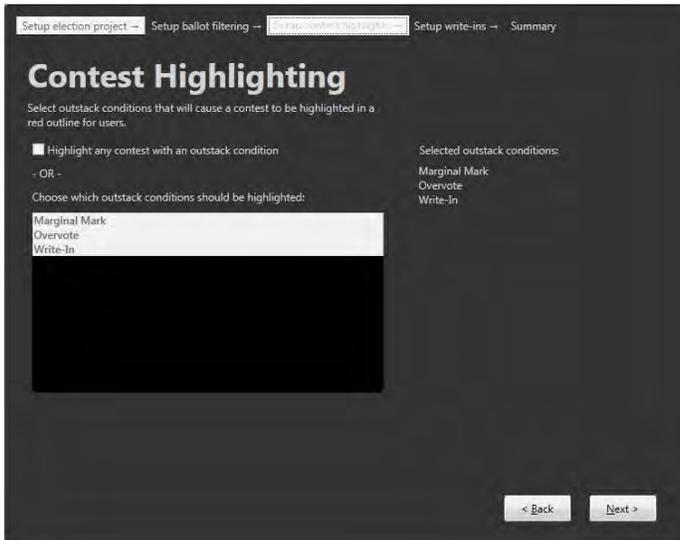


Figure 10.4: Contest Highlighting

The **Contest Highlighting** screen allows administrators to select which contests should be highlighted. Highlighting is done by outlining contests in red.

However, the ability to select specific highlighting is only available when “Adjudicate all ballots” is selected in **Ballot Filtering**. In this document, specific filters (outstack conditions) are selected as shown in previous Section 10.2.2.1 and, therefore, highlights are automatically selected.

NOTE: The **Blank Ballot** outstack condition will not appear in the list of selected outstack conditions, as it is a ballot-level condition and does not apply to individual contests.

Values on this screen are to be left as default.

1. Click **Next** to continue.

10.2.4 Qualified Write-Ins Definition

The **Qualified Write-Ins** screen allows administrators to enter candidate names that adjudicators will use to match against hand-written names on the ballot image. All contests that allow write-in votes will appear in the list. The names entered here are what will be shown on the Summary report. For example, if you desire multiple spellings of the same candidate name to be shown on the report, enter them here.

IMPORTANT: Qualified write-ins cannot be added or modified once adjudication begins.



Figure 10.5: Qualified Write-Ins

To add qualified write-ins:

1. Highlight the desired contest by clicking on it.
2. Type in the qualified write-in in the **Name** field.
3. Click **Add** to add the qualified write-in.
4. A message appears indicating that “Qualified write-ins have been updated”.
5. Repeat steps 2 and 3 to add all write-in names.
6. Click **Next** when you are finished.

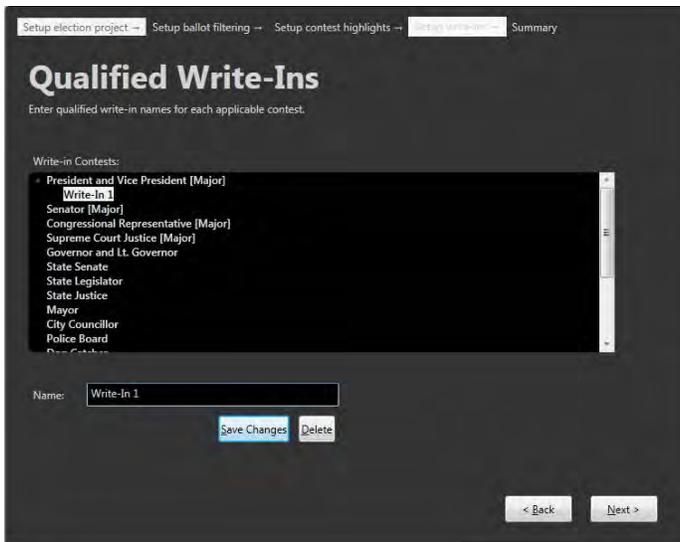


Figure 10.6: Removing a Qualified Write-In

To view qualified write-ins:

1. Contests with qualified write-ins will show an expander on the left. Click this expander to view all qualified write-ins.

To modify or delete qualified write-ins:

1. Expand the list of qualified write-ins by clicking the expander on the left of the contest name.
2. Select the write-in that you want to delete or modify.
3. The write-in will appear in the **Name** field with an active cursor, allowing you to modify the write-in.

5. Click the **Save Changes** button (or press Enter) to save changes.
OR
6. Click the **Delete** button to remove the write-in.
7. A status message appears stating that “Qualified write-ins have been updated”.
8. Click **Next** when you are finished modifying or deleting write-in names.

10.2.5 Review Configuration and Start Adjudication

The **Summary** screen allows you to review your selections. To change any of the items shown in the **Summary** screen, click **Back**. Once all items have been reviewed, the Adjudication Administrator can click **Start Adjudication** to begin ballot adjudication.

IMPORTANT: Qualified write-ins and outstack filters cannot be added or modified once adjudication begins. However, you may exit the application at this point (or any point in the wizard) and your changes will be saved. You may wish to do this if you are setting up Adjudication days before you have the final list of qualified write-ins.

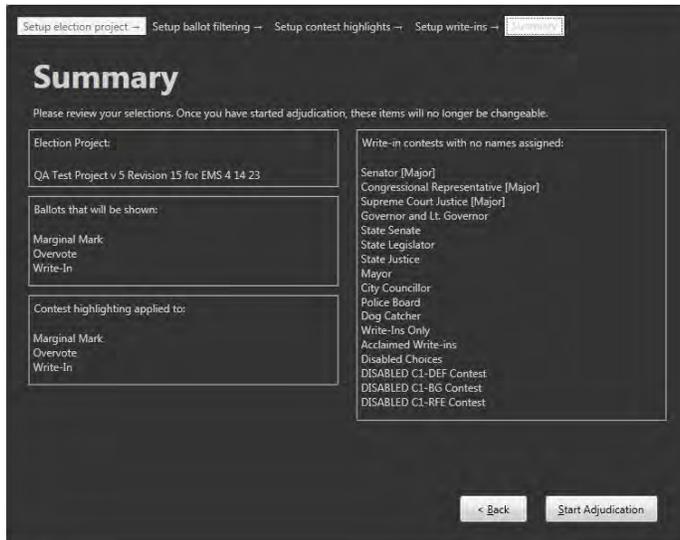


Figure 10.7: Summary of Project Selections

To Start Adjudication:

1. Click **Start Adjudication**.
2. The “Confirm Start Election” dialog will appear. Click **OK**.
3. A notification bar will be temporarily displayed at the top of the window saying that Adjudication has started and the ballot adjudication screen will be shown.
4. Wait for a ballot to appear. This might take a few minutes. When the ballot is displayed, the adjudication system is ready to serve ballots to remote clients.
5. Toggle the **STOP** switch. The ballot will disappear and be made available to Adjudication Users.

10.3 Using ImageCast® Adjudication

10.3.1 Starting Adjudication as a General Adjudication User

General Adjudication Users will adjudicate ballots on client workstations logged in as Adjudication Users. These users do not have access to administrative functionalities such as reporting, starting and stopping, submitting batches etc.

To start adjudicating as a General Adjudication User:

1. Log in to a remote workstation with a user account that has been assigned to the “AdjudicationUser” Windows group.
2. Start the ImageCast Adjudication application by double-clicking on its icon.
3. Wait for a ballot to appear. If adjudication has recently been started on the EMS server, it may take a few minutes for the first ballot to appear.

10.3.2 Ballot Navigation

To navigate the ballot, a user moves the ballot image around the viewing area and zooms in and out to inspect marks and write-in names.

To zoom in and out on the ballot image, position the cursor over the ballot image and roll the scroll wheel on the mouse up and down.

To scroll and pan on the ballot image, click and hold the ballot image in an area **that does not contain voting targets** and drag the mouse. The best area to select is the **center of the ballot** (the second column).

NOTE: Clicking on a voting target while navigating the ballot will immediately select or deselect that voting target, causing the vote mark to change from voted to unvoted, or vice versa. While navigating the ballot, pay close attention to the notification bar that appears at the top of the screen when a voting mark is selected or deselected (the notification bar is described in more detail in 10.3.3). If a voting mark is selected or deselected accidentally while navigating the ballot, be sure to undo the unintended change immediately.

10.3.3 Notification Bar

Notifications are displayed to users to confirm certain actions or display system information. Alerts can either be green (vote added or other information), yellow (cautionary information), or red (vote removed or error information). Alerts show up in a bar at the top of the user interface for five seconds.

While navigating the ballot, pay close attention to the notification bar area to ensure that no marks are added or removed unintentionally. When adding or removing a mark, or resolving a write-in vote, note that the confirmation message in the notification bar matches the intended action. If not, undo the unintended change immediately.

Write-in Accepted For: Abraham Lincoln

Figure 10.8: User notification

10.3.4 Ballot Navigation Menu

The dark area on the right side of the screen is called the **Ballot Navigation Menu**. It provides a toggle switch for switching target overlays and highlights on and off, buttons to view front and back ballot faces and the AuditMark, and displays ballot information. The **Complete** button is used to finish adjudication of the ballot and submit it to the Administrator for review.

In Adjudication, coloring and other items that are over-layed on top of the original ballot image are called overlays. The overlays toggle switch is used to view the ballot image in its original form. While the overlays are hidden, you will not be able to adjudicate contests by clicking on them. To show the overlays and continue adjudication, click on the toggle again.

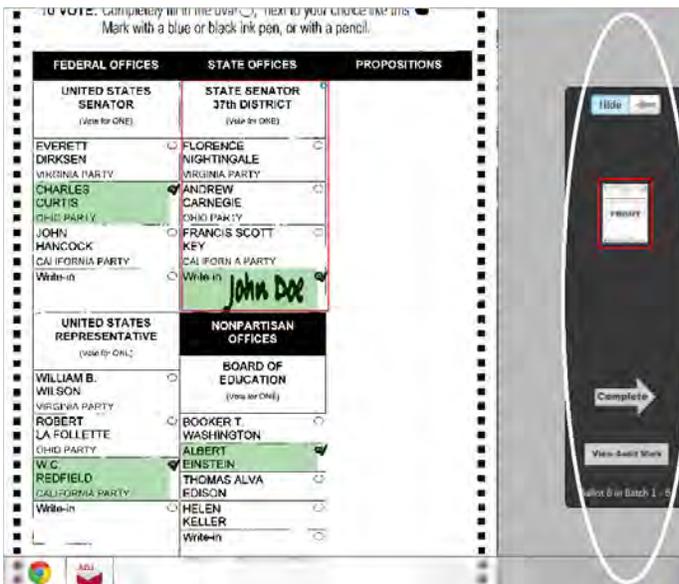


Figure 10.9: Ballot Navigation

To turn the ballot overlay on / off:

1. On the **Ballot Navigation** menu, click **Hide** to remove overlays and highlights.
2. To view overlays and highlights again, click **Show**.

The application automatically takes a user to the first available contest (or ballot in case of blank ballot) that requires ballot adjudication. A red outline will surround the **FRONT** or **BACK** icon in the **Ballot Navigation** menu to inform the user which side of the ballot is being displayed.

The AuditMark is the record of how the ImageCast® Central interpreted the voting marks when the ballot was scanned and saved, and what votes were recorded by the tabulator.

Once a ballot has been adjudicated and completed, an additional AuditMark that lists all adjudication actions is appended to the original AuditMark. The additional AuditMark is appended even if no changes were made to the ballot.

To view the appended AuditMark, an Adjudication Administrator can reopen the ballot from the **Batch Management** screen as explained in Section 10.4.3.1.

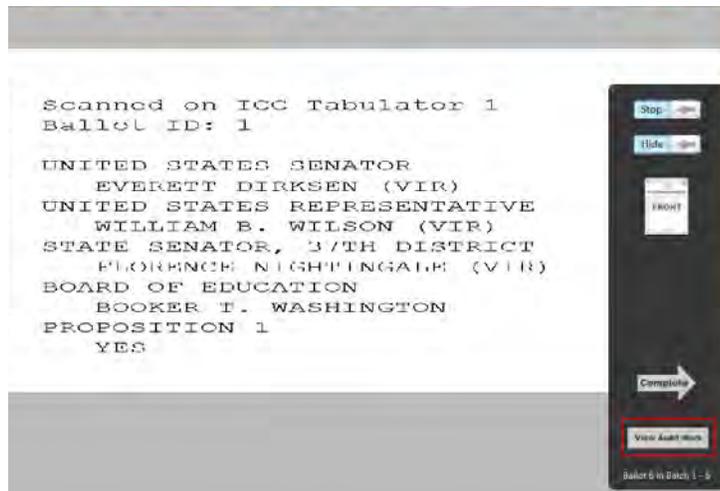


Figure 10.10: Audit Mark

To view the AuditMark:

1. Click **View Audit Mark** button.
2. The image of the ImageCast® Central AuditMark will appear.
3. To navigate away from the AuditMark screen, select “Front” or “Back” icons.

NOTE: The AuditMark image may need to be enlarged for better viewing. To enlarge the AuditMark, zoom in as explained in Section 10.3.2.

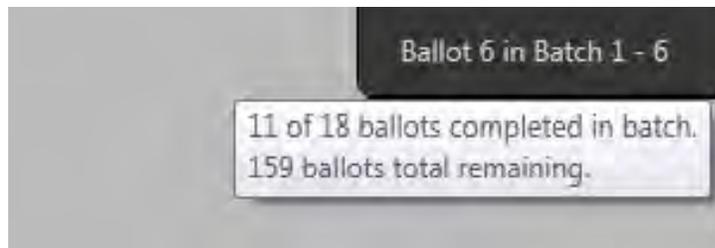


Figure 10.11: Ballot Information

Ballot information display:

- Ballot information is shown at the bottom of the **Ballot Navigation** menu. This includes the ballot number, as it is in the sequence of the batch, and the tabulator and batch number to which it belongs.
- Hovering over this label displays how many ballots remain to be adjudicated in the current batch as well as the total remaining across all batches. These numbers will update each time you hover over the label as other users complete ballots.

The **Complete** button is used to finish adjudication of the ballot and submit it to the Administrator for review. Completing the ballot is covered in Section 10.3.8.

10.3.5 Shortcut Keys

Typically, the mouse buttons are used for dragging the image around, and the mouse wheel is used for zooming. However, certain actions can be done with the keyboard.

Shortcut Keys:

Shortcut Key	Function
Ctrl +	Allows the user to zoom in on the ballot
Ctrl -	Allows the user to zoom out of the ballot
F	Shows the front side of the ballot image
B	Shows the back side of the image
A	Shows the audit mark
Left arrow	Previous highlighted contest
Right arrow	Next highlighted contest
R	Refocus current contest
Enter	Finish current ballot
O	Toggle overlays (show/hide on navigation bar)

Table 10.1: Shortcut Keys Legend

10.3.6 Contest Information

Ballot images are presented to users with overlays representing whether or not the vote was originally counted by the tabulator and the confidence percentage of each mark.

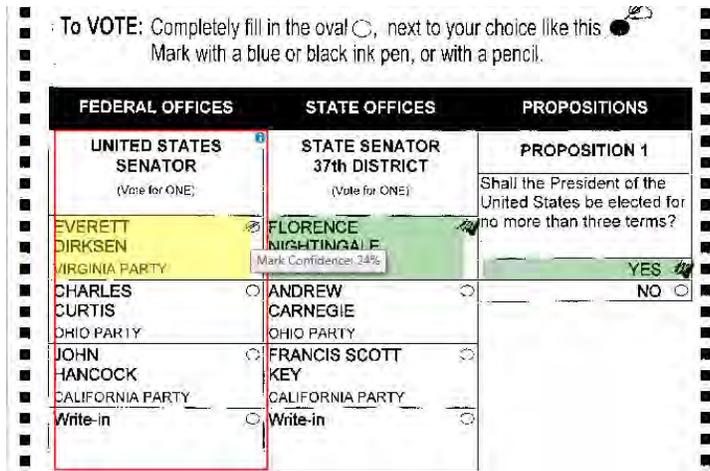


Figure 10.12: Marginal mark confidence

The system will apply an overlay over each choice for which a mark was detected, as follows:

- **Yellow overlay:** Marginal marks that were *not* counted by the ImageCast® Central tabulator.
- **Green overlay:** Marks that were counted by the ImageCast® Central tabulator.

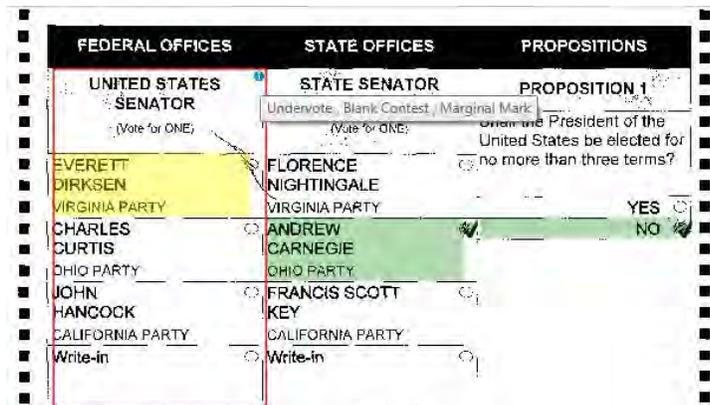


Figure 10.13: Overlays with contest information

- For counted marks, the system also overlays a check mark on the target area.
- An informational icon is overlaid on the top right corner of each contest that has conditions. This lists all detected outstack conditions when the user hovers over the icon.
- Choices that are detected as marginal marks will display a confidence percentage when the user hovers over the target.

10.3.7 Adjudicate a Contest

To adjudicate a contest, click on a choice's target area to toggle its vote status.

10.3.7.1 Remove a Vote

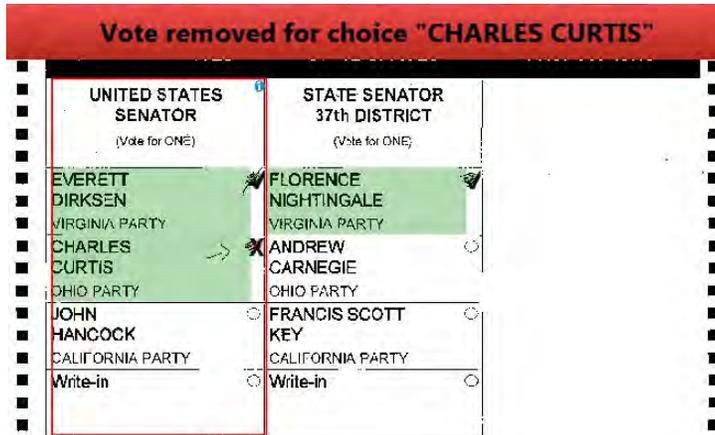


Figure 10.14: Vote removed

To remove a vote:

1. Click on the target area of a choice that was previously counted (and marked) as a vote.
2. The vote will be removed and a red overlay with an "X" icon will appear over the target.

10.3.7.2 Add a Vote

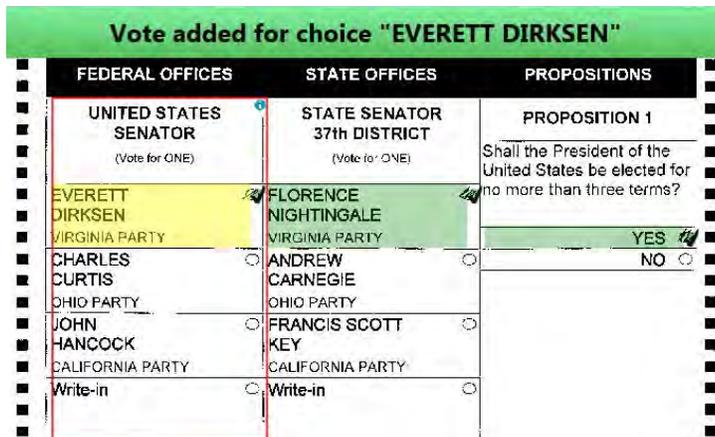


Figure 10.15: Vote Added

To add a vote:

1. Click on the target area of a choice that was previously not counted as a vote. **NOTE:** This includes votes that were detected as marginal marks.
2. The vote will be added for that choice and a green overlay with a check mark icon will appear over the target.

10.3.7.3 Adjudicate Write-Ins

For write-in contests, clicking on the target area displays a pop-up dialog that allows the user to match the write-in to a qualified write-in name, reject the write-in vote as invalid or accept it as-is.

NOTE: The write-in pop-up may need to be enlarged to see your selections, to do this, zoom in as explained in Section 10.3.2.

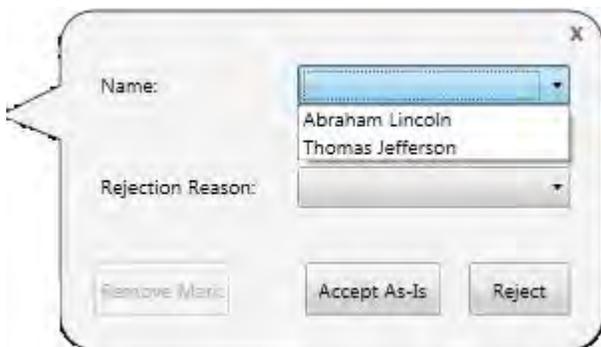


Figure 10.16: Write-in pop-up dialog

To match a write-in to a qualified write-in name:

1. Click the write-in target to open the pop-up.
2. Select the name from the list of qualified write-ins.

NOTE: if no qualified names were added during Election Project Setup for a write-in contest, then there will be no list of names to choose from. Only the options to Accept As-Is and Reject will be available. In the case that there is no list of names, skip these instructions.

3. Click **Accept**. A user notification appears and displays for whom a write-in was accepted. Also, a checkmark with a green overlay will be shown over the target.

To accept a write-in as-is:

1. Click the write-in target to open the pop-up.
2. Select **Accept As-Is**. A user notification will appear displaying that a write-in was accepted as-is.

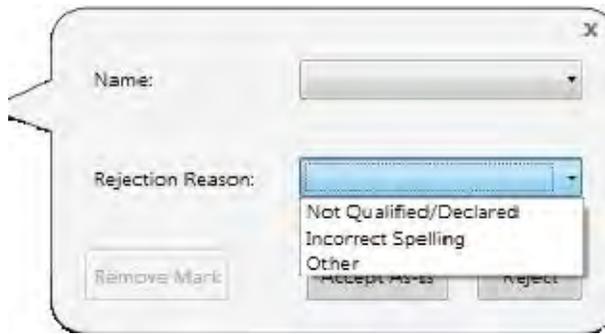


Figure 10.17: Write-in rejection list

To reject a write-in:

1. Click the write-in target to open the pop-up.
2. Select the rejection reason from the provided list of rejection reasons.
3. Select **Reject**. A user notification will appear displaying that the write-in was rejected.

In the case where a voter wrote a name in the write-in area, but did not fill in the write-in target, the adjudicator can:

1. Accept the mark **As-Is**, which will cast a vote for the general write-in option.
NOTE: If an adjudicator accepts the write-in **As-is** and then wants to remove the mark, they can simply select **Remove Mark**.
2. Match it to a certified write-in name if one exists.
3. Leave the write-in as an undervote.

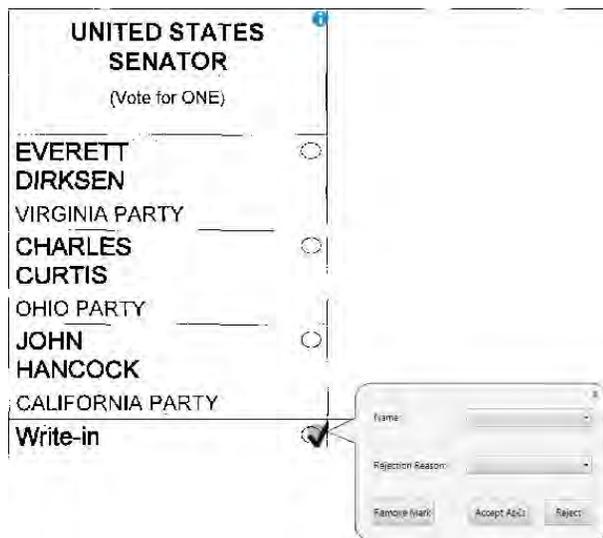


Figure 10.18: Remove a mark

To remove a mark:

NOTE: An adjudicator must first accept the write-in **As-is** in order for the **Remove Mark** button to be enabled.

1. Click the write-in target and the pop-up dialog will appear.
2. Click **Remove Mark**.

Qualified write-in names may only be used once per contest. For example, in a vote for two contest, a single qualified write-in name may only be matched to one write-in choice. Once a qualified write-in is selected and assigned to a choice, it is no longer available for subsequent name resolution within that contest.

To exit the write-in popup dialog without making any changes:

1. With the write-in pop-up open, click the “X” in the upper-right corner to close.

10.3.8 Completing a Ballot

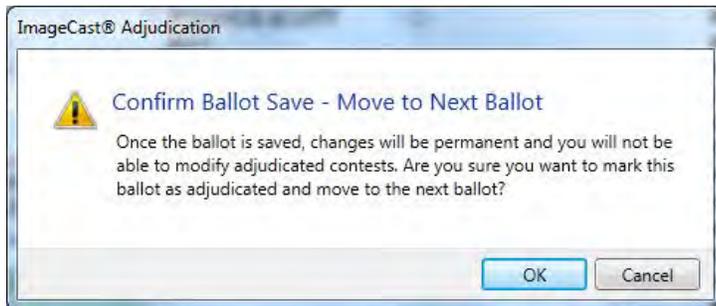


Figure 10.19: Confirm Ballot Save

The **Complete** button in the **Ballot Navigation** menu allows an adjudicator to save their adjudications and move to the next ballot.

When all ballots have been adjudicated, the screen will not display the image of a ballot. The General Adjudication user cannot go back and make changes to adjudicated ballots once they are completed.

To complete the ballot:

1. Click on the arrow-shaped **Complete** button.
2. Click **OK** when asked to confirm.

After completing the ballot, the next ballot available to be adjudicated is automatically served to the user. If no ballots are available, the message “Waiting for ballot” is displayed. Once a new ballot become available, it is automatically served to the user’s workstation.

NOTE: After completing a ballot, the next ballot may take a few seconds to appear. While waiting for a ballot, the screen will display the message “Waiting for ballot.” and the **Ballot Navigation** menu will not be available.

10.4 The Role of the Adjudication Administrator

The Adjudication Administrator exists on the EMS Server only. Ballot adjudication activities for the Adjudication Administrator are the same as those for the General Adjudication User, as described in Section 10.3.

The Adjudication Administrator can also perform administrative tasks, which are accessed through a set of tabs displayed on the left side of the screen. These tabs give the Adjudication Administrator access to additional functionality such as batch management and report generation.

The administrative tab names are:

- **Batches**
- **Adjudicate**
- **Write-ins**
- **Reports**
- **Filtering**

The screens associated with these tabs are discussed in further detail in the following sections.

10.4.1 Starting Adjudication as the Adjudication Administrator

To start Adjudication as an Adjudication Administrator:

1. Log in to the EMS Server with a user account that has been assigned to the “AdjudicationAdmin” Windows group (for example, **emsadmin**).
2. Double-click the ImageCast Adjudication icon on the desktop to open the application.

10.4.2 Ballot Navigation Menu as an Administrator

The **Ballot Navigation Menu** is shown on the right side of the screen, as previously described for General Adjudication Users in Section 10.3.4. The only addition to this menu for Adjudication Administrators is a toggle switch above the switch for hiding overlays.

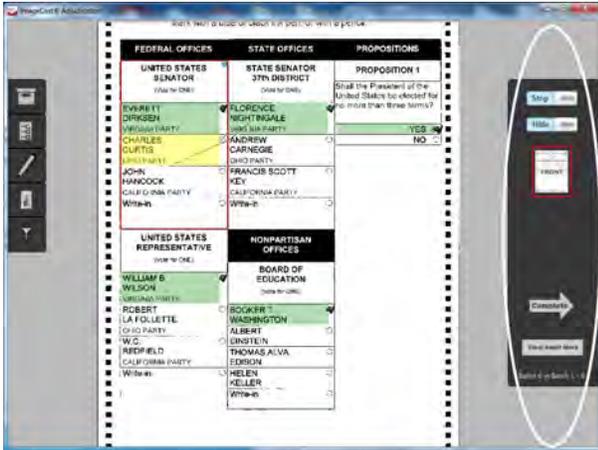


Figure 10.20: Ballot Navigation

The toggle switch allows the Adjudication Administrator(s) to decide whether they receive ballots for adjudication or not. It's important to note that any time the Adjudication client is opened for an Adjudication Administrator, the toggle switch reverts to the default position, which automatically displays a ballot for adjudication (if one is available).

If a ballot has been displayed and the Adjudication Administrator uses the toggle switch to stop receiving ballots, the current ballot will be sent to the next available user and another ballot will not be shown.

To stop or start receiving ballots:

1. If you have just opened the Adjudication application, wait a few seconds for a ballot to be displayed.
2. Click **Stop** to stop receiving ballots for adjudication.

NOTE: Occasionally, you may still receive a ballot after toggling the switch to the “Stop” position (for example, if the application was in the process of displaying a ballot as the switch was toggled). When this occurs, please toggle the switch again.

3. Click **Start** to begin receiving ballots for adjudication again.

10.4.3 Batch Management

The **Batches** screen contains a list of ballot batches. Although the tabulator name is also visible, ballots are not organized hierarchically under tabulators but under batches. Batches are also the entity under which results may be accumulated, reported on, and submitted to RTR. The application will attempt to serve all ballots within a batch before proceeding with another batch.

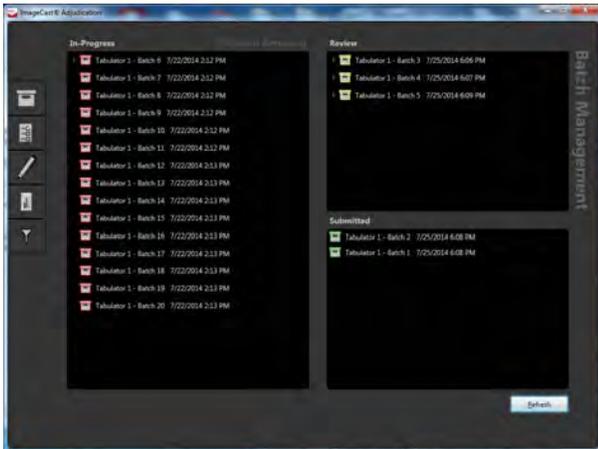


Figure 10.21: Batches Screen

Batches typically go through the following states:

1. **In-progress**
2. **Review**
3. **Pending Submission**
4. **Submitted**

In-progress batches are batches that have been acquired by the system and have ballots being served to clients. Batches which contain ballots that could not be read will have their status changed to **Read Error**.

When all ballots for a given batch have been adjudicated, the batch status changes to **Review**. This allows an administrator to optionally review adjudications before submitting the batch for tallying. When an administrator requests to submit a batch for tallying, its status changes temporarily to **Pending** while it is written to the "ReadyForRTR" folder. Once the system confirms that a batch has been written, its status changes to **Submitted**, otherwise, the status changes to **Submission Error**. A Submitted batch is available for reporting and tallying into RTR.

The **Batch Management** screen categorizes batches into three panes depending on their state:

- The **In-Progress** pane shows batches that are **In-Progress**, or in **Read Error**.
- The **Review** pane shows batches for which all ballots requiring adjudication have been adjudicated. These batches are referred to as “Completed” batches. Batches can also move to the **Review** pane immediately after they are loaded, even when none of their ballots have been adjudicated; this occurs if no ballots in a batch meet any of the filter conditions selected during the Election Setup wizard. Completed batches are dragged from the **Review** pane to the **Submitted** pane to write them to the “ReadyForRTR” folder so they can be tallied later into Results Tally and Reporting (RTR).
- The **Submitted** pane shows batches that are waiting to be written and batches that have been successfully written to the “ReadyForRTR” folder. If a batch fails to be written, it will move back to the Review pane and it will be labeled as being in Submission Error.

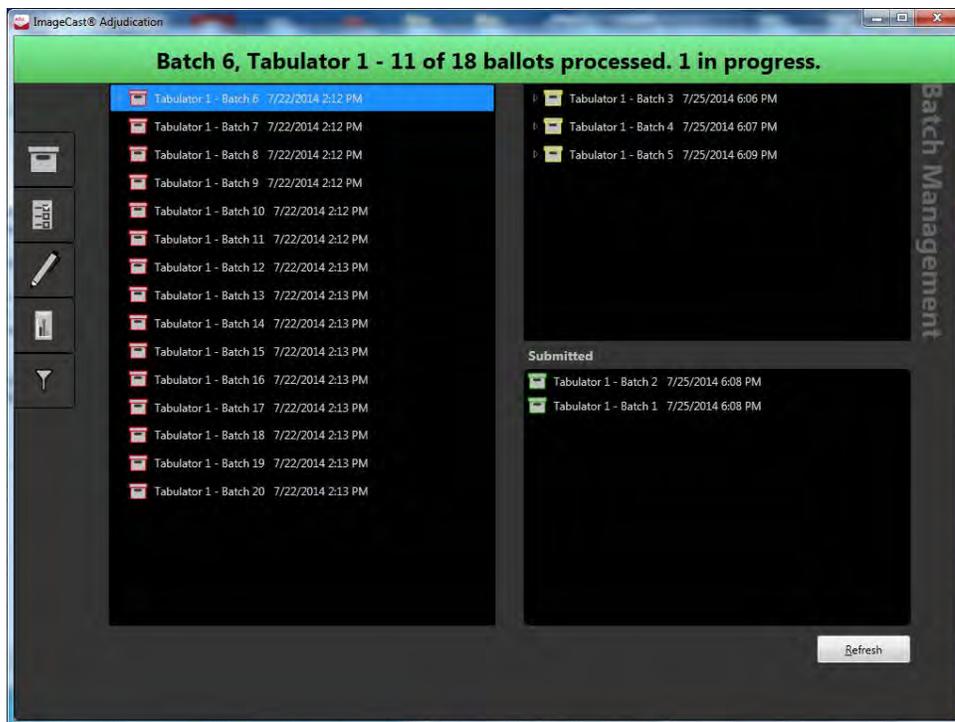


Figure 10.22: Batch Status

Batches in the **In-Progress** and **Review** panes that have adjudicated ballots will display an expander to the left of the icon that shows the list of ballots when clicked (note that this expander may appear faint).

Besides showing information on adjudicated ballots, this also allows ballot reopening, which is described in Section 10.4.3.1.

Clicking on a batch in the **In-Progress** or **Review** panes shows a notification bar with information about the batch - its tabulator and batch number, and how many ballots have been processed in the batch.

The **Ballots Remaining** counter is shown on top of the **In-Progress** pane. This counter displays how many ballots are left to adjudicate in the election. This is based on the filters that were selected during Election Project Setup and the number of batches currently loaded, thus, this number will constantly update as batches are loaded and ballots are adjudicated.

The latest batch information is obtained (or **refreshed**) anytime the **Batches** screen is entered. However, after the initial refresh the screen does not refresh automatically. The Adjudication Administrator can refresh the Batches screen on demand by clicking the **Refresh** button on the lower right corner of the screen.

A notification will be shown to the left of the **Refresh** button whenever updated batch information is available, ensuring that the Adjudication Administrator knows exactly when a refresh is needed.

10.4.3.1 Re-opening Ballots

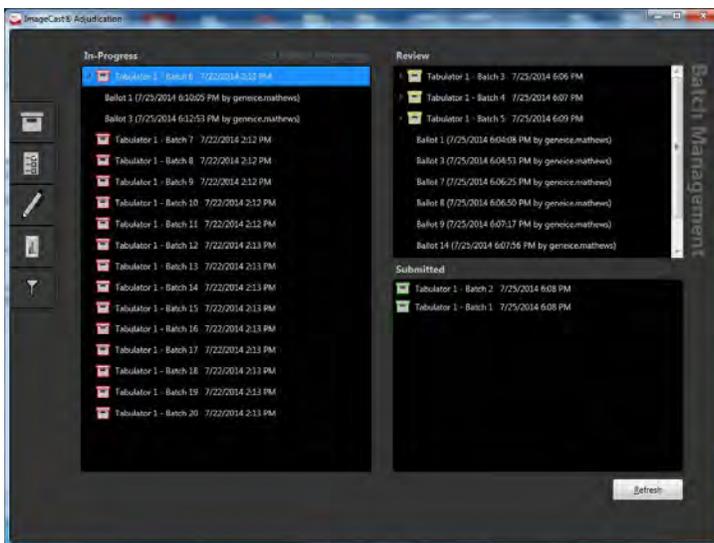


Figure 10.23: Batch Management Tree View

Batches in the In-Progress and Review panes that have adjudicated ballots will display an expander on the left that shows the list of ballots when clicked. Adjudicated ballots are shown with a ballot number, user name, and timestamp.

The Adjudication Administrator can double-click on a ballot to review (reopen) it. When this is done, the ballot is displayed in the ballot adjudication screen and the administrator can re-adjudicate or simply review the ballot without making changes.

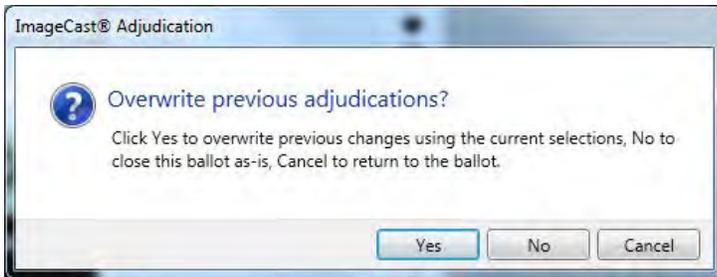


Figure 10.24: Confirmation message when readjudicating a ballot

To reopen a ballot for review or for re-adjudication:

1. In the **In-Progress** pane or the **Review** pane, select the expander to the left of the batch

2. Double-click the ballot that requires review or re-adjudication; the ballot will open in the Ballot Adjudication screen.

NOTE: Adjudication actions from the previous adjudication session will not be shown on the ballot. However, previous adjudication actions can be reviewed by looking at the ballot's Audit-Mark.

3. Review or readjudicate the ballot. Click **Complete** when done.

4. A confirmation box appears. Click **Yes** if you re-adjudicated the ballot and want to save your changes. Click **No** if you were only reviewing the ballot and you do not want to change previous adjudications. Click **Cancel** to close the confirmation box without taking any action.

10.4.3.2 Batch In Progress and Resetting In Progress Ballots

In some instances, a batch may indefinitely remain in the **In Progress** pane. This indicates that there is a ballot within the batch that has not been properly served. When clicked, such batches report that one or more of their ballots are in-progress, even when no adjudicators have ballots open from the batch. To ensure that all ballots for the batch are served, the ballots can be reset.

NOTE: Ballots that have been already adjudicated will stay adjudicated after resetting. Only the ballots that are in-progress will be reset so they can be served to available clients again.

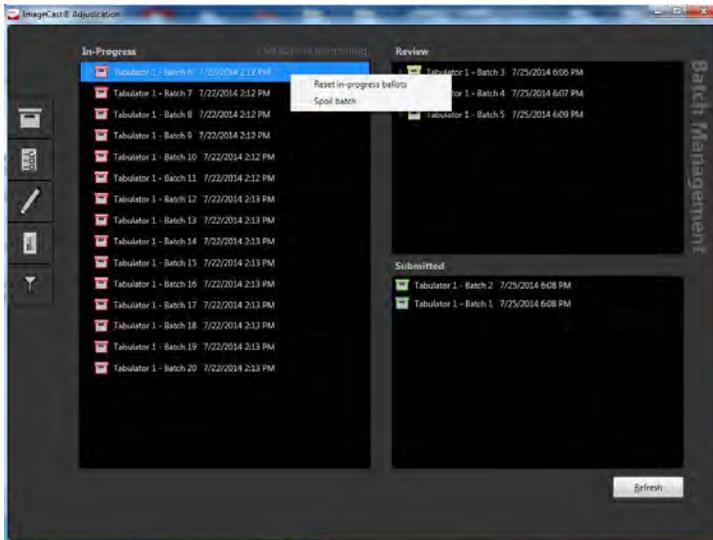


Figure 10.25: Resetting In-Progress Ballots

To ensure all ballots in a batch are served to adjudicators:

1. In the **In-Progress** pane, highlight the batch that remains in progress.
2. Right-click the batch and select **Reset in-progress ballots**.
3. A confirmation window will appear. Click **OK** only if you are sure that no ballots from the batch to be reset are open in an Adjudication client, including the client from which you are resetting the batch.

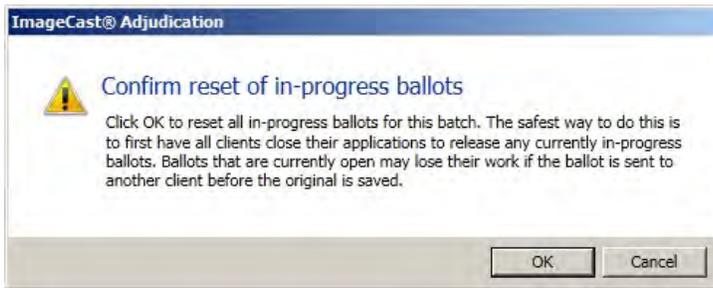


Figure 10.26: Resetting Ballots Confirmation

NOTE: Reset ballots may take a few minutes to appear on available clients (usually less than two minutes). Also, in certain cases, the Adjudication Administrator may not receive ballots that have been reset. If this occurs, toggle the switch for stopping or starting receiving of ballots in the Ballot Navigation menu.

10.4.3.3 Spoiling a Batch

Spoiling a batch is a last-resort remedy for completely removing an in-progress batch from Adjudication when there is something wrong with the batch. For example, a batch may need to be spoiled if it was mistakenly accepted on the ICC or when there are bad ballot images that prevent ballot adjudication.

Once spoiled, a batch will no longer appear in the Batches screen nor will it be available to run reports on. No ballots from that batch will be served to users, and any adjudications made on ballots within the spoiled batch will be ignored. To re-introduce those ballots to Adjudication, they must be re-scanned in the ImageCast® Central as a new batch.

NOTE: A spoiled batch is removed from the system in a way that prevents it from being adjudicated, but the original batch file will not be removed from the Adjudication drop folder, nor from its original location in the ImageCast® Central . Never delete the batch files (results files and images) from the drop folder or ICC working directory. Refer to Section 6.8.3 for complete procedures on how to spoil a batch that was mistakenly accepted on the ICC.



To spoil a batch:

1. In the **In-Progress** pane, highlight the batch that will be spoiled.
2. Right-click the batch and select **Spoil batch**.
3. To confirm, click **OK** or click **Cancel** to take no action.

Figure 10.27: Spoil ballot feature

10.4.3.4 Submit a Batch to Results Tally & Reporting (RTR)

Batch Submission is the process of accepting and saving adjudicated batches for tally into RTR. Adjudication Administrators are the only users that can submit batches.

NOTE: Submitting batches is one of the final steps in the adjudication process. After submission, no further actions on a batch are allowed, except for reporting.

To submit a batch for tallying:

1. In the **Review** pane, highlight one or more batches. You can highlight by holding the Ctrl or Shift keys and clicking on batches, or by clicking and dragging the mouse. To select all batches at once, use Ctrl-A.
2. Drag the highlighted batches to the **Submitted** pane.
3. The batches will be submitted to the “ReadyForRTR” folder on the EMS server. The RTR Administrator will need to browse to this folder in order to read adjudicated results into RTR.

NOTE: The batches will appear as **Submission Pending** until they have been submitted. If a batch appears in an error state or is indefinitely pending, the batch may need to be resubmitted.

To resubmit a batch that is indefinitely pending:

1. In the **Submitted** pane, highlight the affected batch.
2. Right-click the batch and select **Resubmit**.

To resubmit a batch that has a Submission error:

1. In the **Review** pane, highlight the affected batches.
2. Drag the highlighted batches to the **Submitted** pane again.

10.4.4 Write-ins

The **Write-Ins** screen shows the list of write-in contests defined in the election and the qualified names assigned during Election Project Setup.

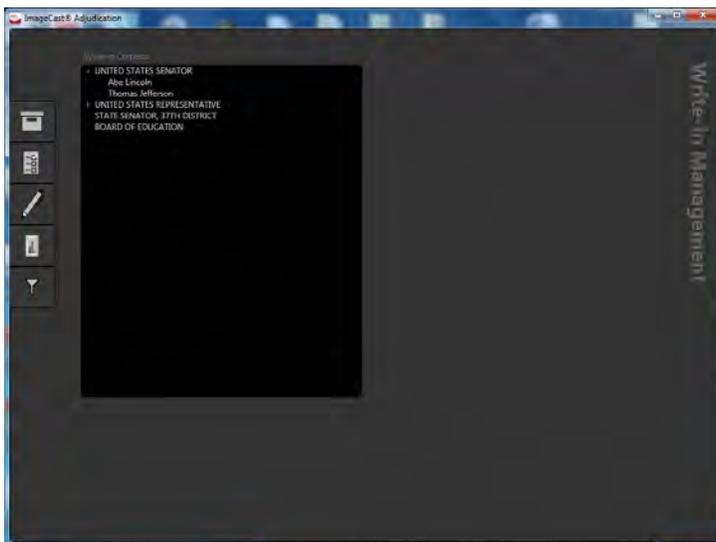


Figure 10.28: Write-In Screen

To view qualified write-ins

1. Contests containing qualified write-ins will have an expander beside the contest name.
2. Click the expander to view all qualified write-ins in a list.

10.4.5 Reports

There are two types of reports that Adjudication Administrators can generate:

1. **Summary Report**
2. **Activity Log Report**

The reports are available for either completed or submitted batches. When a ballot in a completed batch is readjudicated, reporting data is regenerated for the batch. While this is taking place, reports for the batch are temporarily unavailable. If a report is displayed on the screen that includes data for a batch that is being regenerated, the user is notified that the data in the report may be out of date.

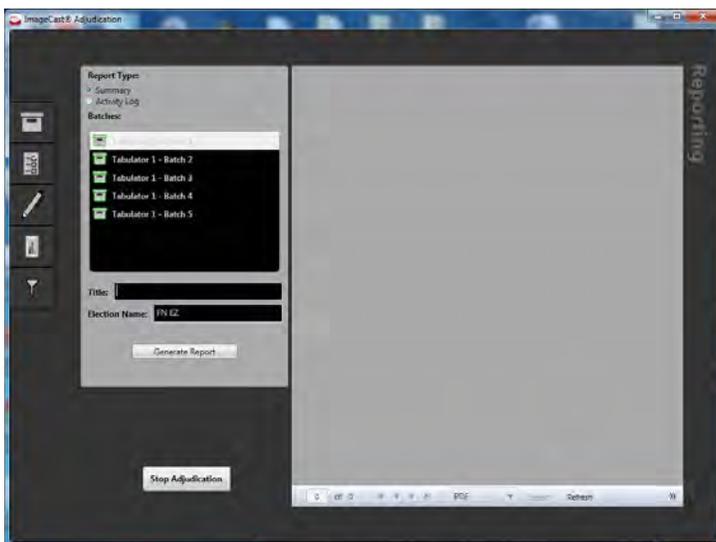


Figure 10.29: Reports Screen

The **Election Name** field is pre-populated with the name of the election being adjudicated but can be changed by the user. Additionally, a user may enter their own title for the report. Reports may be generated as PDFs, Excel files, or generic CSV files. The Reports screen displays the report in a paged format and allows the user to zoom in or out.

10.4.5.1 Summary Report

Summary reports accumulate all adjudicated results by tabulator and batch and show summary totals by contest. Batches and ballots that were filtered in the adjudication project setup step will have their totals reflected here and contribute to overall turnout numbers. Summary reports may be generated for one or more batches.

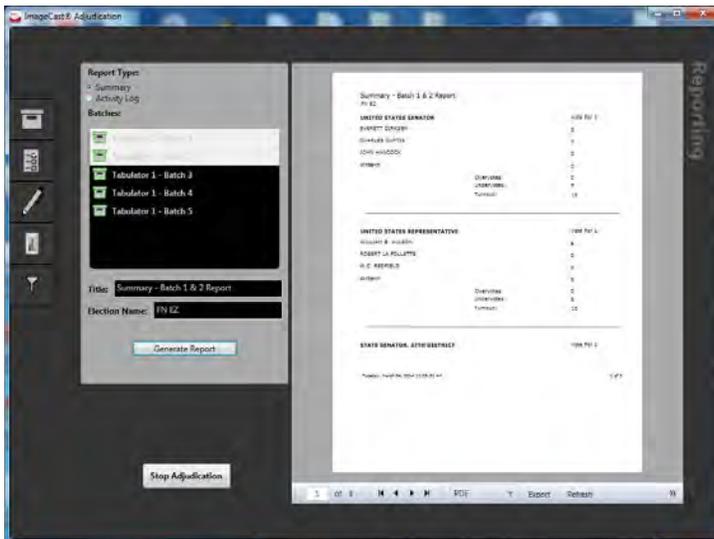


Figure 10.30: Summary Report

To generate the summary report:

1. Under “Report Type”, click **Summary**.
2. Select one or more batches that you want to report on.
3. In the **Title** field enter a title or leave blank to omit.
4. In the **Election Name:** field modify the pre-populated election name if desired, or leave blank to omit.
5. Click **Generate Report**. After a few seconds, the report will be shown on the right side of the screen.
6. You may use the toolbar at the bottom of the report to navigate between pages, export or print the report, among other functions. Hover over the icons on the toolbar to see descriptions.

10.4.5.2 Activity Log Report

Activity reports show adjudication actions taken against each ballot and are grouped by tabulator and batch. Each action shows the user name of the adjudication user that performed the action along with the date/time of the action. The following actions are listed: Mark added, mark removed, write-in accepted, write-in rejected (with reason). Ballots which were filtered out of adjudication are labeled appropriately in the report.

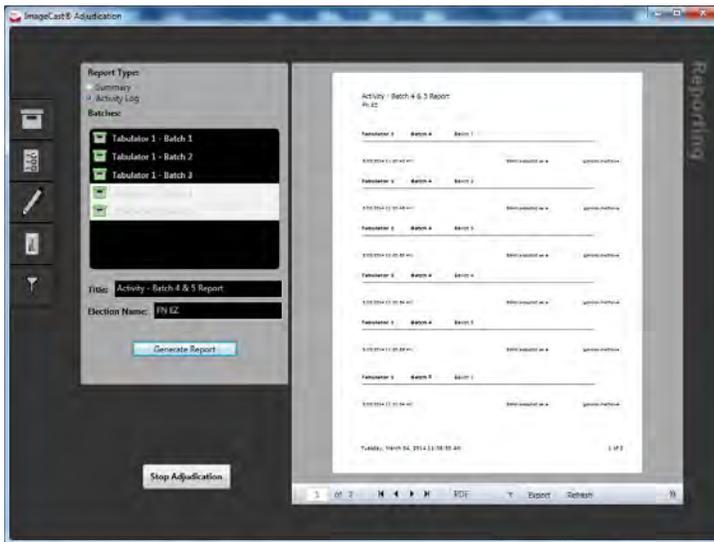


Figure 10.31: Activity Report

To generate the activity report:

1. Under “Report Type”, click **Activity Log**.
2. Select one or more batches that you want to report on.
3. In the **Title** field enter a title or leave blank to omit.
4. In the **Election Name:** field modify the pre-populated election name if desired, or leave blank to omit.
5. Click **Generate Report**. After a few seconds, the report will be shown on the right side of the screen.
6. You may use the toolbar at the bottom of the report to navigate between pages, export or print the report, among other functions. Hover over the icons on the toolbar to see descriptions.

10.4.5.3 Digital Signatures on PDF Reports

In the **Reports** screen, when the user chooses to export in the PDF format, the application will add a digital signature to the file. The digital signature ensures that the report originated from the DVS Adjudication application and has not been altered in any way after being exported. The application uses the same certificate that is created by an Administrator prior to every election for use by Adjudication. Please reference the *Democracy Suite Installation Procedures* to review the certificate generation and installation.

When the user chooses to export a PDF report from the **Reports** screen, they are asked to browse to where the exported file should be saved and to give it a name. The export process saves the original file and then attempts to sign the file and save it with the original name plus a “signed.pdf” extension. For example, if the user selects the name “SummaryReport”, the exported file name will be “SummaryReport.signed.pdf”.



Figure 10.32: Signature view

Adobe products do not automatically trust certificates added through Windows, such as the Adjudication certificate. The first time a PDF report signed by the Adjudication application is opened on a machine, the user will need to manually instruct Adobe Reader to trust the certificate that signed the document. To do this:

1. Copy the report to the EMS workstation.
2. Open the Adjudication report in Adobe Reader.
3. As the document opens, a bar at the top will appear; click the Signature Panel button to the right. This will show a panel on the left of the screen.
4. On the Signature Panel, expand "Certified by Adjudication 2".
5. Expand "Signature Details" and then click "Certificate Details..."

6. A Certificate Viewer window appears.
7. Open the Trust tab and highlight the "DVS Root CA" certificate in the left panel.
8. Click the "Add to Trusted Identities" button at the bottom.
9. A confirmation window will appear; click **OK** to confirm.
10. The "Import Contact Settings" window will be shown; click **OK** to accept default settings.
11. Click **OK** to close the Certificate Viewer.

You may need to close and reopen the Adjudication report for Adobe to recognize the document as valid. However, after doing this, any other reports produced by Adjudication will be trusted by Adobe as soon as they're opened - provided that they have not been tampered with.

10.4.6 Filtering

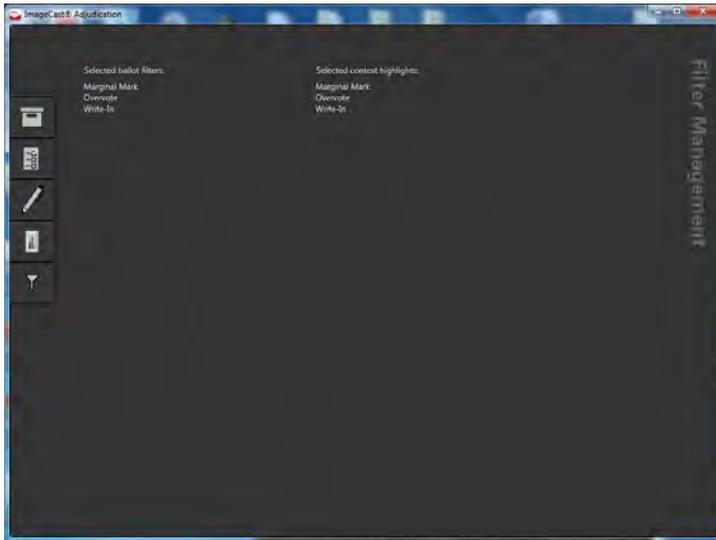


Figure 10.33: Filtering Screen

The Adjudication Administrator has access to view the **Ballot Filtering** screen which shows what outstack conditions were selected during the Election Project Setup. Outstack conditions are used to filter which ballots are served to adjudicators in order to streamline the adjudication workflow.

10.4.7 Stopping Adjudication

After all adjudication actions have completed (including batch submission and reporting), the Adjudication Administrator will stop adjudication on the EMS Server. After adjudication is stopped, all remote workstations will be notified that adjudication has been stopped and any open ballots will be removed. Changes made to ballots that remain open on client machines when adjudication is stopped will not be saved.

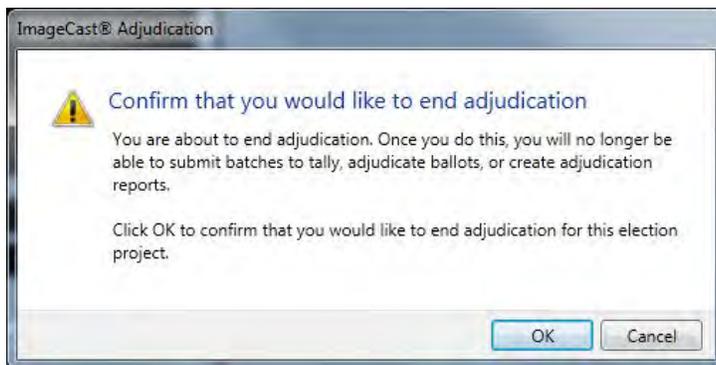
After adjudication has been stopped, the Adjudication Administrator will be taken back to the Election Project Setup Wizard and the system will be ready to setup and begin processing the next election.

NOTE: This the final step in the processing of an Adjudication project. After stopping, no further actions on the project are allowed, including reporting. Follow these instructions ONLY when instructed to do so:

1. At the end of L & A (Section 4.4.1)
OR
2. At the end of the official canvass period (Section 11.20).

To stop adjudication:

1. Ensure all adjudicators have finished their tasks and closed the Adjudication application to avoid loss of work.
2. Click the **Reports** tab on the left to open the Reports screen.
3. Click the “Stop Adjudication” button on the lower left of the screen.



4. A confirmation message will appear; click OK to confirm that you want to end all adjudication activities for the current election.
5. Close the Adjudication application after it transitions to the Election Project Setup Wizard.

Figure 10.34: Stop Adjudication

Chapter 11

Official Canvass and Post-Election Procedures

In the post-election period, the jurisdiction will continue to process Absentee/Mail ballots as well as Early Voting, Provisional and any exception ballots. This process involves:

1. Remaking of damaged and other ballots unreadable by the scanner.
2. Configure and Start Adjudication. General Adjudication users may start adjudicating ballots. 11.1.
3. Scanning of remaining Absentee/Mail ballots.
The process for rescanning of Absentee/Mail ballots is described in Section 11.2.
4. Scanning of Provisional ballots.
The process for rescanning of Provisional ballots is described in Section 11.3.
5. Scanning of remade ballots on appropriate ImageCast[®] Central tabulators. The process for rescanning of remade ballots is described in Section 11.4.
6. Deleting results imported on election night for Absentee/Mail ImageCast[®] Central tabulators and loading the adjudicated results.
7. Deleting results imported on election night and rescanning of ballots from the following tabulators (if they exist):
 - (a) Early Vote ImageCast[®] Evolution tabulator(s) handling **more than one precinct** that contain ballot(s) with **write-in** votes. All ballots from such tabulators will be rescanned on an “Early Vote ICC” that handles all precincts.
Deleting of results in RTR and rescanning of ballots from such tabulators is described in Section 11.5.
 - (b) Election Day ImageCast[®] Evolution tabulator(s) handling **more than one precinct** that contain ballot(s) with **write-in** votes. All ballots from such tabulators will be rescanned on an “Election Day ICC” that handles all precincts.
Deleting of results in RTR and rescanning of ballots from such tabulators is described in Section 11.6.
 - (c) Election Day ImageCast[®] Evolution tabulator(s) handling **one precinct** that contain ballot(s) with **uncertified write-in** votes. All ballots from such tabulators will be rescanned on an “Election Day ICC” that handles all precincts.
Deleting of results in RTR and rescanning of ballots from such tabulators is described in Section 11.6.

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8. Rejecting results, Resolving certified write-in votes and Publishing the results in RTR for Election Day ImageCast[®] Evolution tabulators handling **one precinct** that contain **certified write-in** votes.
The procedure for rejecting results, resolving write-ins and publishing results for such tabulators is described in Section 11.8.1.
 9. Completing adjudication for ballots scanned and rescanned as described in this section.
Information and procedure on how to complete adjudication for ballots scanned and rescanned as described in this section are described in Section 11.9 and Chapter 10 respectively.
 10. Importing, validating and publishing of all remaining results into RTR.
The procedure for importing, validating and publishing of results in RTR is described in Section 11.10.
 11. Running the Statement of Votes Cast report in the RTR.
Instructions on how to run this report in RTR can be found in Section 11.11
 12. CalVoter integration activities (such as Template import, SOS Mapping and running report).
Procedures on CalVoter integration activities can be found in Section 9.6.
 13. Backing up election project data and results on the EMS Server.
Procedures for backing up the system after election can be found in Section 11.19.
 14. Stopping Adjudication on the EMS Server.
Procedures for stopping adjudication on the EMS Server can be found in Section 10.4.7.
 15. Performing post-election system back up as described in Chapter 12.

11.1 Configure and Start Adjudication

At the beginning of the Official Canvass period, Adjudication may be configured and started by following the procedures in Section 10.2.

For introductory information on adjudication and a description of user roles such as the Adjudication Administrator, read the start of Chapter 10 and Section 10.1.1. For instructions on how to adjudicate ballots, see Section 10.3.

11.1.1 Spoil Batches in Adjudication

As described in Section 6.8.3, one or more ICC batches may have been mistakenly accepted and need to be excluded from tally (the batch must be spoiled). The ICC and Adjudication Administrators have recorded the batches that must be spoiled in Adjudication.

1. Open the Batch Management screen, described in Section 10.4.3.
2. After Adjudication has been started, the batches already in queue will begin to be processed and batches will start appearing in the **In-Progress** pane.
3. Monitor the **In-Progress** pane for the batches that must be spoiled. It may take some time for all of the batches to appear in the list, depending on their position in the queue.
4. As the batches that must be spoiled appear, spoil the batches in Adjudication by following the procedure in Section 10.4.3.3.

11.2 Complete Scanning of Absentee and All Mail Ballots

In the post-election period the Absentee and All Mail ballots continue to be scanned on Absentee/Mail ICC tabulator that handles all precincts.

1. Put the Absentee/Mail ballots into a batch.
2. Load election files for the 'Absentee/Mail ICC' tabulator handling all precincts to scan the ballots. See Section 6.3 on how to load election files for a tabulator and then return here to continue with the next step.
3. Scan the batch of Absentee/Mail ballots on the tabulator. See Section 6.8.1 on how to scan batches and then return here to continue.
4. Clearly label the batch just scanned and store in designated container.
5. Repeat steps to complete scanning of all batches.
6. Complete the adjudication of all ballots with outstack conditions, re-scanned in the steps above.
NOTE: Ballot adjudication may be done in parallel with scanning on ICC. This section assumes that the Adjudication Administrator has configured and started adjudication on the EMS server.
Procedures on how to configure and start adjudication can be found in Section 10.2.
Procedures for adjudicating ballots are described in detail in Chapter 10 and will not be repeated in this section.
7. Get the Adjudication Administrator to submit all adjudicated batches.
For instructions on how to submit adjudicated batches see Section 10.4.3.4
8. Start the RTR application.
See Section 9.4.1 for instructions on how to start the RTR application and then return here to continue with the next step.
9. Open the Election Project.
See Section 9.4.2 for instructions on how to open Election Project in RTR application and then return here to continue with the next step.
10. Select **Result Files** in the left hand menu bar. The Result Files main activity screen appears.
11. **Tabulator**, **Tabulator Type**, and **Result State** drop down menus may be used to filter the search results.
12. Click **Search** to list results.
NOTE: Published results cannot be deleted. In order to delete result files that are in Published state, they first need to be rejected.
13. Select the result files for the Absentee/Mail ICCs that were loaded on election night and click the **Reject** button.
14. Click **Yes** to confirm your action in the Question dialog that appears.
15. Click **OK** in the Information dialog that appears once the process is complete.
16. Click **Delete** button.
17. Click **OK** in the Information dialog that appears once the process is complete.

The adjudicated results will be later imported to RTR for publishing as explained in the Section 11.10.

Continue with the next section.

11.3 Processing Provisional Ballots for Official Canvass

Any provisional ballots from Election Day, from voters whose eligibility has been verified, are scanned in post-election period.

The Provisional ballots are scanned on “ICC Election Day” tabulator that handles all precincts.

1. Put the Provisional ballots into a batch.
2. Load election files for the “ICC Election Day” tabulator handling all precincts to scan the Provisional ballots.
Follow the steps in Section 6.3 to Section 6.7 on how to load election files for a tabulator, configure the application and scanner and produce the zero report. Return here afterwards to continue with the next step.
3. Scan the batch of Provisional ballots on the “ICC Election Day” tabulator handling all precincts. See Section 6.8.1 for instructions on how to scan ballots and then return here to continue.
4. Complete the adjudication of all ballots with outstack conditions, re-scanned in the steps above. Procedures on how to configure and start adjudication can be found in Section 10.2. Procedures for adjudicating ballots are described in detail in Chapter 10 and will not be repeated in this section.
5. Get the Adjudication Administrator to submit all adjudicated batches.
For instructions on how to submit adjudicated batches see Section 10.4.3.4

The adjudicated results will be later imported to RTR for publishing as explained in the Section 11.10. Continue with the next section.

11.4 Processing Remade Ballots for Official Canvass

Any remade ballots are scanned in post-election period. All ballots prepared as duplicates of damaged voted ballots shall be of a distinctive color, or be identifiable by other distinguishing means, clearly labeled “duplicate,” and shall be given a serial number which shall also be recorded on the damaged ballot.

In creating the duplicate ballot, one board member shall vote positions marked on the damaged ballot, and shall enter a facsimile of the write-in vote(s), if any. Efforts should not be made to match the handwriting characteristics of the voter when entering these write-in facsimiles. Particular attention must be paid to completing or not completing the vote targets opposite the write-in spaces as the voter did or failed to do. Another member shall verify that the voting position marks and write-in entries (including vote target completions or lack thereof) on the duplicate ballot exactly-match those on the damaged ballot.

Duplicates of damaged ballots are scanned on the ImageCast[®] Central tabulator connected to the appropriate Counting Group. For example, if the remade ballot was an Absentee/All Mail ballot, then it should be scanned on an “Absentee/All Mail ICC” tabulator that has been connected to the Absentee/All Mail counting group.

1. Put the remade ballots into a batch.
2. Load election files for the ImageCast[®] Central tabulator connected to the correct/corresponding counting group for the batch of remade ballots to be scanned. Follow the steps in Section 6.3 on how to load election files for a tabulator and then return here to continue with the next step.

-
3. Scan the batch of remade ballots on the ImageCast[®] Central tabulator connected to the correct/corresponding counting group.
See Section 6.8.1 for instructions on how to scan ballots and then return here to continue.
 4. Complete the adjudication of all ballots with outstack conditions, re-scanned in the steps above.
Procedures on how to configure and start adjudication can be found in Section 10.2.
Procedures for adjudicating ballots are described in detail in Chapter 10.
 5. Get the Adjudication Administrator to submit all adjudicated batches.
For instructions on how to submit adjudicated batches see Section 10.4.3.4

The adjudicated results will be later imported to RTR for publishing as explained in the Section 11.10. Continue with the next section.

11.5 Processing Early Vote Ballots for Official Canvass

NOTE: This section only applies if you have Early Vote ImageCast[®] Evolution tabulator(s) handling more than one precinct that contain ballot(s) with write-in votes. If this condition does not exist, then no additional processing is required and you may skip this section. Results from such tabulators, imported to RTR on election night, are valid and should stay in Published state.

All ballots (from both Primary and Secondary ballot box chamber) from ImageCast[®] Evolution tabulator(s) satisfying the conditions explained in the note above, are re-scanned on ImageCast[®] Central tabulator(s) (“Early Vote ICC”) handling all precincts.

1. Put the Early Voting ICE ballots into a batch.
2. Load election files for the ‘Early Voting ICC’ tabulator handling all precincts to scan the ballots.
Follow the steps in Section 6.3 to Section 6.7 on how to load election files for a tabulator, configure the application and scanner and produce the zero report. Return here afterwards to continue with the next step.
3. Scan the batch of Early Voting ICE ballots on the ‘Early Voting ICC’ tabulator handling all precincts.
See Section 6.8.1 for instructions on how to scan ballots and then return here to continue.
4. Clearly label the batch just scanned and store in designated container.
5. Repeat steps 3 and 4 to complete scanning of all batches.
6. Complete the adjudication of all ballots with outstack conditions, re-scanned in the steps above.
Procedures on how to configure and start adjudication can be found in Section 10.2.
Procedures for adjudicating ballots are described in detail in Chapter 10.
7. Get the Adjudication Administrator to submit all adjudicated batches.
For instructions on how to submit adjudicated batches see Section 10.4.3.4
8. Start the RTR application.
See Section 9.4.1 for instructions on how to start the RTR application and then return here to continue with the next step.

-
9. Open the Election Project.
See Section 9.4.2 for instructions on how to open Election Project in RTR application and then return here to continue with the next step.
 10. Select **Result Files** in the left hand menu bar. The Result Files main activity screen appears.
 11. **Tabulator**, **Tabulator Type**, and **Result State** drop down menus may be used to filter the search results.
 12. Click **Search** to list results.
NOTE: Published results cannot be deleted. In order to delete result files that are in Published state, they first need to be rejected.
 13. Select the result files for Early Vote ICE(s) that contain write-in votes and click the **Reject** button.
 14. Click **Yes** to confirm your action in the Question dialog that appears.
 15. Click **OK** in the Information dialog that appears once the process is complete.
 16. Click **Delete** button.
 17. Click **OK** in the Information dialog that appears once the process is complete.

The adjudicated results will be later imported to RTR for publishing as explained in the Section 11.10. Continue with the next section.

11.6 Processing Election Day Ballots for Official Canvass

In the post-election period, additional processing needs to be done for ballots cast on Election Day ICE(s) in the following cases:

1. **If you have Election Day ImageCast[®] Evolution tabulator(s) handling more than one precinct that contain ballot(s) with write-in votes.**

AND/OR

2. **If you have Election Day ImageCast[®] Evolution tabulator(s) handling one precinct that contain ballot(s) with unqualified write-in votes.**

After election day, all ImageCast[®] Evolution tabulators that have ballots with write-in votes will be identified either by inspecting if write-in votes are recorded on the result tape, in Election Summary report or by inspecting if there are any ballots in the Secondary chamber of the ballot box.

NOTE: If there are no Election Day ImageCast[®] Evolution tabulator(s) handling more than one precinct containing ballot(s) with any write-in votes, and there are no Election Day ImageCast[®] Evolution tabulator(s) handling one precinct containing ballot(s) with unqualified write-in votes, then no additional processing is required and you may skip this section. Results from such tabulators imported to RTR on election night are valid and should stay in Published state.

If you have Election Day ImageCast[®] Evolution tabulators that belong to one of the two categories, you will need to re-scan ALL ballots (from both Primary and Secondary ballots box chambers) from such tabulators and **Delete** their result files from RTR that were imported and published on election night:

-
1. Put the Election Day ICE ballots into a batch.
 2. Load election files for the “Election Day ICC” tabulator handling all precincts to scan the ballots. Follow the steps in Section 6.3 on how to load election files for a tabulator. Return here afterwards to continue with the next step.
 3. Scan the batch of Election Day ICE ballots on the “Election Day ICC” tabulator handling all precincts.
See Section 6.8.1 for instructions on how to scan ballots and then return here to continue.
 4. Clearly label the batch just scanned and store in designated container.
 5. Repeat steps 3 and 4 to complete scanning of all batches.
 6. Complete the adjudication of all ballots with outstack conditions, re-scanned in the steps above. Procedures on how to configure and start adjudication can be found in Section 10.2. Procedures for adjudicating ballots are described in detail in Chapter 10.
 7. Get the Adjudication Administrator to submit all adjudicated batches.
For instructions on how to submit adjudicated batches see Section 10.4.3.4
 8. Start the RTR application.
See Section 9.4.1 for instructions on how to start the RTR application and then return here to continue with the next step.
 9. Open the Election Project.
See Section 9.4.2 for instructions on how to open Election Project in RTR application and then return here to continue with the next step.
 10. Select **Result Files** in the left hand menu bar. The Result Files main activity screen appears.
 11. **Tabulator**, **Tabulator Type**, and **Result State** drop down menus may be used to filter the search results.
 12. Click **Search** to list results.
NOTE: Published results cannot be deleted. In order to delete result files that are in Published state, they first need to be rejected.
 13. Select the results that you wish to delete and click **Reject** button.
 14. Click **Yes** to confirm your action in the Question dialog that appears.
 15. Click **OK** in the Information dialog that appears once the process is complete.
 16. Click **Delete** button.
 17. Click **OK** in the Information dialog that appears once the process is complete.

The adjudicated results will be later imported to RTR for publishing as explained in the Section 11.10. Continue with the next section.

11.7 Resolving Write-Ins

Write-ins are resolved in Adjudication or RTR:

1. **Resolving write-ins in RTR** can **only** be done for ballots with **certified write-in votes**, that were cast on Election Day ImageCast[®] Evolution tabulator handling only **one** precinct.
2. All other write-in votes are resolved in Adjudication. This includes any write-in votes from Absentee/All Mail ballots, Provisional ballots, Early Vote and Election Day ImageCast[®] Evolution tabulators that were re-scanned on ICC in the post-election period as described in the sections above.

11.8 Resolving Ambiguous Marks

Ambiguous marks are handled in two ways:

1. On ImageCast[®] Evolution the tabulator will warn the voter of ambiguous marks and return the ballots to the voter for second chance voting.
2. On ImageCast[®] Central, all ballots are scanned and passed to Adjudication. Ambiguous/Marginal marks are then turned into undervotes or overvotes in Adjudication as explained in Section 10.3.7.

11.8.1 Resolving Certified Write-ins From Single Precinct ImageCast[®] Evolution Tabulators in RTR

Write-ins can be resolved in RTR **only** when they were cast for a **certified write-in** on Election Day ImageCast[®] Evolution handling only **one** precinct, and when that same tabulator **does not** contain any ballots with **uncertified** write-in votes.

If any **uncertified** write-in votes were cast on an ImageCast[®] Evolution tabulator, election night results from that tabulator will be deleted from RTR and all ballots will be rescanned on ImageCast[®] Central as described in Section 11.6.

The Result Files loaded on Election Night, for all Election Day ImageCast[®] Evolution tabulators that contain ballots with **qualified** write-in votes only, will have to be set to **Rejected** state in the RTR application in order to resolve write-in votes. After write-in votes have been resolved, the Result Files will be published again.

1. Retrieve the ballots containing certified write-in votes, that were removed from the ImageCast[®] Evolution Secondary ballot box chamber.
2. Start the RTR application.
See Section 9.4.1 for instructions on how to start the RTR application and then return here to continue with the next step.
3. Open the Election Project.
See Section 9.4.2 for instructions on how to open Election Project in RTR application and then return here to continue with the next step.
4. Select **Result Files** in the left hand menu bar. The Result Files main activity screen appears.
5. **Tabulator**, **Tabulator Type**, and **Result State** drop down menus may be used to filter the search results.

-
6. Click **Search** to list results.
 7. Select the results that you wish to reject and click **Reject** button.
 8. Click **Yes** to confirm your action in the Question dialog that appears.
 9. Click **OK** in the Information dialog that appears once the process is complete.
 10. Select the Result File you wish to enter the write-in names for and double-click on it to open the “Result File” dialog.
 11. Select the contest containing the write-in votes from the left side of the window.
 12. Click **write-ins** button on the right side of the window and the “Write Ins” dialog will open.
 13. Click **Add** to add a certified write-in name if the certified write-in name is not already present.
NOTE: Certified write-ins that were previously added to this contest, through RTR or loaded from Adjudication, will appear on this list.
 14. Enter the number of votes for the certified write-in candidate.
 15. Click **OK** to close the “Write Ins” dialog.
 16. Repeat steps 11 through to 15 for each contest in this result file containing write-in votes.
 17. Click **Validate and Publish** to publish the result files.
 18. Click **Yes** to confirm the action in the Question dialog.
 19. Click **OK** when the success dialog appears.

11.9 Complete Adjudication of all Ballots with Outstack Conditions Scanned on ImageCast[®] Central

Most of the ballots will be already adjudicated by this point, since adjudication can be run concurrently with scanning of the ballots. Make sure that all ballots with outstack conditions have been adjudicated and that all batches have been submitted to RTR for tallying.

Procedure on how to configure and start adjudication can be found in Section 10.2.

Procedures for adjudicating ballots are described in detail in Chapter 10 and will not be repeated in this section.

For instructions on how to submit adjudicated batches see Section 10.4.3.4.

11.10 Import, Validate and Publish Adjudicated Results in RTR

Once ballots have been processed and adjudicated, and batches were submitted to “ReadyForRTR” folder on the EMS Server, the results can be imported into RTR.

1. Start the RTR application.
See Section 9.4.1 for instructions on how to start the RTR application and then return here to continue with the next step.

-
2. Open the Election Project.
See Section 9.4.2 for instructions on how to open Election Project in RTR application and then return here to continue with the next step.
 3. Click **Actions** and choose **Load Results From Directory**.
 4. The **Load** dialog appears. Uncheck the **Show Loaded Files** checkbox.
 5. Click **Browse** to browse to the source directory.
 6. Browse to Z:\“Project_Name” and select the **ReadyForRTR** folder. The Z: drive is mapped to the \\EMSServer \Adjudication on the EMSServer shared folder as described in section 2.6.9 in *Dominion Voting Systems Democracy Suite Installation Procedures*.
 7. Click **OK** and the **Load** dialog will open.
 8. Leave file types as **Results**.
 9. Select the files you wish to load and click **Load**.
 10. Once all result files have been loaded, click **OK** in the “Load” dialog window to close it.
 11. Click **Close** to close the dialog.
 12. Select **Result Files** in the left hand menu bar in the RTR application. The Result Files main activity screen appears.
 13. **Tabulator**, **Tabulator Type**, and **Result State** drop down menus may be used to filter the search results.
 14. Click **Search** to list results.
 15. Select all results that you wish to include in the reports and click **Validate & Publish**.
 16. Click **Yes** to confirm your action in the **Question** dialog that appears.
 17. Click **OK** in the Information dialog that appears once the process is complete.

11.11 Statement of Votes Cast Report

To create the Statement of Votes Cast Report, do the following:

1. Expand 'Reports' and click on the **Statement of Votes Cast** option in the **Activities Navigation Panel**. The 'Statement of Votes Cast Report' context sensitive screen appears.
2. Select the desired criteria in 'Parameters' and 'Filters' sections of the 'Statement of Votes Cast Report' context sensitive screen.
3. Under the **District Type** section, select the **top-level district** (for example, **County**). Ensure that other District Types are not selected.
4. Click on the **Create Report** to generate the report.
5. The report will be displayed on the right side of the screen.
6. To export and save the report, click on the **Save icon** in the shape of the floppy disk (located on the top right tool bar above the report), select the format in which you wish to save the report.
7. The Windows browse dialog window will appear. Navigate to the location where you want to save the report and click on the **Save** button.
8. Create SOVC reports for the other district types, as required. Under the **District Type** section, check the appropriate district type and uncheck all other district types. Repeat steps 4 to 7 to generate and save the report for each district type.

11.12 Create CalVoter Reports

Refer to 9.6 for instructions on loading templates, performing the mapping and creating the SOV and SSOV reports.

11.13 1% Manual Recount Procedures

For the purpose of validating the accuracy of the computer count, a public manual recount of the ballots cast in at least one percent of the precincts shall be conducted. Precincts must be chosen at random.

If the random selection of precincts results in an office or ballot measure not being manually-recounted, as many additional precincts as necessary shall be selected and manually-recounted as to any office or ballot measure not recounted in the original ballot sample.

Pursuant to the California Elections Code, randomly-selected precincts are to be chosen by an individual who has been designated by the Election Official. This person cannot be the same person, or a relative of the person, who programmed the election. Selected precinct numbers shall not be revealed to such personnel until the Semi-Official count is complete.

In the event of unit failure after the semi-official or official ballot tally process has begun, and regardless of whether or not the equipment is to be returned to service following repair and successful processing of the prescribed logic and accuracy tests, the ballots from the last precinct tabulated on the equipment prior to the failure shall be conducted in the automatic Manual Recount.

If a discrepancy is discovered between the automated tabulation, and the automatic Manual Recount tabulation, each precinct's ballots which had been read and processed by the failed equipment, subsequent to the time of the last successfully completed logic and accuracy test by the failed equipment, shall be tabulated again.

11.13.1 ImageCast[®] Central 1% Manual Recount Procedures

In the case of a difference between the electronic tabulated record and the adjudicated AuditMark ballot images, the original voter-marked ballots can be examined.

11.13.2 ImageCast[®] Evolution 1% Manual Recount Procedures

In the case of a difference between the electronic tabulated record and the adjudicated AuditMark ballot images, the original voter-marked ballots can be examined.

11.14 Manual Entry of Results into the RTR application

In case that, for any reason, there is a need for manually entering results into the RTR application, do the following:

1. Click on the **Result Files** menu item in the left hand navigation panel. The Result Files main activity screen appears.
2. Select the tabulator that you wish to enter results for from the **Tabulator** drop down menu and then click on the **Manual Entry** button from the toolbar. The **...MANUAL.DVD - Result File** dialog window appears allowing results to be manually entered into the system.
3. Select that precinct in the **Precincts** drop down menu.
4. Enter **Total Voters** and **Ballots Cast** for this particular batch.
5. Enter results for the each contest by selecting **Contest** on the left side of the dialog. All choices associated with the contest will appear on the right side. The user has options to enter number of votes for each candidate, number of write-ins, number of over and under votes for the selected contest.
6. Click on **Save** or **Save and Close**.

11.15 Copying Adjudicated Ballot Images to the NAS Folder

The adjudicated ballot images on the EMS server should be copied by the EMS Administrator from the Adjudication drop folder to the appropriate folder under the NAS.

To copy the ballot images on the EMS server:

1. Log in to the EMS server as the EMS Administrator (typically, “emsadmin”).
2. Open an Explorer window and navigate to the Adjudication drop folder for the current election project. For example:
D:\Adjudication\Project_Name
3. Open a second Explorer window and navigate to the NAS for the current election project. For example:
D:\NAS\Project_Name
4. Copy the **Results** folder from the Adjudication drop folder to the NAS folder.
5. The **Confirm Folder Replace** window appears, asking if you want to merge the folders. Click **Yes**.
6. Wait for the files to copy.
7. When done, log off the EMS server and return to the RTR workstation.

11.16 Export Audit Images

After importing results and images into the RTR database, the RTR provides the functionality to export those images into the folder so that they can be viewed.

The **Export audit images** functionality will go through each scanned ballot image that was extracted previously from the tabulators and will categorize each image and export them into separate subfolders per category. For each export a separate subfolder will be created.

NOTE: The AuditMark in the ballot images reflects adjudication actions, however, the categorization is based on the ICC’s original interpretation, not the adjudicated interpretation.

When a contest is selected the following categories appear:

- **Blank:** The selected contest did not have any marks filled in on this ballot.
- **UndervotedNotBlank:** The selected contest did have marks but was still undervoted on this ballot.
- **Overvoted:** The selected contest was overvoted on this ballot.
- **Regular:** The selected contest was filled in with “vote for” number of marks on this ballot.
- **Writein:** There were write-ins filled in on this ballot for the selected contest.

When no contest is selected the following categories appear:

- **BlankBallot:** No contest was marked on this ballot.
- **Blank:** At least one contest did not have any marks filled in on this ballot.
- **UndervotedNotBlank:** At least one contest did have marks but was still undervoted on this ballot.
- **Overvoted:** At least one contest was overvoted on this ballot.
- **Regular:** Every single contest was filled in with “vote for” number of marks on this ballot.
- **Writein:** There were write-ins filled in on this ballot.

Inside of these subfolders, create subfolders that are named by tabulator and batch ID. For example “1.1”. This method is used to prevent too many images being placed in the same folder.

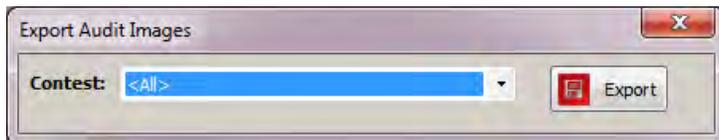


Figure 11.1: Export Audit Images Dialog

1. To export audit images for all contests, expand the **Actions** menu, click on the **Export** and then on the **Export Audit Images** option.
2. The **Export Audit Images** dialog will appear. You can select each contest separately, or select **All**. Then, click on the **Export** button.



Figure 11.2: Successful Export of Audit Images

3. You need to confirm whether you want to proceed. Click on the **Yes** button. While files are exporting, the progress bar appears.
4. In the end, you will be informed that the process of 'Export Audit Images' has been successfully finished. Click on the **OK** button to confirm the action and close the previous 'Export Audit Images' dialog window by clicking the x button in its top right corner.
5. In the Main Menu of the EMS Results Tally & Reporting application, click on **Actions** and then click on the **Open Document Management**. The **Document Management** window will open.
6. Select EMS NAS from the **Target** dropdown list and double-click on the **AuditImages** directory to open it.
7. Within the **AuditImages** directory navigate further down to the individual desired batch file directory and select the folder/file you wish to review.
8. In the right side of 'Document Management' window, select the **Target:** location on the local drive where you want to copy the chosen directory/file. Click on the **Copy** button and the selected folder/file will be transferred to the selected location on the local drive.
9. Navigate to the local directory where **AuditImages** folder/file has been copied and double-click on the file to open it.

11.17 Processing of Unused Paper Ballots

Unused Ballots will be processed in accordance with the California Elections Code. Precinct officers will seal or deface unused precinct ballots. Election personnel in the office of the Election Official will seal or deface Unused Absentee Ballots and un-issued ballots. The Election Official may inspect and count unused ballots as necessary to reconcile the ballot tabulation during the Official Canvass.

11.18 Backup and Retention of Election Material

11.18.1 General Procedures

Upon the certification of the election results, the California Elections Code applies to the handling, security and disposal of elections materials. The retention period for related election materials is six months for all non-federal elections. The federal election retention period is 22 months. Retention periods may be extended in the event of a court challenge.

11.18.2 Security of Materials Following Ballot Tally

- Either on Election night during vote tally, or following vote tally, all of the event log, ballot images and summary totals from each cartridge used in the election shall be backed up to the tabulation database.
- The local Election Official shall provide for retention and storage of the database containing the cartridge information and of any other data processing materials related to the vote tally in accordance with statutory retention requirements.
- After vote tally, all of these materials shall be placed in locked storage in a secure location, and shall remain there until the expiration of the period for challenging elections and for as long as required by law, unless a court orders their release.
- During the period of storage, the local Election Official or the Secretary of State may order the release of the materials for purposes of a manual recount or for election verification. After this process, they shall be returned to storage.

11.19 Post-Election Backup

Make sure that the EMS Administrator has backed up the official election results. This includes the following:

1. A backup of the Election Project containing the results from the election.
See Section 14.2.1 on how to back up a project. The project package created during this back up procedure must be manually copied and saved to a locked storage in a secure location. Name this folder distinctly so it can be identified in the future.
NOTE: Do not rename the project package.
2. A backup of the ImageCast® Evolution by storing the labeled CF cards from ICE units in a locked storage in a secure location. ICE results that were imported into the EMS RTR during the Election Day will be preserved within the backed up Election Project package.
3. A backup of the entire Adjudication folder from the D:\drive and databases on the EMS server. See the start of Section 14.5 for general information on backing up Adjudication. For instructions on how to back up the Adjudication databases, see Section 14.5.1. For instructions on how to back up the Adjudication folder, see Section 14.5.2.
4. A backup of all ICC election files containing results by moving the entire **C:\ICC Election Files** to a safe place.

11.20 Stopping Adjudication

Stopping adjudication should only occur after the Official Canvass has been completed. To stop adjudication, follow the instructions in section 10.4.7 and then return here to continue post-election activities.

11.21 Post-Election Logic and Accuracy Testing

Although not required by California law, this Post-Election L & A can be used to verify that the tabulators logic and the ability to tally ballots accurately has not been compromised since the Pre-Election L & A. The Post-Election L & A can be executed following the same instructions from Section 4.3.2.

Chapter 12

Post Election Backup and Recovery Procedures

12.1 Preparation

Refer to the Acronis documentation for instructions on how to create an Acronis boot disc. During the boot disc creation process, you have the ability to install device drivers on the disc. These drivers will be available to the Acronis Windows 7 environment. Drivers can also be loaded from a removable storage device after booting into Acronis.

For the Dell PowerEdge T620 server, the drivers for the Dell PERC H710 RAID controller should be preloaded on the disc, for convenience. The Acronis boot disc loads a 32-bit version of the Windows 7 environment. Therefore, the 32-bit version of the RAID controller drivers should be used. These drivers are different from the 64-bit version that was used during the installation procedure. The RAID controller drivers can be downloaded from the Dell Support website.

In addition to the Acronis boot disc, you will need a removable USB storage device to save the hard disk image backup files. A portable USB hard drive or USB thumb drive should be used. The removable storage device should have at least 32 GB of free space to save the images from all three computers.

The removable storage device that is used to save the hard disk images during the backup and recovery procedures does not necessarily need to be the same device that is used for long-term storage of the images. It is recommended to keep multiple backups of the hard disk images, and to store them in a safe and secure location.

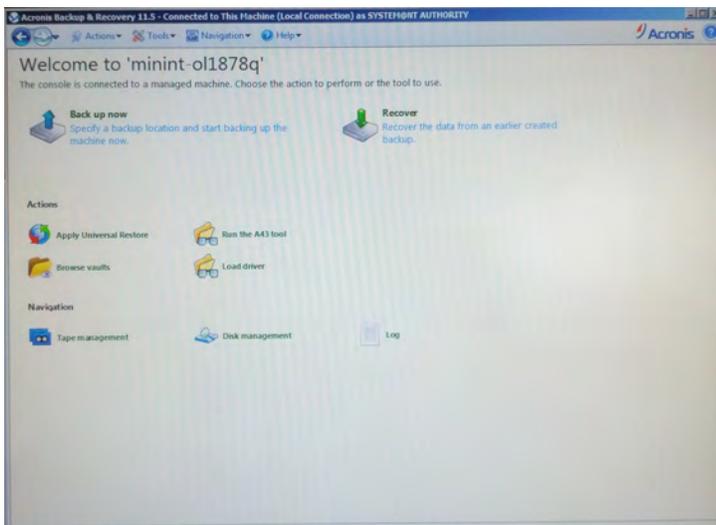
12.2 Acronis Backup

The following instructions describe the hard disk image backup procedure using Acronis. This procedure can be done on the EMS server or on any EMS workstation for which a full system backup is desired.

1. Power on the computer.
2. At the Dell logo screen, press the required key to access the Boot Manager.
 - For the EMS Server this is **F11**
 - For EMS Workstation and ICC Workstation this is **F12**

NOTE: If you have password protected the BIOS, you must enter the password to enter the Boot Manager.

3. Insert the Acronis boot disc into the DVD-ROM drive.
4. Wait a few seconds, then select the DVD-ROM drive as the boot device.
5. When the prompt appears, press any key to boot from the disc. Acronis will begin loading the Windows 7 environment. This process will take several minutes.



6. When complete, you are presented with the Acronis Welcome screen. Click **Disk Management**.

Figure 12.1: Acronis - Welcome

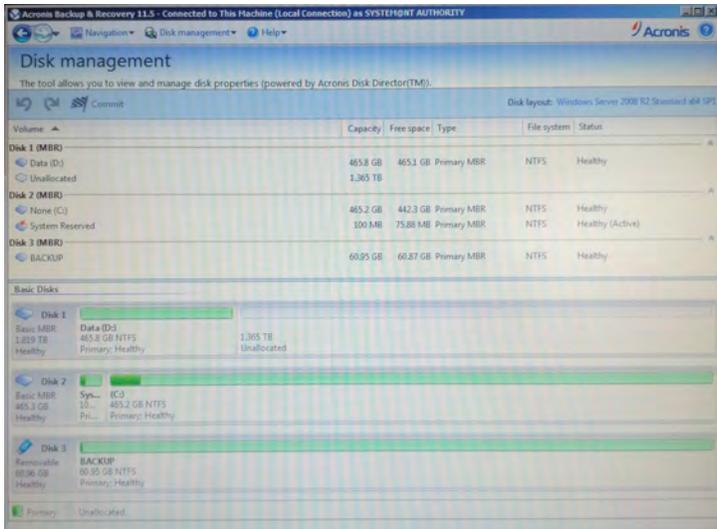


Figure 12.2: Acronis - Disk Management

7. Plug in the removable storage device that will be used to save the backup image. After a few seconds, the new disk will appear in the list of disks.

If the disk does not appear after a few seconds, try refreshing the view. If it still does not appear, unplug the removable drive and plug it into a different USB port.

NOTE: On the ICC Workstation, the USB storage device can only be connected to the USB 2.0 ports on the back of the computer. The storage device will not be recognized if connected to the USB 3.0 ports. The USB 3.0 ports can be identified by the letters **SS** (Super Speed) alongside the USB symbol. USB 2.0 ports have only the regular USB symbol.

8. Return to the **Welcome** screen by clicking **Back** or selecting **Welcome** from the **Navigation** menu.
9. On the Welcome screen, select **Back up now**.

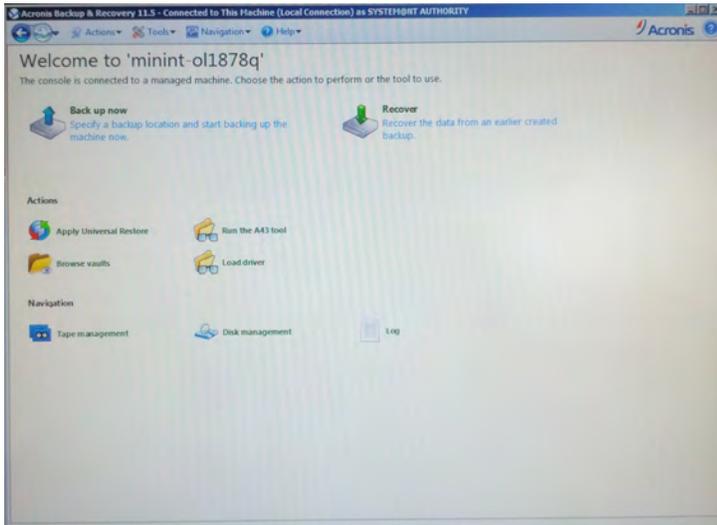


Figure 12.3: Acronis - Welcome

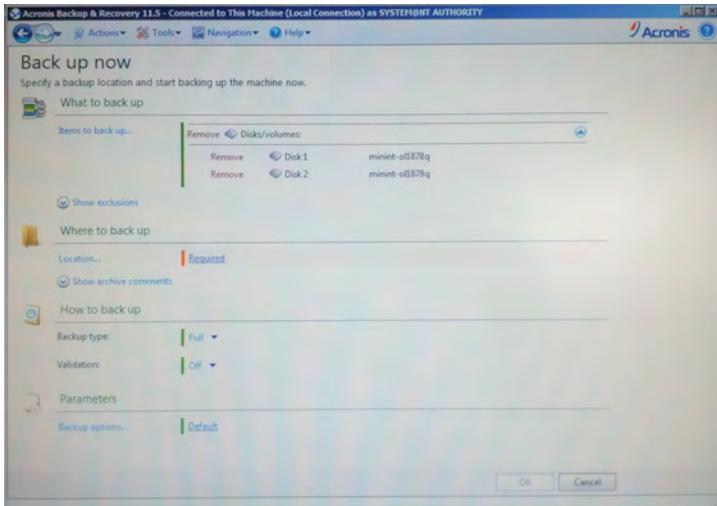


Figure 12.4: Acronis - Backup

10. Under **What to back up**, click **Items to back up...**

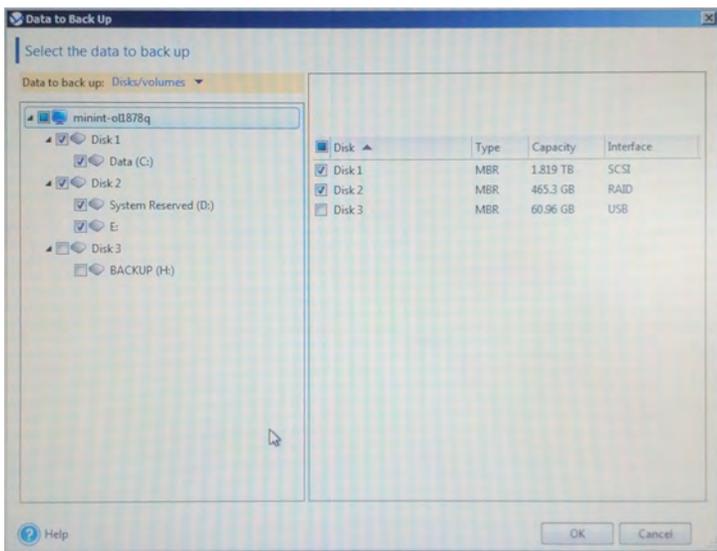


Figure 12.5: Acronis - Items to Back Up

11. The **Data to Back Up** window opens. For the option **Data to back up**, select **Disks/volumes**.
12. The computer tree view will show the attached disks (including both internal hard disks and the removable backup drive). Each disk node can be expanded to show the volumes/partitions on the disk.

Select only the internal disk drives that belong to the computer. Deselect the removable storage device (this is the destination disk for the backup).

NOTE: The drive letters shown in Acronis Windows 7 environment may differ from the drive letters assigned in the normal Windows environment. The drives can generally be identified by their capacity and interface type.

13. Click **OK** to close this window.

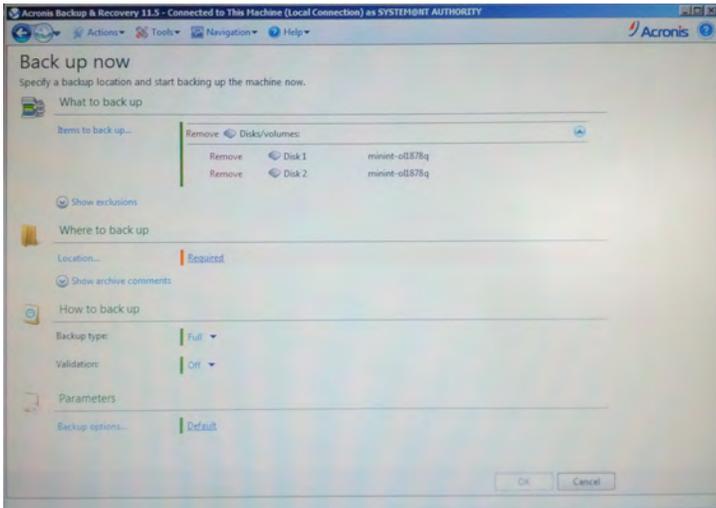


Figure 12.6: Acronis - Backup

14. Under **Where to back up**, click **Location...**

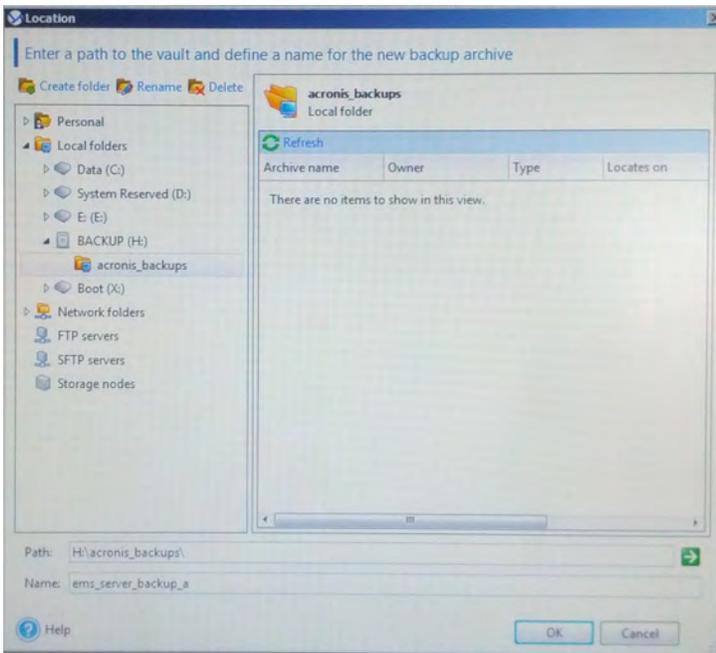


Figure 12.7: Acronis - Where to Back Up

15. Expand the **Local folders** node, select your backup drive and select the desired path. You may create sub-folders on your drive by clicking the **Create folder** button.
16. In the **Name** field, enter a name for this backup image. The name may not end with a number.
17. Click **OK** to close this window.

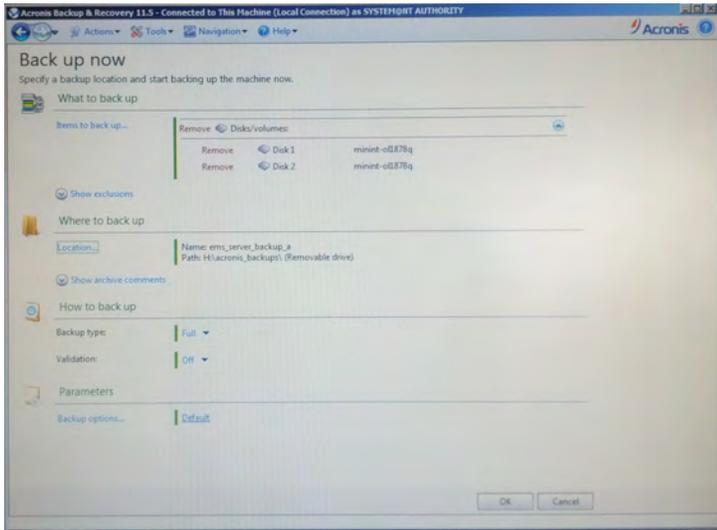


Figure 12.8: Acronis - Start Backup

18. When all desired parameters have been set, click **OK** to start the backup.

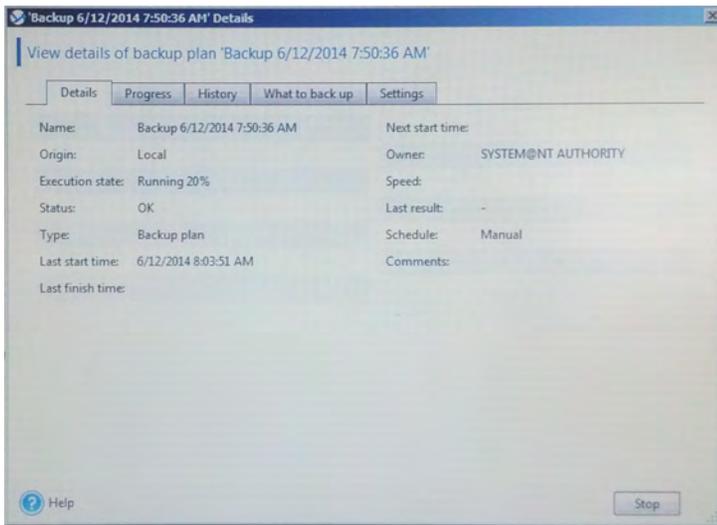
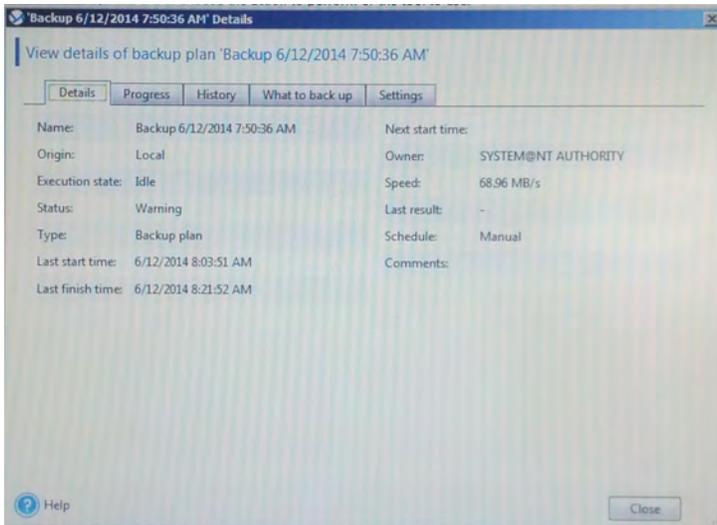


Figure 12.9: Acronis - Backup in Progress

19. The backup will take at least 20 minutes to complete, depending on the computer and the speed of your backup drive. No action is required during this time.



20. When the backup is complete, click **Close**.

NOTE: A warning will be displayed under **Status**. This is expected and can be ignored.

Figure 12.10: Acronis - Backup Complete

21. Remove the Acronis boot disk and the backup drive.
22. Close the Acronis window. The application will shut down and the system will reboot.

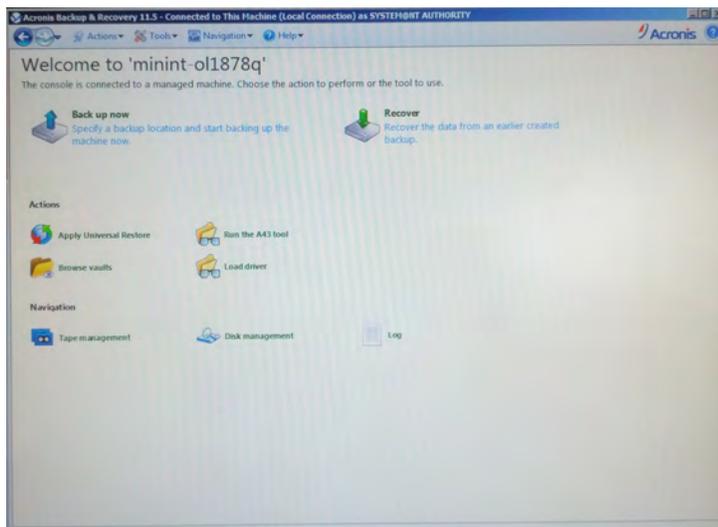
12.3 Acronis Recovery

The following instructions describe the hard disk image recovery procedure using Acronis.

1. Power on the computer.
2. At the Dell logo screen, press the required key to access the Boot Manager.
 - For the EMS Server this is **F11**
 - For EMS Workstation and ICC Workstation this is **F12**

NOTE: If you have password protected the BIOS, you must enter the password to enter the Boot Manager.

3. Insert the Acronis boot disc into the DVD-ROM drive.
4. Wait a few seconds, then select the DVD-ROM drive as the boot device.
5. When the prompt appears, press any key to boot from the disc. Acronis will begin loading the Windows 7 environment. This process will take several minutes.



6. When complete, you are presented with the Acronis Welcome screen. Click **Disk Management**.

Figure 12.11: Acronis - Welcome

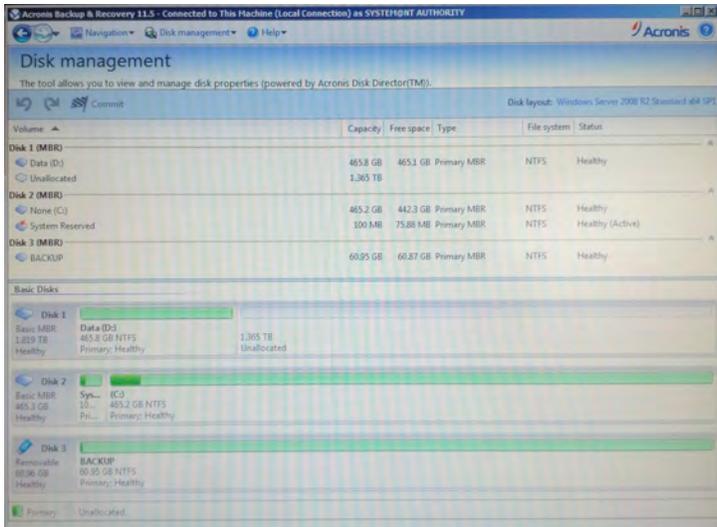


Figure 12.12: Acronis - Disk Management

7. Plug in the removable storage device that contains the backup image. After a few seconds, the new disk will appear in the list of disks.

If the disk does not appear after a few seconds, try refreshing the view. If it still does not appear, unplug the removable drive and plug it into a different USB port.

NOTE: On the ICC Workstation, the USB storage device can only be connected to the USB 2.0 ports on the back of the computer. The storage device will not be recognized if connected to the USB 3.0 ports. The USB 3.0 ports can be identified by the letters **SS** (Super Speed) alongside the USB symbol. USB 2.0 ports have only the regular USB symbol.

8. Return to the **Welcome** screen by clicking **Back** or selecting **Welcome** from the **Navigation** menu.
9. On the Welcome screen, select **Recover**.

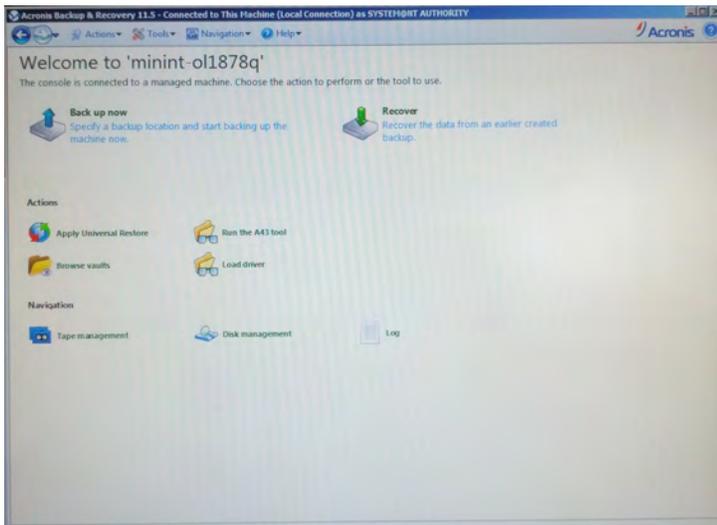
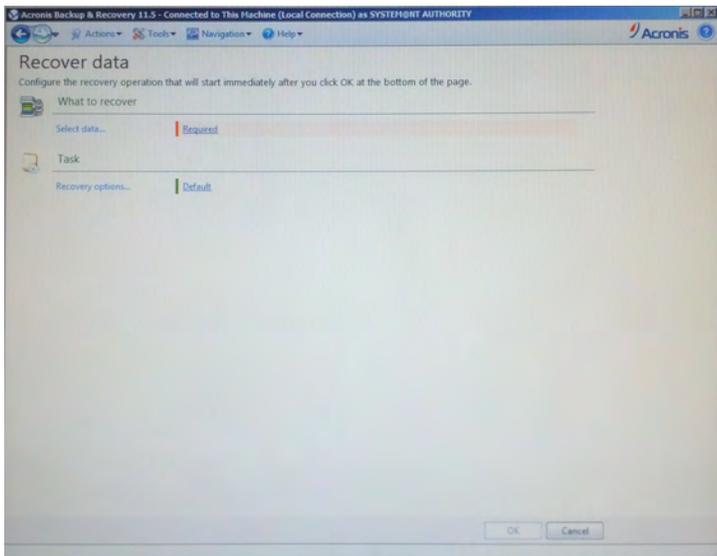


Figure 12.13: Acronis - Welcome

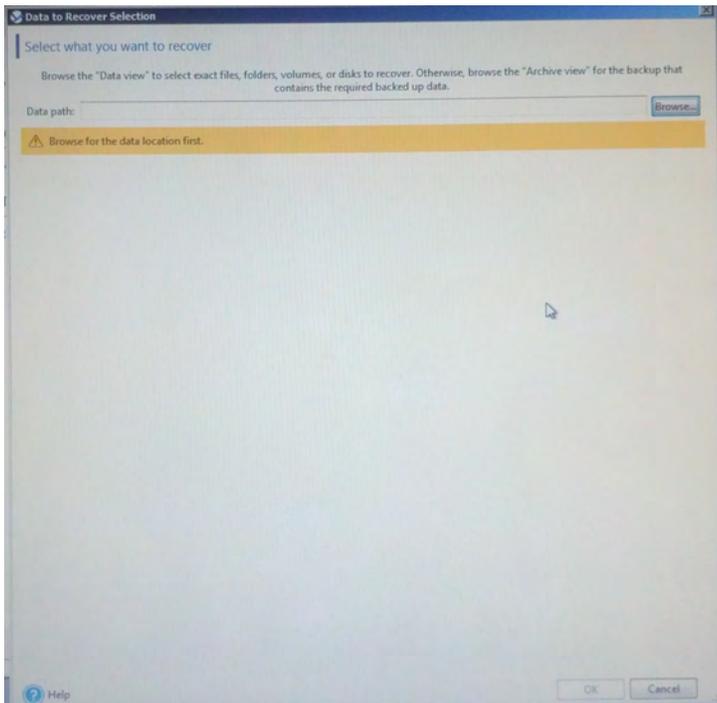
28. Remove the Acronis boot disk and the backup drive.
29. Close the Acronis window. The application will shut down and the system will reboot.

At the end of this chapter, election procedures are done and the rest of the chapters provide instructions on specific actions/functionalities and other system information but don't have to be followed in order.



10. Under **What to recover**, click **Select data...**

Figure 12.14: Acronis - Recover



11. Click **Browse**.

Figure 12.15: Acronis - Browse for Backup

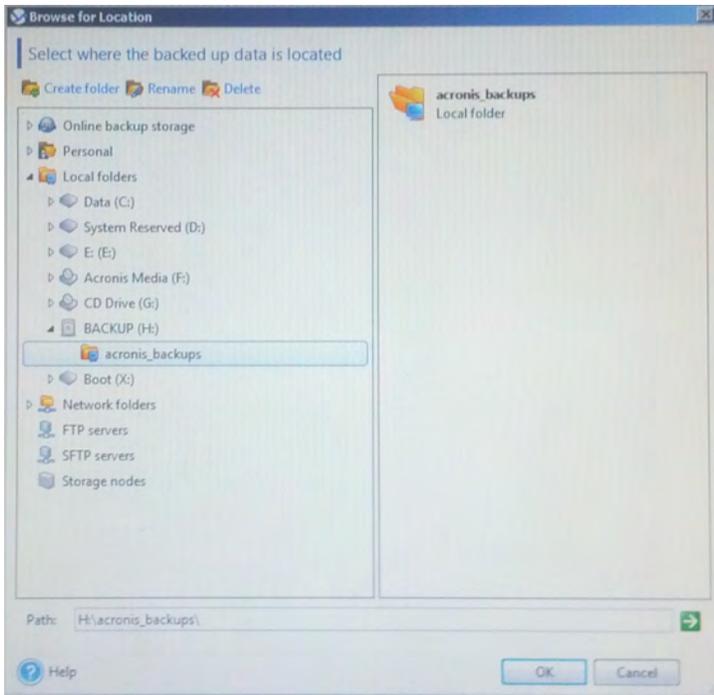


Figure 12.16: Acronis - Browse for Backup

12. Browse to the folder that contains the backup images.
13. Click **OK**.

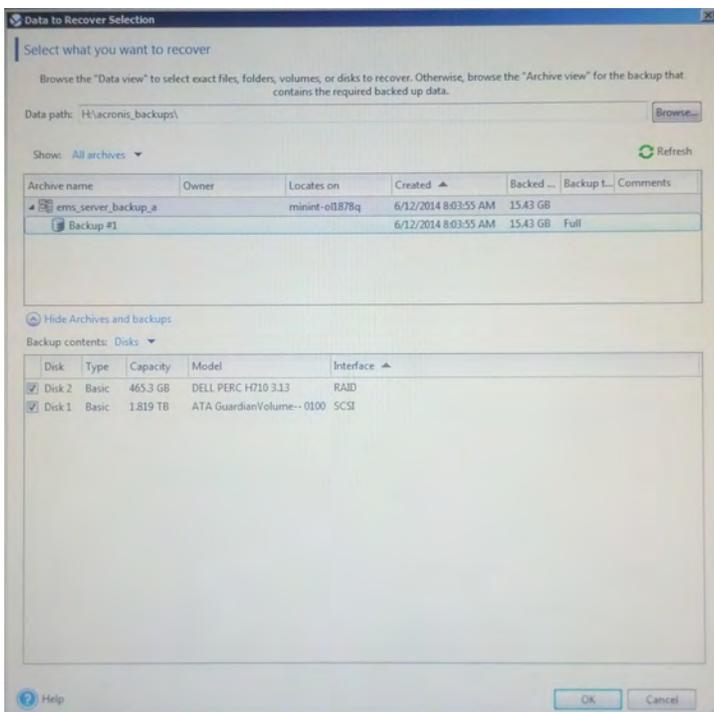
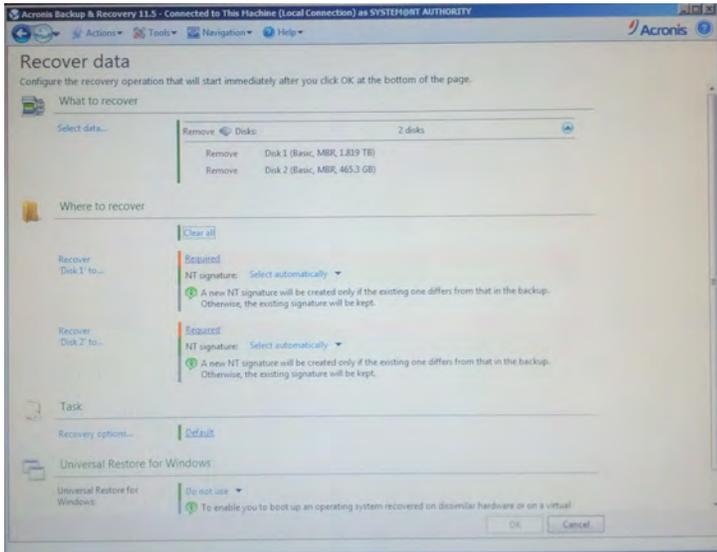


Figure 12.17: Acronis - Browse for Backup

14. Select the backup archive.
15. For the option **Backup contents**, select **Disks**.
16. Select all of the available disks.
NOTE: For the EMS Server, there are two disks contained in the backup archive (the disk containing the operating system and the disk containing the EMS data). The EMS Workstation and ICC Workstation each have a single disk.
17. Click **OK** to close this window.

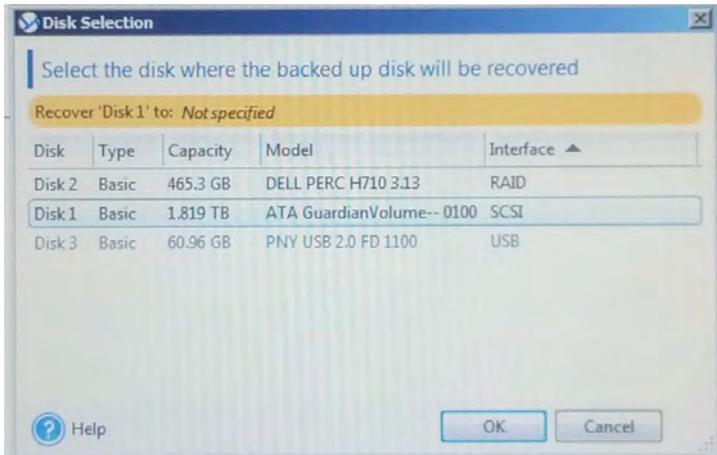


18. Under **Where to recover**, click **Clear all**.

NOTE: When recovering the EMS Server, note the sizes of the two disks to be recovered. Regardless of how the disks are named, the size of each source disk should match the size of the destination disk.

19. Click **Recover 'Disk 1' to...**

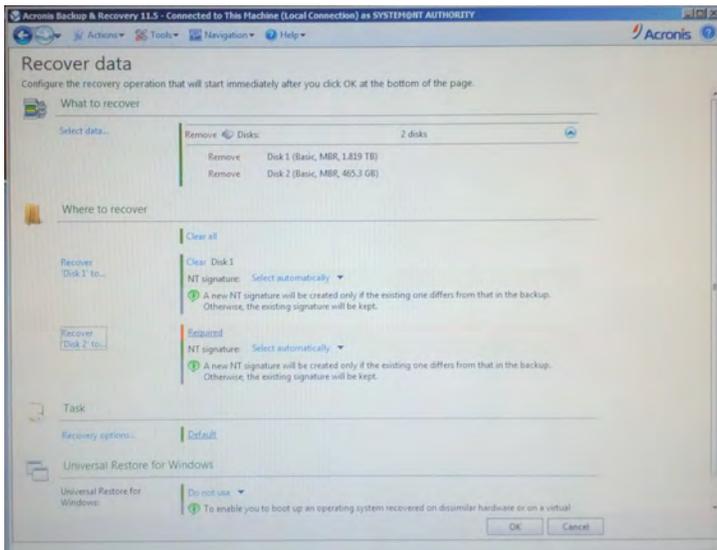
Figure 12.18: Acronis - Where to Recover



20. Select the destination disk for **Disk 1**.

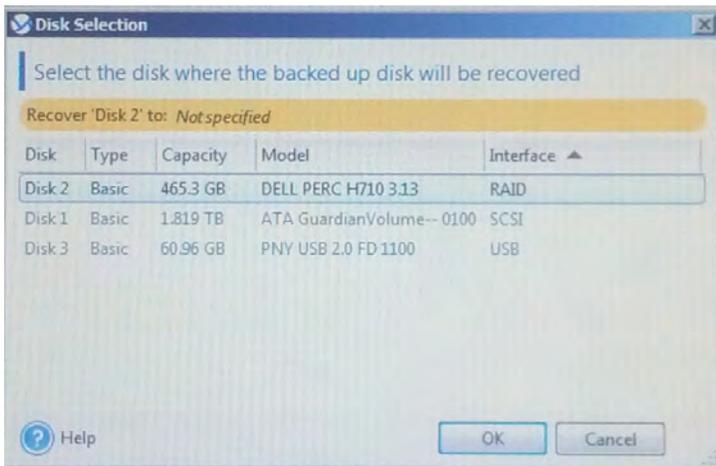
21. Click **OK**.

Figure 12.19: Acronis - Recover Disk 1



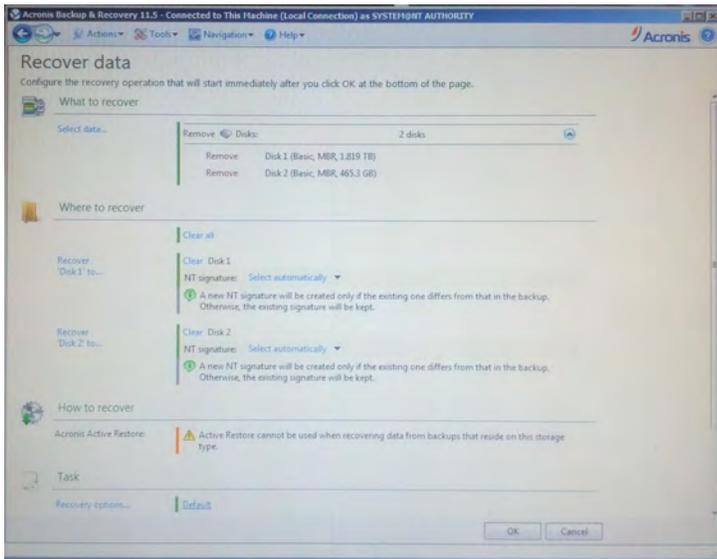
22. Click **Recover 'Disk 2' to...**
NOTE: On the EMS Workstation and ICC Workstation, there is only a single disk to recover, so this option will not be available.

Figure 12.20: Acronis - Where to Recover



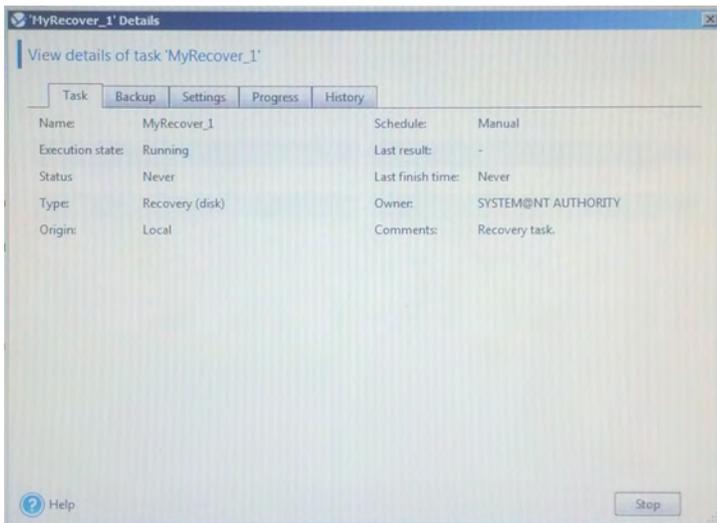
23. Select the destination disk for **Disk 2**.
 24. Click **OK**.

Figure 12.21: Acronis - Recover Disk 2



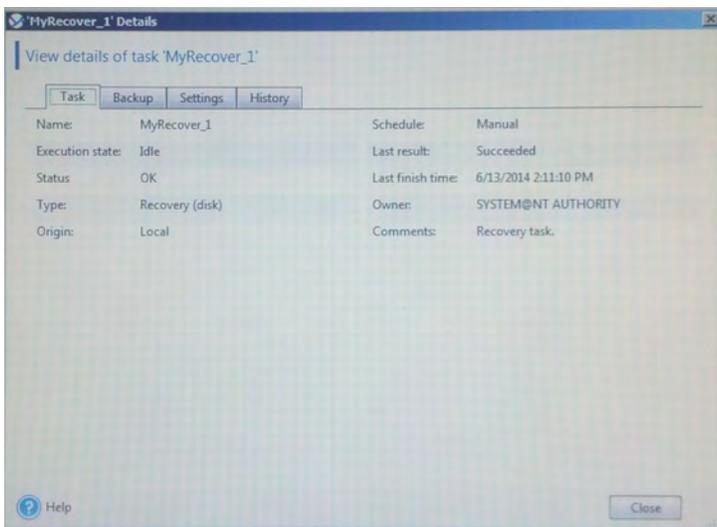
25. Click **OK** to start the recovery procedure.

Figure 12.22: Acronis - Start Recovery



26. The recovery procedure will take at least 20 minutes to complete, depending on the computer and the speed of your backup drive. No action is required during this time.

Figure 12.23: Acronis - Recovery in Progress



27. When the restoration is complete, click **Close**.

Figure 12.24: Acronis - Recovery Complete

Chapter 13

Manual Recount Procedures

13.1 Request for Manual Recount

A request for a Manual Recount and the conduct of the Manual Recount shall be made in accordance with the California Elections Code and California Code of Regulations Chapter 8.1, including the jurisdictions Recount Procedures that are on file with the Secretary of State.

13.2 Full Manual Recount

The AuditMark ballot image should be considered the official paper audit record, and should be used for any Full Manual Recount.

In the event of a difference between the electronic record, and the AuditMark ballot image, the AuditMark ballot image shall govern unless there is clear evidence that it is inaccurate, incomplete, or unreadable.

The original voter-marked ballots can also be examined.

13.2.1 ImageCast[®] Central Manual Recount Procedures

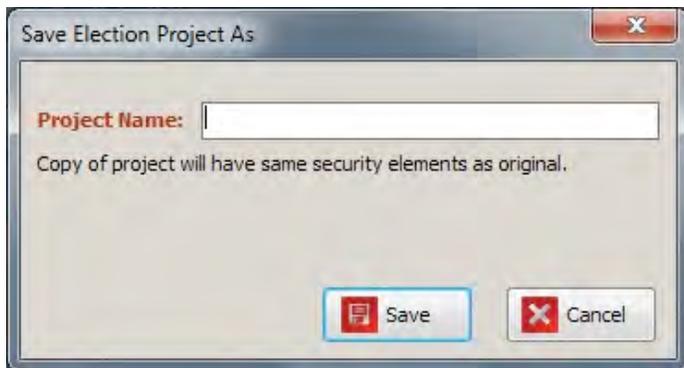
The adjudicated AuditMark ballot images will be used for the 1% Manual Recount. These images are to be printed out and manually tallied.

13.2.2 ImageCast[®] Evolution Manual Recount Procedures

The AuditMark ballot images will be used for the 1% Manual Recount. These images are to be printed out and manually tallied.

13.3 Conducting an Electronic Recount

13.3.1 Creating Recount Election Projects



1. From the live election project, create a duplicate copy that will be used for the recount by navigating to the Election Project menu in the EMS Election Event Designer client application.
2. Click **Save As**. Ensure that your duplicate copy is given a unique name by including the word 'Recount', or similar, in the title for clarity.

Figure 13.1: Election Event Designer: Save Election Project As dialog

3. Close the live election project by clicking **Election Project** in the top toolbar, and selecting **Close Project**.
4. Open the duplicate project from the **Election Project** top toolbar by selecting **Open Project**.
5. Roll the election project back to the 'Ballots Generated' stage by selecting the **Ballots Generated** option from the 'Election Project Status' field.
6. If required, create or modify your Device Configuration settings for the tabulator(s) to be used in the recount. Note that you must configure your settings to sort or return overvoted and undervoted ballots so that they can be forwarded to the Manual Recount Election Officials.
7. Choose a single contest to be recounted and disable all other contests by highlighting them and clicking the **Disable** button in the Contest context sensitive screen. At this point, there are two possible options to take:
 - a. Use the same tabulators for the recount as were used in the original election.
 - b. Use ImageCast[®] Central high speed scanners if your county has this option available.
8. If you wish to use the same tabulators for the recount as were used in the original election, create new election files by expanding the **Action** menu and clicking **Create Election Files**. Proceed to Section 13.3.2.
9. If you opt to use ImageCast[®] Central high speed scanners to conduct the recount, add new ICC tabulators to your project by performing the following:
 - a. Expand the **Tabulation** item from the Navigation menu and select **Tabulators** to open the Tabulation - Tabulators context sensitive screen.
 - b. Click **Search** to populate the list of existing tabulators.
 - c. Select all existing tabulators and click **Delete**.
 - d. Click **Yes** in the confirmation dialog that appears.



Figure 13.2: Election Event Designer: Tabulator dialog

- e. To create a new tabulator for use in the recount, click **Create New**. A Tabulator dialog appears as seen in Figure 13.2.
- f. Enter the tabulator's name and number in the specified fields.
- g. Select a polling place from the **Polling Place** drop down.
- h. Select the ImageCast[®] Central from the **Tabulator Type** drop down. You can also select the programming group from the **Programming Group** drop down.
- i. Select the appropriate DCF configuration from the **Device Settings** drop down. You may need to create a new DCF configuration to meet your needs for the recount.
- j. To connect this tabulator to the desired precinct(s), click on the **Precincts** tab and click **Connect**. The **Tabulated Precincts** dialog appears.
- k. Click **Search** to populate the list of available precincts.
 - l. Select the desired precinct(s) and click **Assign and Close**.
- m. The precinct(s) will now appear in the **Precincts** tab of the **Tabulator** dialog.
- n. Click **Save and Close**.
- o. Repeat the steps above for each tabulator you wish to create for the recount.
- p. Create new election files by expanding the **Action** menu item in the top toolbar, and selecting **Create Election Files**.

13.3.2 Recounting the Ballots

Using your newly-created election files, program the Compact Flash memory card(s) and iButton security key(s) for the tabulator(s) to be used in your recount, and scan the ballots to be recounted through the tabulator(s). Ballots containing overvotes and undervotes will be sorted by the tabulators during this process either by returning the ballots if using the ImageCast[®] Evolution , or, if using the ImageCast[®] Central , by stopping the batch. Forward the overvoted and undervoted ballots to the manual recount officials.

13.3.3 Consolidating Recounted Results

1. When all scanning is complete, generate results reports from your tabulators. These will contain the results for all paper ballots that do not contain overvoted or undervoted contests. Because all other contests have been disabled in the database, the tabulator results reports will only contain results for the contest of interest.
2. Load all of your results files and ballot images into the Results Tally & Reporting application.
3. When the manual recount results are complete, input them into the EMS Results Tally & Reporting application using the manual entry feature.
4. When all results have been entered into the database, validate and publish all of them.
5. Generate results reports as required using Results Tally & Reporting standard reporting functionality.

Chapter 14

The Role of the EMS Administrator in Managing System Security and Integrity

The Democracy Suite[®] platform, and all of its related project and development processes, closely follows the practices and principles embodied in the ISO 27000 series of recommendations (ISO 27001 and ISO 27002). The security mechanisms applied from system design through deployment are based on extensive risk analysis and subsequent risk mitigation decisions.

It is important to state that appropriate processes must be defined and followed by all business stakeholders within the system, including election staff members of the jurisdiction and Dominion Voting as the vendor, in order to ensure the system's proper security and protection. To this end, Democracy Suite[®] provides the enabling techniques to allow jurisdictions to follow best security practices and maintain compliance with local law.

The Democracy Suite[®] Threat Register is outlined in Appendix E.

14.1 Physical Security of System and Components

Election Event Designer has the ability to perform the following logical input activities:

- Restore the election project from the previously-defined election project backup file, packed in the compressed ZIP archive:
- Import election definition data from a third party entity in the form of an XML election definition file.
- Import recorded dynamic audio files produced by the EMS Audio Studio client application from the EMS workstation.
- Import recorded static audio files in the form of SPX/OGG speech-optimized audio files.
- Import political party symbols/logos.
- Import templates (contest, choice, instructions) for ballot styling in Rich Text Format. The templates are defined as XML files with a .tco file extension.

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- Import ImageCast[®] Central Device Configuration Files, and ImageCast[®] Evolution Machine Behavioral Settings in XML file format.
 - Import EMS system permission rule sets in XML file format.

Election Event Designer provides the following logical output interfaces:

- Ballot images in PDF print-ready format (PDF 1X-a) for use by the ImageCast[®] devices.
- Audio files in SPX/OGG format and ballot images in PNG format for ImageCast[®] Evolution functionality.
- Election definition files in a proprietary binary file format to be used by the ImageCast[®] Central tabulators.
- Credential authentication data used to program iButton security keys to be used by the ImageCast[®] tabulators.
- Device Configuration Files in proprietary binary format to be used by the ImageCast[®] Central tabulators.
- Machine Behavior Settings files in XML format to be used by the ImageCast[®] Evolution tabulators.
- A variety of system level reports in XML or PDF format to be used by human or electronic stakeholders.
- Audio library definition files in XML format, which define the content to be recorded using the EMS Audio Studio client application.
- Election programming station definition file in XML format, which defines the relationship between election files, ImageCast[®] tabulators, and iButton security keys to be used by the EMS Election Data Exchange Station, where applicable, in the programming of compact flash memory cards.
- A ballot on demand definition file which maps polling subdivisions to ballot IDs and allows users to perform polling place ballot-on-demand printing.

Election Event Designer also exposes/provides the following logical input/output interfaces:

- The EMS Data Layer Transactions (serialized binary data) toward the EMS Database Server.
- The EMS Data Layer Transactions (serialized binary data) toward the EMS Application Server for optional mixed local intranet and remote Internet configuration.

The EMS Database Server exposes/provides the following logical input/output interfaces:

- The Microsoft SQL Database Engine (serialized binary data) for operation in Election Event Designer and Results Tally & Reporting.
- The Microsoft SQL Database Engine (serialized binary data) for use in the EMS Application Server for optional mixed local intranet and remote Internet configuration.

The EMS Application Server exposes the following logical input/output interfaces:

- The serialized binary communication channel for use in the remote Election Event Designer and Results Tally & Reporting client applications.
- The serialized binary communication channel for operation in the EMS Database Server.

Results Tally & Reporting allows for the following logical inputs:

- User input.
- Result files in proprietary binary file format collected from the ImageCast[®] Central tabulators.
- Result files in XML format collected from the ImageCast[®] Evolution tabulators.
- Imported ImageCast[®] ballot counters.
- Imported scanned ballot images from the ImageCast[®] Evolution , and Central ballot counters.
- Imported XSLT (XML Stylesheet Transformation Templates) used to define election result reports.

Results Tally & Reporting provides the following logical output interfaces:

- Result reports in XML, PDF, HTML or Excel format used by EMS human and electronic stakeholders The type of exported data depends on the XSLT transformations.

14.1.1 Essential and Non-Essential Services and Ports

To further secure election servers, place a self-adhesive, tape-style tamper-evident seal over any unused USB, Ethernet, or other port on the server and client workstations for EMS and ImageCast[®] Central installations.

14.1.2 Anti-Virus Protection

Dominion Voting requires the installation of Avast Professional antivirus protection for client and server computers.

These virus and spyware prevention/detection packages must be present on all server and client machines of the Democracy Suite[®] EMS environment. These virus prevention/detection packages must have heuristic virus checking activated, and should be only temporarily disabled when restoring, creating, or configuring an Election Project on a client workstation.

Any resident prevention/detection features must be active. The virus prevention/detection packages must be updated to the latest version of the application and virus/spyware definition databases every week. Such updates will have to be introduced via a mobile storage device, as no external access to the network is permitted. These virus/spyware prevention/detection packages must be automatically run at set times every 24 hours. The set times should be chosen to minimize operational impact (during the night). Scans must be run on all attached storage devices and logs from these scans must be inspected and archived. If a virus' or spyware's binaries are detected, immediate action must be taken to isolate and remove it, in accordance with the virus prevention/detection package supplier's recommendations. This may simply involve quarantining and deleting the offending program, or in some circumstances a special removal tool may have to be used.

If virus/spyware infection is observed, additional measures must be taken including, but not limited to:

- Temporarily removing all machines from the network.
- Turning off System Restore and running both virus scanners.
- Formatting the hard drives of all infected machines and re-installing the operating environment from a clean installation source. Some malware overwrites the boot record of a computer is not removed, even with reformatting.

One day prior to Election Day, both virus prevention/detection packages must be manually run or the scheduled scan manually verified. On Election Day/Night, the automatic running of the virus prevention/detection packages must be suspended to ensure that there is no potential conflict or performance impact while results are processing. If necessary, run a manual scan so that within 24 hours of the tally, it can be confirmed that the anti-virus software showed no infection on the computer during Election Day and Election Night operations.

Installation procedures are listed in *Dominion Voting Systems Democracy Suite[®] Voting Systems Installation Procedures*.

14.1.3 Procedures for Verifying, Checking, and Installing Essential Updates and Changes

Unless authorized or required by the Secretary of State, no software or operating system updates should be installed on a Democracy Suite[®] installation. Installing updates of any kind will violate the certified configuration of the voting system. If an update is authorized by the California Secretary of State, Dominion Voting Systems will then provide specific instructions on how to successfully perform a software update that conforms to the certification requirements and regulations set forth by the State of California.

14.1.3.1 Audit Records for the Changes Showing What, When, Who, and Why

Windows event logs show the antivirus updates as they are installed.

14.1.3.2 Acceptance Testing After the Installation

Unless authorized or required by the Secretary of State, antivirus software updates are the only updates allowed to be performed on the voting system. The EMS server is operational during an antivirus software update. If the update fails, Avast! notifies the user. If further testing is desired, the operator can start the Election Event Designer client application and select a few benign functions as a high level test to ensure that the antivirus update caused no obvious issues with system performance.

14.2 Administrative Control of the Backup and Restore of an Election Project

14.2.1 Backup of Election Project

To do a backup of an election project, do the following:

1. Open the EMS EED application by double-clicking on the EMS EED application shortcut on the desktop. Select 'Election Project' and click on 'Open Project'. In the 'Open Project' select the project from the list and click **OK**.
2. Log into the project by entering Administrator user name and password.
3. Once the election project is open in the EMS EED application, click 'Election Project' and select 'Backup project' option from the drop down menu.
4. The dialog window will open where you will choose the the full back up (which is the second option in the dialog) and click on the **OK** button.

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5. Once the procedure is complete, the Information dialog window will appear notifying that the back up was successfully done.
 6. Copy the Project backup ZIP file to the safe location.

A project package backup can also be created during the Restore database process, if the project being restored already exists on the EMS NAS:

- To do a backup of an Election Project, after selecting the Project Package in the Restore dialog window, and it loads (this may take some time) you will be able to see information concerning the package contents displayed in the dialog window.

NOTE: If the election project does not exist on the EMS server, you will be presented with the text that project does not exist on the EMS Database server. If you wish to continue, click “OK”.

- On the next screen the “Warning” dialog will appear.
- To create a backup file from this point, select the “Create Election Project Package File” checkbox.
- Click “Browse” and navigate to the location on the server where you want to save the election project package. Put the backup into a folder with a descriptive, recognizable name.
- Once complete, select the “Create” option to create the election project package file.
- When the process has successfully completed, click “OK” to proceed.
- Click on the “OK” button to continue.
- To initiate the restore process, click the “Restore” button.
- After the restore process has successfully completed, click “OK”.

A minimum of four complete project package backups should be made during a typical election cycle:

1. Initial - the project package as supplied by the Dominion service bureau or produced by the jurisdiction. The election project has been fully completed, and is in the “Ready for Elections” state.
2. Logic & Accuracy test results - a backup of the election project after the L & A test has been successfully completed. This backup contains the all of the scanned results, images, and logs of the L & A test as well as any of the pre-defined results reports that were produced.
3. Semi-Official canvass (Election night) results - a backup of the election project at the end of Election night tabulation and reporting has been successfully completed. This backup contains the all of the scanned results, images, reports and logs of the Semi-Official results reporting.
4. Official canvass (Final) results - a backup of the election project at the end of the canvass period with all ballots tabulated. This backup contains the all of the scanned results, images, reports and logs for the entire election.

14.2.2 Restore of Election Project

To restore an EMS database, perform the following steps:

1. **On the EMS Server**, copy the project package to the **TEMP** folder on the EMS NAS (**D:\TEMP**).
2. **On the EMS Workstation**, start Election Event Designer (EED).
3. In EED, expand the **Administration** menu and click on the **Restore EMS Database** sub-option.
4. **Restore Election Project Package** dialog will appear.
5. There are two options of restoring project: **Local Path on the Server** and **Local Path on the Client**. Select the **Local path on the Server** option and click **Browse**.
6. Server browser dialog will appear and will show the content of **TEMP** folder.
7. Select project package you want to restore and click on the **OK** button.
8. After you select the package file, you will be able to see such package content as the project's name, date, creation date, and election event type.
NOTE: If the election project does not exist on the target EMS installation, you will be presented with the text that project does not exist on the EMS Database server. If you wish to continue, click **OK**. Alternatively, go to step 14.
9. On the next screen the *Warning* dialog will appear.
10. To create a backup file from this point, select the **Create Election Project Package File** checkbox.
11. Click **Browse** and navigate to the location on the local drive where you want to save the election project package.
12. Once complete, select the **Create** option to create the election project package file.
13. When the process has successfully completed, click **OK** to proceed with the next election project restore process.
14. You can skip the creation of the election project package file. In this case, the newly restored file will overwrite the old one.
15. Click on the **Ok** button to continue.
16. To initiate the restore process, click the **Restore** button.
17. After the restore process has successfully completed, click **OK**.
18. Open the election project.

14.2.3 Configure Network Parameters

1. If this is the first time opening Results Tally & Reporting, you need to set the network parameters. These parameters can be changed later on. Expand the **Administration** menu and click the **EMS Application Server Settings** option.
2. The **Network Settings** dialog appears. Type "EMSServer" in the **IP Address or Name of the EMS Application Server host**.

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3. Type “emsapplicationserver” in the **EMS Application Server Name** field.
 4. Press **Test** to confirm the correct settings have been entered.
 5. Once confirmed, click **OK**.

14.2.4 Creation of RTR User in Election Event Designer

In order to open an election project in Results Tally & Reporting, you need to create and activate an RTR user.

Open your election project in Election Event Designer. Expand the **Administration** menu and click the **Application Users** menu item. The **Administration - Application User** screen opens. Click **Search** to list all available users. Next, perform the following:

1. In the **Application** drop down menu, select **EMS RTR**.
2. Click **Create New**. The **Application User** dialog appears.
3. Enter the following information:
 - Enter an appropriate username.
 - From the **Role** drop down menu, select the **RTR Administrator** role.
 - Select **Manually create password**. Enter a case sensitive password in the enabled fields.
 - **Optional**: Add the relevant contact information on the right side of the dialog.
4. Click **Save and Close** to close the dialog and return to the **Administration - Application User** screen.
5. Open the newly created RTR user.
6. Change **Status** from **Initial** to **Active**. Press **Save and Close** again.

14.2.5 Initializing Reporting Services

On the EMS Server machine:

1. Open the EMS Application Server Manager by clicking **Start, All Programs, DVS, Application Server Manager**, and choosing **Application Server Manager**.
2. Click **Yes** to accept the UAC prompt and continue.
3. On the **Database Settings** tab, click **Test** to verify that the connection to the database was correctly established.
4. Click the **Reporting Service Settings** tab.
5. Click **Initialize Service** and wait for the “SQL Reporting Service initialized!” message in the bottom text box.
6. Press **Test** and wait for the “Connection successful! Folder ‘EMSApplicationServerReports’ already exists!” message.
7. Click **Save Settings** and then **Close**.

14.3 Preparing ImageCast® Central Election Files for the ImageCast® Central workstation

The following procedure will create a master set of folders containing copies of the ImageCast® Central application and election files for each ICC tabulator in the election project. After preparing the folders, **one copy** of this master set will be created and used for L & A testing. A **second copy** will be created for scanning official ballots. Once L & A testing has been completed, all folders will be backed up and archived and then a new copy of the election files will be deployed on ICC workstations for election day.

NOTE: If the election project has been prepared by the Dominion Voting Systems Service Bureau, the prepared ImageCast® Central election files will be provided along with the election project. The only step that must be performed is to copy the files to the ImageCast® Central workstations.

Each jurisdiction may decide how to distribute the ICC election files across ICC workstations. For example, one workstation may be used for absentee ballots, one for early voting etc.

NOTE: The prepared ImageCast® Central election files should be evenly distributed across the number of available ImageCast® Central workstations. The Administrator should then copy the ranges of ImageCast® Central folders to destination workstations according to the predetermined schema, while keeping a detailed record of which files were copied to which workstation.

1. Insert an empty USB stick, with enough space to hold all of the ICC election files, into the USB port of the EMS server.
2. Navigate to D:\NAS\‘Project_Name’ \Tabulator folder.
3. Type ‘ICC’ into the Search field located at the top right corner of the browse window. After the search is complete, only the ICC tabulator folders will be listed.
4. Select all ICC tabulator folders and copy them to the USB stick.
5. Once the copy process is complete, safely eject the USB stick from the EMS server.
6. Insert the USB stick into the USB port of the ICC workstation.
7. In the root of the C: drive, create a new folder and name it ‘ICC Election Files’.
8. Open the contents of the USB stick in Windows Explorer and copy all contents into the newly created ‘ICC Election Files’ folder on the C: drive.
9. Under ‘C:\ICC Election Files’, open each ImageCast® Central tabulator folder and perform the following steps:
 - Create a folder called ‘config’.
 - Move all of the election files into the ‘config’ folder.
 - Copy the ‘C:\DVS’ folder, and it’s subfolder, ‘bin’, which contains the ImageCast® Central application into the tabulator folder.
 - Move the ‘config’ folder into the ‘DVS’ folder.

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10. Once step 9 has been repeated for each ICC tabulator folder, the administrator will have a complete set of DVS folders with election files prepared for the ImageCast[®] Central in the 'C:\ICC Election Files' folder.

NOTE: Create a master copy of this folder containing the election files by copying it to a USB stick and storing it in a safe place. The administrator may wish to store multiple copies of the master set of prepared election files. This master copy will be used to setup ICC workstations prior to Election Day.

14.4 Managing ImageCast[®] Central Tabulator Folders

These procedures will change the set of ImageCast[®] Central tabulator election files being used by the application. All results files and log files will be backed up and restored using this procedure. This allows the administrator to switch between different ICC tabulators on the same physical ICC machine.

14.4.1 Backup ICC Tabulator Folder

To backup an ICC tabulator for later use:

1. Close the ICC application.
2. Navigate to the root of the C: drive and **move** the **DVS** folder into the appropriately named tabulator folder located in **C:\ICC Election Files**.

14.4.2 Restore ICC Tabulator Folder

To deploy a new ICC tabulator or restore a tabulator previously in use:

1. Close the ICC application.
2. Backup and remove the existing DVS folder if required (see Section 14.4.1).
3. Navigate to **C:\ICC Election Files** and open the desired tabulator folder.
4. **Move** the DVS folder to the root of the C: drive.

14.5 Backing up and Restoring Adjudication on the EMS Server

The adjudication application uses three SQL Server databases: ElectionStore, TabulationStore, and an Adjudicable Ballot Store specific to the election being processed. The election store holds information specific to the election being processed. The Tabulation store contains the raw vote data collected by the adjudication application. An Adjudicable Ballot Store is created each time adjudication is started for a given election. It is named as follows: AdjudicableBallotStore_ElectionName_Date_Timestamp. This database contains data used by the adjudication system for processing, adjudicating, and reporting on batches/ballots for the election.

A complete Adjudication backup consists of the three databases specified above and the D:\Adjudication folder. Instructions for how to create a complete backup, as well as how to restore the backup, are given in the following sections.

14.5.1 Backing up of the Adjudication Databases

1. Log in to the EMS server as the EMS Administrator (typically “emsadmin”).
2. As the Administrator from the **Start** Menu, open **SQL Server Management Studio**.
3. In the **Connect to Server** window, make sure that “(local)” or “localhost” is specified for the **Server** name field and that “Windows Authentication” is selected for the **Authentication** field.
4. Click the “Connect” button.
5. In the Object Explorer pane, expand the “Databases” folder.
6. Backup the three Adjudication databases, TabulationStore, ElectionStore, and AdjudicationStore, by following these instructions for each:
 - (a) In the Object Explorer pane, right-click on one of the three Adjudication databases, select **Tasks**, and then “Back Up...”.
 - (b) In the “Backup set” section enter additional details in the Name field, if needed.
 - (c) In the “Destination” section click the “Remove” button.
 - (d) Click the “Add” button.
 - (e) In the window that appears, select the “...” button to the right.
 - (f) Browse to a destination for the backup file (typically, a removable drive should be selected).
 - (g) Enter a descriptive backup name in the “File name” box, including a “.bak” extension, then click “OK”.
 - (h) Click “OK” to close the “Select Backup Destination” window.
 - (i) Click “OK” and wait for confirmation that the database was backed up. Click “OK” again.
 - (j) Repeat this process for the remaining two databases.
7. Once complete, please exit **SQL Server Management Studio**.

14.5.2 Backing up of the Adjudication Folder

1. On the EMS server, navigate to D:\, right-click on the ‘Adjudication’ folder, highlight the “Send to” option and then click on “Compressed (zipped) folder”.
2. The dialog will appear informing you that the zipped folder cannot be placed in that location but can be placed on the desktop instead. Click on “Yes”.
3. The progress window will appear and when the compression is complete, the zipped folder named “Adjudication” will be placed on the desktop.
4. Copy the zipped “Adjudication” folder to a safe location, preferably to the same location where the Adjudication database backups were stored.

14.5.3 Restoring of the Adjudication Databases

The following sections provide instructions on how to restore Adjudication backups made using the instructions in the previous sections. **NOTE: Restoring Adjudication brings it back to the state it was in when it was backed up. If Adjudication had been stopped, it will continue to be in the stopped state after restoring, and no adjudication actions will be available.**

1. Log in to the EMS server as the EMS Administrator (typically “emsadmin”).
2. Stop all running services associated with DVS Services.
 - From the **Start** Menu, right click **Computer** and select “Manage”. This will open the Server Management window.
 - Expand **Configuration** on the left panel and then click **Services**.
 - In the services pane scroll down to the services whose names start with “DVS”. The application has 10 services: DVS Adjudicable Ballot Service, DVS Adjudication Data Service, DVS Ballot Completion Service, DVS Ballot Preparation Service, DVS Batch Completion Service, DVS Election Data Service, DVS Election File Manager, DVS Report Builder Service, DVS Report Service, and DVS Statistics Service.
 - Right click each Service and select “Stop”.

NOTE: when stopping some of the services you will get a message window, titled “Stop Other Services”, asking whether other services should be stopped; click “Yes”. Because of this, some of the Adjudication services down the list will be stopped for you and thus the “Stop” option won’t be available; skip such services and continue until you have stopped all Adjudication services.

3. Open **SQL Server Management Studio**.
4. In the Connect to Server window, make sure that “(local)” or “localhost” is specified for the Server name field and that “Windows Authentication” is selected for the Authentication field.
5. Click the “Connect” button.
6. Delete the three Adjudication databases, TabulationStore, ElectionStore, and AdjudicationStore by following these instructions for each:
 - In the Object Explorer pane, expand the “Databases” folder.
 - In the Object Explorer pane, right click on one of the Adjudication databases and select Delete.
 - In the Delete Object window, select “Close existing connections” and select “OK”. Once deleted, this will take you back to the Object Explorer pane.
 - Repeat this process for the two remaining Adjudication databases.
7. Restore the three Adjudication databases, TabulationStore, ElectionStore, and AdjudicationStore, by following these instructions for each:
 - In Object Explorer right-click on the Databases folder and select “Restore Database...”
 - In the “Restore Database” window, towards the middle, select “From device” and then click the “...” button to the right. The “Specify Backup” window will appear.
 - Click “Add” to browse to the location where the Adjudication database backups are found. Select one of the three Adjudication backup files (.bak) and click “OK”.

- On the “Specify Backup” window click “OK”.
- In the bottom pane of the “Restore Database” window, a row with the backup information will appear. Check the box under the “Restore” column. Also, note the name under the “Database” column, as it will be needed below.
- In the “To database” field, towards the top of the window, select the name of the database from the dropdown (it will usually be at the bottom of the list). The database name specified here must match the name shown under the “Database” column in the bottom pane, for this reason, do not edit the database name.
- Follow these instructions only if you are restoring the AdjudicationStore:
 - Click “Options” in the “Select a page” pane to the left.
 - In the middle pane, check the “Restore As” column of all rows for any colons in the file name. You should remove any colons or replace them with dashes.
- Click “OK” and wait for confirmation that the database was restored. Click “OK” again.
- Repeat this process for the two remaining Adjudication databases.

8. Restore Drop folder

- Right-click the archived (.zip) Adjudication folder and then click “Extract All...”.
- On the window that appears, enter “D:” in the text box.
- Click the “Extract” button at the bottom and wait for the extracted folder to be shown in Windows Explorer.
- Right click on the folder after extracting and select Properties. Select the **Security** tab, click Edit.
- In the Permissions for Adjudication window click Add and enter AdjudicationAdmin.
- Click Check Names, and select “OK”.
- In the Permissions for Adjudication window click AdjudicationAdmin and check the box for “Full control” under the “Allow” column.
- Click “OK” to close the “Adjudication Properties” window.

9. Start Adjudication Services

- From the **Start** Menu, right click **Computer** and select “Manage”. This will open the **Server Management** window.
- Expand **Configuration** on the left panel and click **Services**.
- In the services pane scroll down to the services whose names start with “DVS”. The application has 10 services: DVS Adjudicable Ballot Service, DVS Adjudication Data Service, DVS Ballot Completion Service, DVS Ballot Preparation Service, DVS Batch Completion Service, DVS Election Data Service, DVS Election File Manager, DVS Report Builder Service, DVS Report Service, and DVS Statistics Service.
- Right click each Service and select “Start”.
NOTE: As you start some of the services, other Adjudication services down the list will be started for you and thus the “Start” option won’t be available; skip such services and continue until you have started all Adjudication services.

14.6 Purging Election Results

14.6.1 Purging Election Results from RTR

The purpose of purging election results from RTR is to clear results from a previous election before starting a new election.

1. In the **Main Menu**, click on **Actions**, **Results** and then click on the **Purge Results** option. The *Confirm Purging* dialog window will open.
2. In the *Confirm Purging* window, enter the text sequence that appears on the screen and click on the **OK** button to confirm purging.

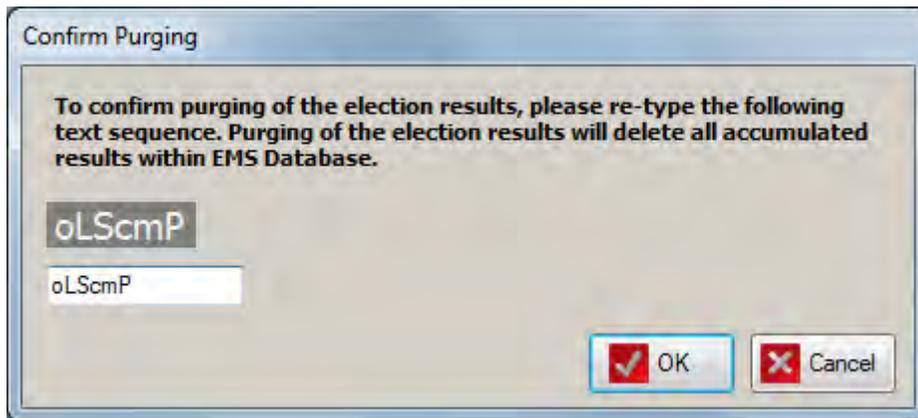


Figure 14.1: Confirm Purging Dialog Window

14.6.2 Purging Adjudication Files from the EMS Server

To purge the ICC scanned batches and Adjudication files from the EMS Server, navigate to **D:\Adjudication**, select the folder for the current election project that should be purged and delete it.

14.7 Security Procedures for Central Processing

The official environment of the central count location is under the control of the jurisdiction, which determines its own physical security requirements for their central count facility. The jurisdiction is also responsible for handling and storing ballots both before and after they have been scanned.

The following is a suggested high-level ballot handling procedure for central processing:

Ballot boxes are typically stored on racks until they have been scanned and should remain on these racks until this point. Before the scanning process, a ballot handler is assigned to a specific scanner and is responsible for retrieving boxes of ballots from the racks for this scanner.

Once the scanner count records are compared and matched to the poll record, and every total has been balanced, the ballots are ready to be re-boxed. A post-scanning ballot handler reclaims the scanned ballots from the scanning tables and packs them into boxes. Ballots should remain in the order they have been scanned in order to facilitate easier tracking, if needed, in the future. The poll record is also repacked.

Before the box is sealed, the handler obtains the ‘follower’ from the system. This document details the scanning and accounting process. The ‘follower’ is also placed inside the ballot box. The box is sealed with a clear, tamperproof and traceable envelope. Each box is placed in storage at a pre-determined location for traceability.

14.8 Security Procedures for Polling Places

14.8.1 Polling Place Physical Security

The following physical security mechanisms are integrated within the ImageCast[®] devices:

- Tamper-proof screws are used for all external fixturing.
- Each device door is secured with an appropriate locking mechanism (hasp-type for either physical locks or tamper seals and security screws).
- The ballot box has its own locks for each of the ballot box compartments.

As per jurisdiction regulations, poll workers should perform an orderly shut down of the tabulator to protect the units in the event of vandalism or civil disobedience. If the pollworker determines that a shutdown is required, given the severity of the disruption in the polling place, the following actions should be taken:

1. Document the public counter
2. Power down the tabulator
3. Cover the machines with available covers or move them to a safe place
4. Remove laptops or other computing devices out of the polling place

14.9 Audit Trails

14.9.1 ImageCast[®] Evolution Audit Trail Files

This section describes the context and purpose of voting system audits and related, specific functionality requirements. Election audit trails provide the supporting documentation for verifying the accuracy of reported election results. They present a concrete archival record of all system activity that is related to the vote tally. As such, election audit trails are essential records that provide public confidence in the accuracy of the tally, information in the event of a recount, and evidence in the event of criminal or civil litigation.

14.9.1.1 Audit Log File

Every action, event, and operation that occurs on an ImageCast[®] Evolution will be permanently logged to the audit log file that exists on both memory cards. This file is encrypted and digitally signed to protect its integrity.

Authorized users can use the LCD touchscreen to print this Audit Log report on the ImageCast[®] Evolution’s internal printer. This LCD onboard Audit Log report only reports on a maximum of forty audit events (i.e. the last forty audit events to have occurred. If users use the LCD screen to request a report of more than forty audit events, the system will still only report the maximum forty audit events).

This printing procedure meets the following:

-
- The generation of audit trail records does not interfere with the production of output reports.
 - The entries can be identified so as to facilitate their recognition, segregation, and retention.
 - The audit record entries are kept physically secure.

14.9.2 ImageCast[®] Central Audit Trail Files

14.9.2.1 Verifying the Number of Votes at Each Polling Station

Two separate systems are used to verify the number of ballots. The first is the counting tally of the scanner mechanics. The scanner stores and displays an independent count of ballots. This is typically noted on the header page for the purpose of verifying the correct number of ballots present in the ballot box.

A second verification is provided by the imaging software. The software displays the total number of ballot images processed as part of the ballot counting operation. This total can be recorded and compared with the reception records and the scanner count. In summary, there are three independent counts:

1. Poll record
2. Scanner hardware paper count (mechanical count)
3. Image processing paper count (software count)

All three totals should agree before a set of ballots for a poll is accepted at the scanning stage. If there is a problem, the set of ballots can be rejected before any of the ballots are tabulated.

14.9.2.2 Audit Log File

Every action, event, and operation that occurs on the ImageCast[®] Central permanently logged to an audit file that exists on the host workstation and the host results server. This file can be found in C:/dvs/Temp/Report.txt.

This printing procedure meets the following:

- The generation of audit trail records does not interfere with the production of output reports.
- The entries can be identified to facilitate their recognition, segregation, and retention.
- The audit record entries are kept physically secure.

14.9.2.3 AuditMark[®] Images

For each ballot that is scanned, interpreted, and accepted into the unit, a corresponding ballot image with AuditMark[®] is created and stored for auditing purposes. The system uses these images to audit the unit's interpretation of each individual ballot.

The ballot image with AuditMark[®] consists of two parts:

1. The top part of the image contains a scanned image of the ballot (the voter markings are of particular importance).
2. The bottom portion consists of a machine-generated analysis summary showing each mark that the unit interpreted for that particular ballot.

14.9.2.4 Audit Trail Files

The Audit trail file is stored in memory and contains a chronological list of all messages generated by the ImageCast software. This includes:

- System startup messages (recorded by the Application Loader)
- System self-diagnostic test messages (memory test, module initializations)
- All administrator operations (messages include the “access key” id number)
- Source and disposition of system interrupts resulting in entry into exception handling routines
- All messages generated by exception handlers’ notification of system login or access errors, file access errors, and physical violations of security as they occur, and a summary record of these events after processing
- Non-critical status messages that are generated by the machine’s data quality monitor or by software and hardware condition monitors
- All scanned ballots
- All system errors (paper jams, power failures, hardware failures, data errors etc.)

To ensure the integrity of the Audit log, all records added to the file are encrypted using AES-128 and the common key value and the entire file is signed using a SHA-256 hash and the tabulator’s unique key value.

14.9.2.5 ImageCast® Adjudication Audit Trail

The ImageCast® Adjudication system keeps track of all adjudication actions taken on a ballot, including user name and time of the action, and stores this information in the database. To obtain this information, an Adjudication Administrator can create an Activity Report as explained in Section 10.4.5.2. Activity reports in PDF format are also cryptographically signed so that modification of the document is evident.

Additionally, adjudicated ballot images are appended with audit information in the same manner that the ImageCast® Central appends interpretation information (see Section 14.9.2.3). The appended AuditMark forms a permanent record of adjudication actions taken on a ballot and can be easily inspected at any time by opening the image with a standard image viewer.

System-level logs also record information about system operation and errors. This is stored in the Windows Event Log on the EMS server, as well as in each Adjudication workstation.

To access the ImageCast® Adjudication logs:

1. From the Start Menu, right-click Computer and select “Manage”. This will open **Server Manager** on the EMS server, or **Computer Management** on a workstation.
2. On the left pane, expand “Diagnostics” if on the EMS server, or “System Tools” if on a workstation.
3. Expand **Event Viewer**.
4. Select the “DVS Adjudication” log under “Applications and Services Logs”.
5. To ensure all information listed is up to date, select the **Refresh** button in the **Actions** pane on the right.
6. On the center pane, you will see entries logged by Adjudication components. The **Source** column will identify the exact component (e.g., one of the services, or the client application).

14.9.3 EMS Audit Trail Files

14.9.3.1 Audit Log

From the moment the project is created in EMS to the moment the project becomes deactivated, the EMS system keeps an activity log within the EMS Database. This activity log stores every action performed by any user within the system, and thus functions as a detailed audit log that can be analyzed and printed in the form of an audit report. The audit information cannot be modified or permanently deleted from the EMS client applications. However, the report should be exported for archiving purposes as part of the record retention policy. Keeping in mind that audit logs can contain a significant amount of information, it is the responsibility of the administrative user to regularly archive log information. Doing so will clear the log and create more space for new records.

The auditing activity displays this auditing report on the screen of the EMS EED client application.

The reports found in the Audit Log Report Group are associated with the usernames that have been created within the EMS EED (e.g. Admin and Techadvisor). That is to say, the produced reports will log each action that a specific user performed at a certain period of time.

These reports show details such as “User Name”, “Report for Time Period”, “Time” and “Action”.

The report is generated in simple text format and can be exported into PDF, HTML or MS Excel format. The created report is stored on the NAS and signed using the election project key. Reports are created with the assigned date, and multiple reports can be generated.

14.9.3.2 Unauthorized Access to the Access Control Capabilities of the System

EMS application user accounts (including roles, permissions and user credentials) are stored within the EMS Database. Access to this database can only be achieved by using the EED and RTR client applications. No other components of Democracy Suite[®] have access to this database repository. Direct access to the database platform (server and underlying database engine) requires special administrative privileges and cannot be performed from any of the client applications. This means that to access the EMS Database directly, the user has to first establish prerequisite infrastructure equipment, bypass physical security measures, pass the Windows Server authentication, and then pass SQL Server authentication.

14.9.3.3 Reports

Election Event Designer contains six groups of reports presenting a variety of application activities. The convenience of the report tool is that it can be easily previewed, formatted, and filtered. Additionally, the user can obtain the custom prepared reports that modifies, deletes, or adds new sets of reports.

The report tool contains XSLT, otherwise known as XSL transformations, that converts XML files into HTML, PDF, or XML with the ability to be opened in Excel. The default XSLT is imported into the election project when a new project is created.

14.9.3.4 Create/Preview/Delete Reports

The Report navigation group consists of the Election Project, Divisioning, Election Event, Tabulation, System Report, and Audit Log reports groups. The procedure for creating reports is the same for all.

To create a report, perform the following steps:

1. Expand the **Reports** navigation group and select one of the report items.

-
2. Select the option from the **Report Name** drop down menu. The drop down menu contains a list of available reports for the selected Reports Group.
 3. Select the **Transformation Name** you can choose between one of the presented options.
 4. Click **Create Report**.
 5. The creation of the report will take a few seconds. While the system collects all of the data needed to create the report, the progress bar will appear. The report viewer will open upon completion.
 6. Each report spreadsheet contains the election project and report name.

XML files can be converted into HTML, PDF or Excel by applying a chosen report transformation.

1. Select the XML report from the list of created reports.
2. Choose the **Transformation Name** option from the drop down menu.
3. Click **Apply** to apply the chosen transformed report.

To preview the created report, navigate to the **Report Group** main activity. Select the **Report Name** and click **Search**. One or more reports matching your search criteria appears in the main activity screen. Select the reports from the and click **Open**.

To delete one or more reports, perform the following steps:

1. List the reports.
2. Select the reports.
3. Click **Delete** to delete them from the NAS repository.

14.9.3.5 How to Download Reports from the NAS Server

All created reports are stored on the EMS NAS servers. The created report can be opened and previewed by using the Document Management window. If you wish to print the report, you must first download it from the NAS server and save it to your local drive.

1. Open **Document Management** and expand the **Actions** menu.
2. Select the **Open Document Management** submenu to open the **Document Management** window.
3. Select the target folders: on one pane select the EMS NAS server, and on the other select where you would like to save the report on your local drive.
4. To navigate to the reports, double-click on the **Reports** folder.
5. Double-click on the desired **Report Group**. Depending on the chosen report transformation, the reports will be presented in XML, PDF and Excel format. Additionally, the system will create a SHA file for each report.
6. Drag the report from the EMS NAS server and drop the file to your desired local location.

14.9.3.6 How to View System Level Logs

EMS system level logs for the EMS can be found in the Application and Service logs on the computer running the application. To access these logs:

1. Right Click on **Computer** and select **Manage**.
2. Expand **Event Viewer, and Applications and Services Logs** select **EMS System**.

NOTE: Additional logs for individual EMS application machine/server components can be found in the program files where the application was installed. For example to view logs from the Election Event Designer view C:\Program Files\Dominion Voting Systems\Election Event Designer \Log

14.9.3.7 Results Auditing

After processing election results, there is a need to inspect the system operation in a more detailed manner. As a result, the EMS RTR client application has the ability to produce a detailed audit report on how ballots were marked and how they were interpreted by tabulator devices. In addition, EMS RTR collects and copies all relevant ballot scans to be visually inspected. Furthermore, all ImageCast[®] log files are visible through the RTR application.

For full details on the ImageCast[®] system's audit functions, please refer to the following user guides:

- *Democracy Suite[®] EMS Election Event Designer User's Guide*
- *Democracy Suite[®] EMS Results Tally and Reporting User's Guide*

14.9.3.8 Lookup

After determining a truly random sample size (usually from amongst the precincts in an election) and elements to review within that sample (paper ballots, ballot images, log files, chain of custody, etc.), the first step when performing an audit is to lookup the list of scanned ballot images and log files based on specific criteria. The generation of audit record entries will not be terminated or altered by program control, or by the intervention of any person. The physical security and integrity of the record are maintained at all times. The user can export audit images for a subset of result files, for a single contest or for all contests. For each export a separate subfolder will be created. Inside the subfolder maximum two subfolders can be created:

- published: Folder containing all images belonging to published results.
- notpublished: Folder containing all images belonging to non-published results.

If no contest was selected the following subfolders will be created inside these folders:

- BlankBallot: No contest was marked on the ballot.
- Blank: At least one contest did not have any votes on the ballot.
- UndervotedNotBlank: At least one contest was undervoted on the ballot.
- Overvoted: At least one contest was overvoted on the ballot.
- Regular: Each contest was fully voted on the ballot.
- Writein: Write-ins were marked on the ballot.

A similar approach is available for log files produced by the ImageCast[®] tabulator devices. In this case, filtering can be performed based on tabulator instance.

14.9.3.9 EMS Datacenter Physical Security

The Democracy Suite[®] EMS environment must be physically secured in a locked area with security access controls in place. No access to this area should be permitted to unauthorized personnel. Dominion Voting requires that an access control system is utilized that will automatically log and record each individual's access to the EMS Datacenter environment.

Such systems include the use of electronic passes or biometrics to gain entry into the secure area. In addition, if cameras and/or a cardkey system are not in use, all personnel must be required to sign in and out when accessing the secure Democracy Suite[®] EMS environment area. The access log must include: name, organization, purpose of access, date, time in, time out, and signature.

Buildings and rooms within those buildings which contain EMS and ICC installations must be secured. Security for these can include traditional methods such as keys and locks, cardkeys, and surveillance cameras. Each jurisdiction and building is different; thus an exhaustive discussion of election system building security is not possible in this Guide. Consult with your jurisdictions law enforcement or other security related agency for assistance in securing the voting system installation.

14.9.3.10 Operational and Maintenance Procedures

As with any information and communication technology system, the Democracy Suite[®] EMS platform requires some regular operational and maintenance procedures. These procedures ensure the reliability, availability and security of the overall system. These procedures are usually scheduled for off-election periods, either before or after the election event. Some of the operational procedures, however, should be performed regularly (daily) throughout its use.

Operational procedures to be performed in regular intervals (daily while the system is in use) are:

- Review of the log files for each of the system components (including EMS server components, EMS client components, networking switch equipment, etc.).
- Review of the EMS-specific audit log files.
- Review of the back-up procedures and execution of additional back-up procedures (if needed).
- Review of anti-virus and any other security software event logs.

Chapter 15

Biennial Hardware Certification and Notification

California Elections Code requires jurisdictions to inspect voting systems, and certify their accuracy on a biennial basis (once every two years).

All tabulators, scanners, elections management software, and supplementary equipment must be certified by California's Secretary of State prior to their use in any election taking place in California.

All specialized tally equipment must be certified for use in elections by the Secretary of State prior to use in any election.

15.1 Notification of Equipment

For each statewide election, the responsible county Election Official shall cause to be prepared a list, including quantities, of all equipment to be used to tabulate votes during the semi-official and official canvass.

Seven days before each statewide election, the Election Official shall certify to the Secretary of State the results of the logic tests as well as the accurate functioning of all ballot tally equipment. This certification shall also affirm the use of the same equipment for the Pre-Election Logic and Accuracy test, and for semi-official and official vote canvasses. In the event of a change to the ballot tally program after certification, an amended certificate shall be submitted no later than the day before the election.

In the event any equipment is repaired, altered or replaced following the certification specified in this section, and prior to completion of the official canvass of the vote, an amended certification of Logic and Accuracy testing and a revised list of equipment used must be submitted to the Secretary of State no later than submission official canvass.

Appendices

Appendix A

ImageCast[®] Central Device Configuration Files

ImageCast[®] Central Device Configuration Files are a series of configuration files used in conjunction with the ImageCast[®] Central to configure the tabulator's behavior during an election. The Device Configuration Files are imported into the EMS Election Event Designer application for configuration and customization.

Once imported, the files can then be modified by selecting numerical values for each of the tabulator's functions. The tables in this Appendix describe each configurable function of the ImageCast[®] Central, and the numerical values that can be altered in order for the machine to behave in ways that adhere to the State of California's election requirements. The Device Configuration File structure for the ImageCast[®] Central tabulator's is divided into the following three categories:

- DCF_OPTIONS.DVD
- DCF_INTEGERS.DVD
- DCF_BALLOT.DVD

Each category contains its own set of DCF options that can be configured to adhere to election requirements.

NOTE: DCFs marked as 'Read Only' indicate that these options are not selectable or editable by the enduser. They are outlined below solely to provide a complete list of DCFs within the ImageCast[®] Central.

A.1 DCF_OPTIONS.DVD

Name	Value
Tabulator Options	
Save Pixel Count in AuditMark	0
Administrative Menu Options	
Option to Reopen poll?	1 (Read Only)
Option to Rezero poll?	1 (Read Only)
Write-in areas req'd (VoteBox and/or Name Area)	3
Ballot Options	
Administrative Signature Error	1
Undervoted ballot	3
Overvoted ballot	3
Blank ballot	3
RCV multiple ranking	3
RCV repeated ranking	3
RCV skipped ranking	3
RCV no ranking	3
Major contest Undervoted	3
Major contest Overvoted	3
Double Votes	3
Poll ID mismatch	3
Results Tape Printout Options	
Voting Location ID	0
Precinct Name	1
Results shown by Precinct (ED)	1
Ballot ID(s)	1
Results shown per ballot ID	0
Results shown as totals per contest	1
Total ballots cast per ballot ID	1
Show Max Allowed Votes after Contest Title	1
Display party affiliation after choice	1
Display overvotes	0
Display undervotes	0
Display double votes (push votes)	0
Cell References	0
Results Tape Secondary Printout Options	
Print signature line after each ED	0
Print blank ballot count	0
Print blank contest count	0
Print voted contest count	0

Table A.1: DCF_OPTIONS.DVD

A.2 DCF_INTEGERS.DVD

Name	Value
Technician's Passcode	123456
Witness Signatures	4
Number of Precincts/Splits to Print	10000

Table A.2: DCF_INTEGERS.DVD

Appendix B

ImageCast[®] Evolution Machine Behavior Settings

ImageCast[®] Evolution Machine Behavior Settings is a configuration file used in conjunction with the ImageCast[®] Evolution in order to configure the tabulator's behavior during an election. The Machine Behavior Settings file is imported into the EMS Election Event Designer application for configuration and customization.

Once imported, the file can then be modified by selecting either numerical values or options for each of the tabulator's functions. The tables in this Appendix describe each configurable function of the ImageCast[®] Evolution , and the numerical values and options that can be altered in order for the machine to behave in ways that adhere to the State of California's election requirements. The MBS file structure for the ImageCast[®] Evolution tabulators is divided into the following categories:

- Security
- Results Files
- Standard Voting
- Accessible Voting
- Voter Languages
- Image Processing
- Write-ins
- Thermal Printer
- Provisional/Challenge Voting
- Advance Administration
- Shoe Shine
- HW Settings
- Voting Rules

Each category contains its own set of MBS options that can be configured to adhere to election requirements.

B.1 Security

Name	Description	Options (Select from Drop Down List) / Values
Authorized security token detected	Unit will ask for credentials only first time when the security token is detected.	Accept authorized token .
	Unit will ask for credentials always when security token is detected	Verify authorized token (Default)
Ask password after Security Token	Password must be entered after the security token is detected	Password required after security token
	Username and password must be entered after the security token is detected	Password and username required after security token (Default)
Open poll command	No password required upon opening the polls	No password on command execution (Default)
	Password required upon opening the polls	Ask password on command execution
	Username and password required upon opening the polls	Ask username and password on command execution
Close poll command	No password required upon closing the polls	No password on command execution
	Password required upon closing the polls	Ask password on command execution (Default)
	Username and password required upon closing the polls	Ask username and password on command execution
Activity Monitor	When enabled, the ImageCast [®] Evolution will log off from the Administrative menu after one minute. When disabled, the pollworker is required to initiate voting.	Disabled (Default)
		Enabled
Warn the administrator to check if the auxiliary bin is empty	If enabled, a warning will prompt the administrator to check if the auxiliary bin is free of any ballots	0 (Don't warn the administrator)
		1 (Warn the administrator) (Default)

Table B.1: Machine Behavior Settings: Security

B.2 Results Files

Name	Description	Options (Select from Drop Down List) / Values
Encrypt images	Determines whether or not scanned ballot images and watermark images be encrypted.	0 (Sign Images) (Default)
		1 (Sign and encrypt images)
Save images on both cards	Determines whether or not scanned ballot images and watermark images are to be saved on both cards	0 (Don't save images on both cards)
		1 (Save images on both cards) (Default)
Mark percentage on AuditMark	Determines if the mark percent of voting box will be shown in AuditMark	0 - Hide mark percentage on AuditMark (Default)
		1 - Show mark percentage on AuditMark
Encrypt Log	Determines whether or not the Audit Log is to be encrypted	0 (Sign log file) (Default)
		1 (Sign and encrypt log file)

Table B.2: Machine Behavior Settings: Result Files

B.3 Standard Voting

Name	Description	Options (Select from Drop Down List) / Values
Start standard voting	No password required upon commencing standard voting	No password on command execution (Default)
	Password required upon commencing standard voting	Ask password on command execution
	Username and password required upon commencing standard voting	Ask username and password on command execution
Is Ballot Review enabled	Determines whether or not ballot review is enabled. This is for each ballot.	Disabled (Default)
		Enabled
Immediately return a ballot	Determines whether or not the ballot is immediately returned to the voter if it is rejected by the ImageCast [®] Evolution	0 (Don't Immediately return a ballot on reject)
		1 (Immediately return a ballot on reject) (Default)
Override vote rules by administrator allowed	Determines whether or not vote rules can be overridden by the administrator.	0 (Override vote rules by administrator not allowed)
		1 (Override vote rules by administrator allowed) (Default)
Manual Override Review Type	Determines the type of review given once a ballot is manually overridden	No Ballot Review (Default)
		Warning Message Only
		List of Problem Contests
		Full Ballot Review
Cast tone volume level	Defines if audio tone is present during ballot cast	Range 0 - 100 (0 - mute; 100 - maximal volume level). 75 (Default)

Table B.3: Machine Behavior Settings: Standard Voting

B.4 Accessible Voting

Name	Description	Options (Select from Drop Down List) / Values
Start AV Session	No password required upon commencing AV Session	No password on command execution (Default)
	Password required upon commencing AV Session	Ask password on command execution
	Username and password required upon commencing AV Session	Ask username and password on command execution
Ballot remarking allowed	Determine whether or not an AVS ballot can be corrected.	0 (Don't allow)
		1 (Allow) (Default)
Sip n Puff and Paddles auto advance timeout	When enabled, the Sip n Puff and paddles will time out after the number of seconds defined the Value field	0 (Disable auto advance) (Default)
		>0 (i.e. number of seconds)
		Any other value: use configuration setting from CF0
AVS default audio volume level	Determines the volume of the AVS upon initialization	0 (Standard)
		1 (EAC Test Level)(Default)

Table B.4: Machine Behavior Settings: Accessible Voting

B.5 Voter Languages

Name	Description	Options (Select from Drop Down List) / Values
Default Voter Language	Determines the language in which the ImageCast® Evolution presents instructions and prompts to the voter	English (Default)
		Spanish
		Chinese
		Haitian Creole
English	Determines whether or not English language is enabled	Enable (Default)
		Disable
Spanish	Determines whether or not Spanish language is enabled	Enable (Default)
		Disable
Chinese	Determines whether or not Chinese language is enabled	Enable (Default)
		Disable
Tagalog	Determines whether or not Tagalog language is enabled	Enable (Default)
		Disable
Vietnamese	Determines whether or not Vietnamese language is enabled	Enable (Default)
		Disable
Korean	Determines whether or not Korean language is enabled	Enable (Default)
		Disable
Japanese	Determines whether or not Japanese language is enabled	Enable (Default)
		Disable
Hindi	Determines whether or not Hindi language is enabled	Enable (Default)
		Disable
Thai	Determines whether or not Thai language is enabled	Enable (Default)
		Disable
Khmer	Determines whether or not Khmer language is enabled	Enable (Default)
		Disable
Haitian Creole	Determines whether or not Haitian Creole language is enabled	Enable
		Disable (Default)

Table B.5: Machine Behavior Settings: Voter Languages

B.6 Image Processing

Name	Description	Options (Select from Drop Down List) / Values
UV or IR Detection	Determines whether or not the Ultra Violet pattern or Infra Red marks are checked upon scanning a ballot	Enabled
		Disabled (Default)

Table B.6: Machine Behavior Settings: Image Processing

B.7 Write-Ins

Name	Description	Options (Select from Drop Down List) / Values
Write-in Area(s) Required	Determines the areas of the write-in that need to be completely filled out in order to properly scan and process the ballot	Either Voting Target OR Write-In Name will suffice
		Only Voting Target is required (Default)
		Only Write-in Name is required
		Both Voting Target and Write-in Name are required

Table B.7: Machine Behavior Settings: Write-Ins

B.8 Thermal Printer

Name	Description	Options (Select from Drop Down List) / Values
Number of zero tape copies	Determines the number of zero tapes to be printed	(Default: 1)
Allow print/don't print option alternation for the zero tape	Determines whether or not print/don't print option will be presented on the screen for zero tape.	0 (Don't allow)
		1 (Allow) (Default)
Number of tape copies	Determines the number of totals tapes to be printed	(Default: 1)
Allow print/don't print option alternation for the interrupt tape	Determines whether or not print/don't print option will be presented on the screen for interrupt tape.	0 (Don't allow)
		1 (Allow) (Default)
Number of result tape copies	Determines the number of result tape copies to be printed	(Default: 2)
Allow print/don't print option alternation for the results tape	Determines whether or not print/don't print option will be presented on the screen for result tape.	0 (Don't allow)
		1 (Allow) (Default)
Cancellation of printing on open poll allowed	Determines whether or not the thermal printer paper tape can be cancelled while printing open poll tape	0 (Cancel not allowed)
		1 (Cancel allowed) (Default)
Cancellation of printing on reopen poll allowed	Determines whether or not the thermal printer paper tape can be cancelled while printing on a reopen poll tape	0 (Cancel not allowed)
		1 (Cancel allowed) (Default)
Cancellation of printing on close poll allowed	Determines whether or not the thermal printer paper tape can be cancelled while printing on a close poll tape	0 (Cancel not allowed)
		1 (Cancel allowed) (Default)
Zero tape template	Zero tape template suffix	empty string (Report per ballot manifestations and contests on CF0)
		1 (Report per contests on CF0)
		2 (Report per precincts and contests on CF0) (Default)
		Any other suffix for templates on CF1
Result tape template	Result tape template suffix	empty string (Report per ballot manifestations and contests on CF0)
		1 (Report per contests on CF0)
		2 (Report per precincts and contests on CF0) (Default)
		Any other suffix for templates on CF1
Zero view template	Zero view template suffix	empty string (Report per ballot manifestations and contests on CF0)

		1 (Report per contests on CF0)
		2 (Report per precincts and contests on CF0) (Default)
		Any other suffix for templates on CF1
Result view template	Result view template suffix	empty string (Report per ballot manifestations and contests on CF0)
		1 (Report per contests on CF0)
		2 (Report per precincts and contests on CF0) (Default)
		Any other suffix for templates on CF1
Show Overvotes on the Reports	Determines whether or not number of overvotes are presented on the reports	Hide on the Reports (Default)
		Show on the Reports
Show Undervotes on the Reports	Determines whether or not number of undervotes are presented on the reports	Hide on the Reports (Default)
		Show on the Reports
Show Double-Votes on the Reports	Determines whether or not number of doublevotes are presented on the reports	Hide on the Reports (Default)
		Show on the Reports
Number of ballots warning limit	Determines the border line number of ballots assigned to a tabulator. If the number is higher then set, the user is warned that the report might be too long.	(Default): 0 - the warning is not shown.
Number of polling districts warning limit	Determines the border line number of polling districts assigned to a tabulator. If the number is higher then set, the user is warned that the report might be too long.	(Default): 0 - the warning is not shown.

Table B.8: Machine Behavior Settings: Thermal Printer

B.9 Provisional/Challenge Voting

Name	Description	Options (Select from Drop Down List) / Values
Provisional Challenge Voting Mode	Determines whether or not provisional/challenge voting is enabled	Disable Provisional / Challenge Voting
		Apply Provisional Voting with Ballot Review Only (do not save results) (Default)

Table B.9: Machine Behavior Settings: Provisional/Challenge Voting

B.10 Advance Administration

Name	Description	Options (Select from Drop Down List) / Values
Administrator Password	Enter the password in the Value field for opening password-protected menu items. For example when the poll is closed, the 'Advanced Admin' menu item is password-protected	admin (Default)
Allow rezero command when poll is closed	Determines whether or not the polls can be re-zeroed after they have been closed	0 (Don't allow rezero command)
		1 (Allow rezero command) (Default)
Provide the Advanced Admin options	Determines whether or not Advanced Admin options will be visible on the screen	0 (Don't provide the Advanced Admin menu item)
		1 (Provide the Advanced Admin menu item) (Default)
Poll reopening allowed	Determines whether or not the poll can be reopened.	0 (Don't allow) (Default)
		1 (Allow)

Table B.10: Machine Behavior Settings: Advance Administration

B.11 Shoe Shine

Name	Description	Options (Select from Drop Down List) / Values
Allow shoe shine mode (for QA purpose)	Determines whether or not shoe shine mode can be enabled	0 (Don't allow shoe shine mode)
		1 (Allow shoe shine mode) (Default)

Table B.11: Machine Behavior Settings: Shoe Shine

B.12 HW Settings

Name	Description	Options (Select from Drop Down List) / Values
Drop red color	Determines whether or not red is detected on the ballot	0 (Don't drop red color) (Default)
		1 (Drop red color)

Table B.12: Machine Behavior Settings: HW Settings

B.13 Voting Rules

Name	Outcomes (selected from drop-down menu)
Empty DRO Box (Not used in California)	Automatically reverse the ballot (Default)
	Automatically forward the ballot
Blank Ballot	Automatically reverse the ballot
	Automatically forward the ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot) (Default)
Cross-over Vote	Automatically reverse the ballot
	Automatically forward the ballot
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot
	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with brief warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot) (Default)
Major Overvote	Automatically reverse the ballot
	Automatically forward the ballot
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot
	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot) (Default)
Overvote	Automatically reverse the ballot
	Automatically forward the ballot
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot
	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot) (Default)
Major Blank Contest	Automatically reverse the ballot
	Automatically forward the ballot (Default)
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot
	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot)
Double Vote	Automatically reverse the ballot
	Automatically forward the ballot
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot

	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot) (Default)
Major Undervote	Automatically reverse the ballot
	Automatically forward the ballot (Default)
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot
	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot)
Blank Contest	Automatically reverse the ballot
	Automatically forward the ballot (Default)
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot
	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot)
Undervote	Automatically reverse the ballot
	Automatically forward the ballot (Default)
	Prompt the voter with detail error description, give 'ok' acknowledgement and reverse ballot
	Prompt the voter with brief error description, give 'ok' acknowledgement and reverse ballot
	We prompt the voter with detailed warning description and Cast/Return option and ask for a confirmation (on Cast forwards ballot)

Table B.13: Machine Behavior Settings: Voting Rules

Appendix C

Election Event Designer Supplemental Setup Instructions

C.1 Jurisdictions Serviced by Dominion Voting's Service Bureau

Most of the jurisdiction will have their elections programmed by Dominion Voting's service bureau. In these cases, the jurisdiction will receive the election database which they will then restore on their Democracy Suite System.

In order to restore the EMS EED database, please ensure that the following steps are executed as outlined in the Section 14.2.1 below.

For instructions on how to backup the EMS EED database, please refer to the Section 14.2.1.

C.2 Jurisdictions Programming Their Own Elections

Specific procedures on how to create their election project will be provided to each jurisdiction programming their own election via Democracy Suite System, after purchasing the system. Included in those specific procedures will be some specific steps that those jurisdictions will need to complete to ensure a successful programming of the election. Some of those specific procedures and tips are described in the following sections of this appendix.

C.2.1 Creating Election Project

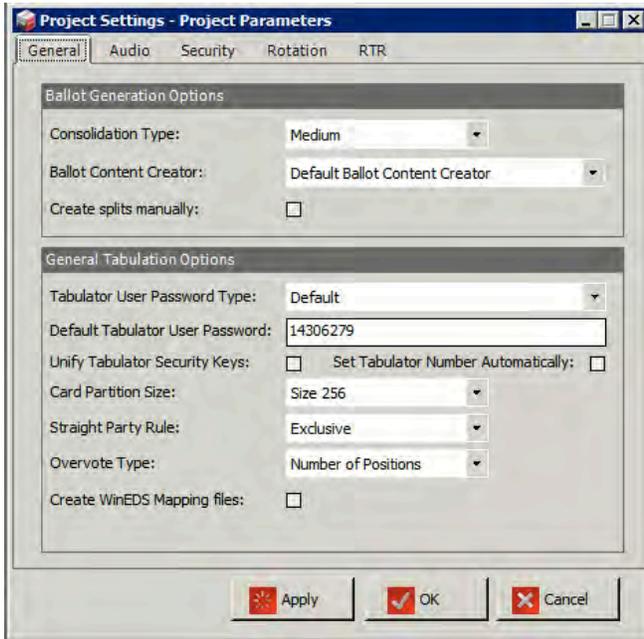
In the process of creating a new project in the EMS EED, the name of the project is defined. The name is not changeable after the project has been created, so the jurisdictions are advised to have the final name of the project defined in advance.

C.2.1.1 Set Ballot Consolidation

Ballot Consolidation determines the number of ballots created in the project. No consolidation will generate one ballot manifestation per precinct regardless of the shared content among ballots. 'Medium' option will result in each defined electoral group combination having its own ballot even if there are ballots

for two different electoral group combinations that are identical in content. The 'Maximum' option will generate the minimum number of ballot styles required and will ignore electoral groups. **NOTE:** *If you wish to utilize the Maximum Consolidation option, please contact your Dominion Voting representative prior to doing so.*

Ballot Consolidation is set in the 'Project Parameters' dialog window needs to be addressed during the Election Project Definition phase.



1. To open the 'Project Parameters' window, click the 'Settings' menu item in the top toolbar and then select 'Project Parameters'.
2. In the 'General' tab, under 'Ballot Generation Options' section, select **None** from the 'Consolidation Type:' drop down list.
3. Click on the **Apply** button and then click **OK**.

Figure C.1: Project Parameters: General Tab

C.2.1.2 Calculating Maximum Number of Precincts to Associate to an ImageCast® Evolution

With no consolidation set in the election project, the number of ballots that is created for an election can be very large. This number will depend on a number of factors, including: number of precincts, number of languages and number of elector group combinations.

For the Early Vote ICE tabulators, care needs to be taken with regards to how many precincts are assigned to each of those tabulators, in case when the number of ballots is very large.

Recommended number of ballot styles to be handled by one ImageCast® Evolution tabulator is 2500.

If the total number of Ballot Style in the project is greater than 2500, then more than one Early Vote ICE tabulator will need to be created.

To determine how may Early Voting ICE tabulators are required for a particular project, divide the total number of Ballot Styles by 2500.

Determine the average number of Ballot Styles per precinct by applying the following formula:

- Number of Electoral Group Combinations * (Number of Languages - English)

Connect each of Early Vote ICE's to no more than the above obtained number of precincts.

C.2.1.3 Defining Counting Groups

Counting Groups are used to sort ballots from different groups of voters in EMS Results Tally & Reporting. These typically include Early Voting, Absentee\Mail (Vote By Mail) voters, and Election Day voters. Counting Groups are attached to tabulators and each tabulator can only be part of one Counting Group. The 'Election Day' Counting Group exists by default.

To define Counting Groups:



Figure C.2: Counting Group Dialog

1. Expand the 'Tabulation' Navigation menu item and click on the 'Counting Groups' option. The Tabulation - Counting Groups context sensitive screen will appear.
2. Click 'Search' to see the existing 'Election Day' Counting Group.
3. Click 'Create New'. The 'Counting Group' dialog will appear as seen in Figure C.2.
4. Enter the name of your desired Counting Group and click 'Save'.
5. 'Include in X of Y report' check box allows the user to exclude all tabulators in an entire counting group to participate in the X of Y calculation. Only Election Day tabulators need to have this option checked.
6. Repeat the steps to create 'Vote by Mail' (for Absentee and All Mail voters) and 'Early' (for early voters) Counting Groups.

C.2.1.4 Defining Polling Places

This section describes how to create polling places (voting locations) **with the exception of Election Day voting locations** which will be automatically created in the later steps during tabulator creation.

In this example we will create polling locations to represent the Election Headquarters and Early Vote Centers. More polling places can be created if needed.



The screenshot shows a dialog window titled "Election Headquarters - Polling Place". At the top, there are "Save" and "Save and Close" buttons. Below are five tabs: "General", "Infrastructure", "Address", "Contact Info", and "Tabulators". The "General" tab is selected and contains the following fields:

- Polling Place Name:** Election Headquarters
- Polling Place Number:** 400
- External ID:** 400
- Global order:** 803
- Description:** (empty text area)

Figure C.3: Create Polling Places

1. Expand the 'Tabulation' Navigation menu, and click on the Polling Places activity to open the Tabulation - Polling Places context sensitive screen.
2. Click **Create New** and the 'Polling Place' dialog window will appear.
3. Fill in the "Polling Place Name:" (such as "Election Headquarters") and unique "Polling Place Number:". Set the value for the "External ID" to be the same as the value of "Polling Place Number:".
4. Click **Save and Close**.
5. Repeat the steps to create all needed polling places.

C.2.1.5 Defining Tabulators

For a typical election, a jurisdiction will need to create the following tabulators:

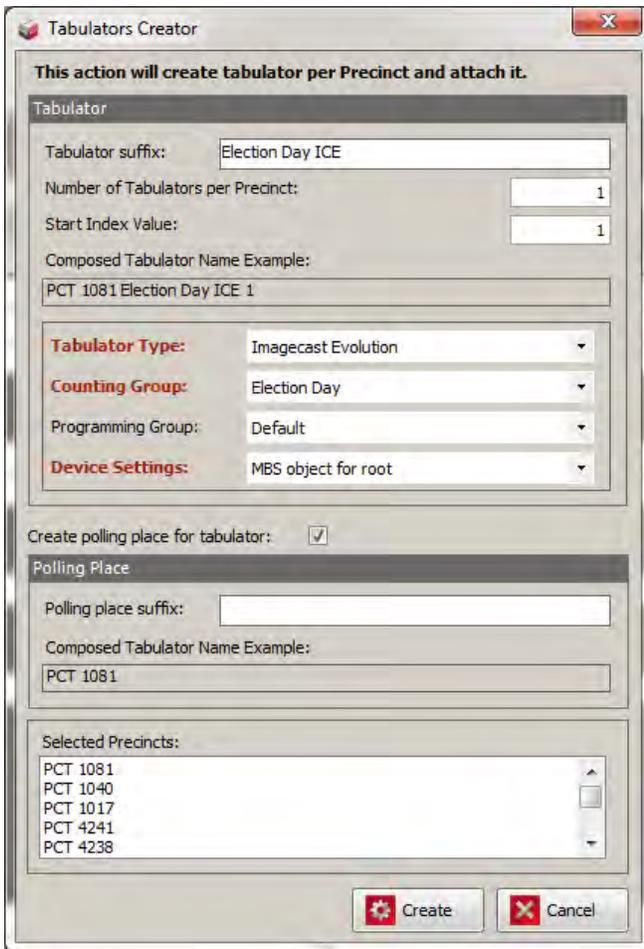
- Election Day ICE - create one Election Day ICE per precinct
- Election Day ICC - one tabulator that handles all precincts and will be used for handling Provisional ballots and ballots from ICE tabulators that had ballots with uncertified write-ins cast.
- Absentee\Mail ICC - create one tabulator which handles all precincts
- Early Vote ICE - refer to section C.2.1.2 for details on how to determine the number of Early Voting ICE tabulators required for your jurisdiction
- Early Vote ICC - one tabulator handling all precincts

Election Day ICE - these tabulators will be used to process election day ballots at voting locations.



Figure C.4: Select Precincts

1. Expand the 'Divisioning' Navigation menu, and click on the Precincts activity to open the Divisioning - Precincts context sensitive screen.
2. Click on the **Search** button to display all precincts.
3. Select all precincts that are not 'Mail only' precincts.
4. Click the arrow button next to the **Actions** button on the tool bar and then select "Create Tabulators" option.



5. The “Tabulators Creator” dialog window will appear. Add a suffix ‘Election Day ICE’ into the “Tabulator suffix:” field.
6. For “Tabulator Type:”, select ‘ImageCast Evolution’.
7. For “Counting Group” select ‘Election Day’.
8. Choose the default programming group in the “Programming Group:” field.
9. Choose ‘MBS Object for Root’ in the “Device Settings:” field (if there are multiple MBS object defined in the project, make sure the correct one for the Election Day ICE tabulator is selected).
10. Check the box next to “Create polling place for tabulator”.
11. Leave the “Polling Place suffix:” field empty or fill in the suffix if required.
12. Click on the **Create** button and all “Election Day ICE” tabulators will be created.

Figure C.5: Batch creation of Election Day ICE tabulators

Election Day ICC - this tabulator will be used for processing Provisional Election Day ballots and all ballots from ICE(s) that had ballots with uncertified write-ins cast on them.

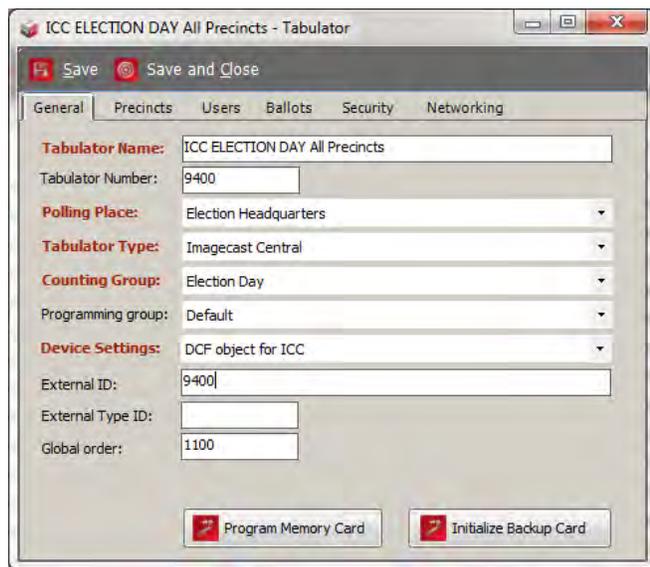


Figure C.6: Creating ICC ELECTION DAY tabulator

1. Expand the 'Tabulation' Navigation menu, and click on the Tabulators activity to open the Tabulation - Tabulators context sensitive screen.
2. Click 'Create New' to define a new tabulator. The 'Tabulator' dialog, as seen in Figure C.6 will appear.
3. Type in "ICC ELECTION DAY All Precincts" as the 'Tabulator Name'.
4. Enter a unique tabulator number in the 'Tabulator Number' field.
5. Select the appropriate polling place from the drop down list.
6. Select "Imagecast Central" from the 'Tabulator Type' drop down menu.
7. Select "Election Day" counting group from the 'Counting Group' drop down.
8. Select the default programming group from the "Programming Group" drop down.
9. Select "DCF object for ICC" from the 'Device Settings' drop down.
10. Set the "External ID" value to be the same as the "Tabulator Number" value.
11. Select the 'Precincts' tab and click on the **Connect** button as seen in Figure C.13
12. 'Tabulated Precincts' dialog will appear. Click on the **Search** button.
13. Select all precinct that are not 'Mail only' precincts and click **Assign and Close**.
14. Click **Save and Close** and the "Election Day ICC" tabulator will be created.

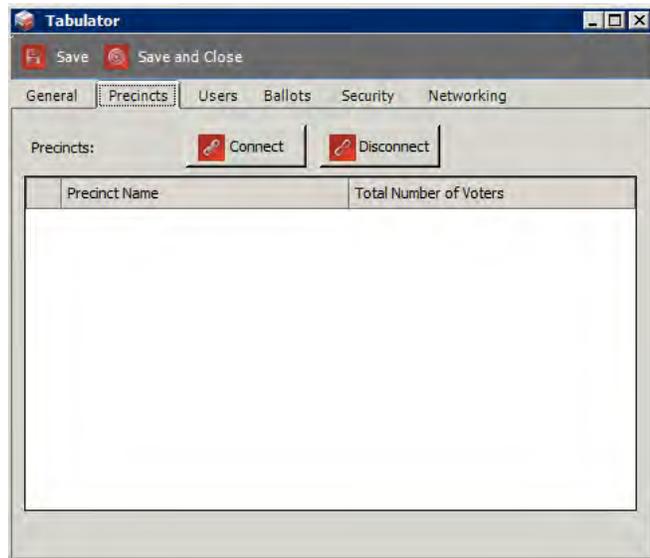


Figure C.7: Tabulator: Precincts Tab

Absentee\Mail ICC - this tabulator will be used for processing Absentee and Mail ballots.

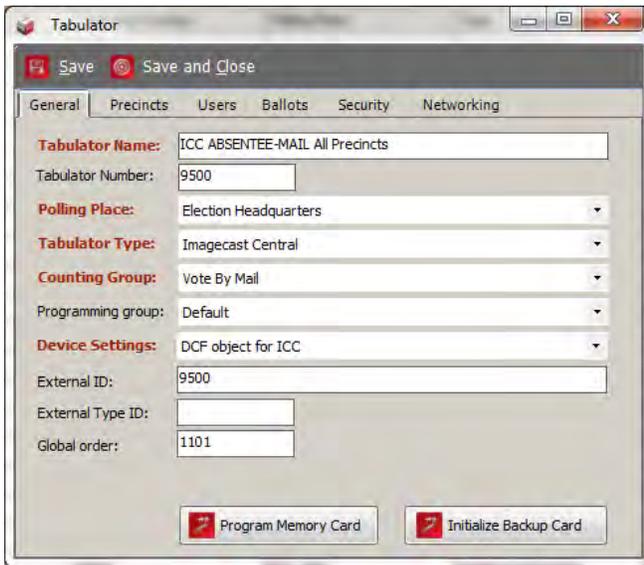


Figure C.8: Creation of Absentee ICC tabulator

1. Expand the 'Tabulation' Navigation menu, and click on the Tabulators activity to open the Tabulation - Tabulators context sensitive screen.
2. Click 'Create New' to define a new tabulator. The 'Tabulator' dialog, as seen in Figure C.8 will appear.
3. Type in "ICC ABSENTEE-MAIL All Precincts" as the 'Tabulator Name'.
4. Enter a unique tabulator number in the 'Tabulator Number' field.
5. Select the appropriate polling place from the drop down list.
6. Select "Imagecast Central" from the 'Tabulator Type' drop down menu.
7. Select "Vote by Mail" counting group from the 'Counting Group' drop down.
8. Select the default programming group from the "Programming Group" drop down.
9. Select "DCF object for ICC" from the 'Device Settings' drop down.
10. Set the "External ID" value to be the same as the "Tabulator Number" value.

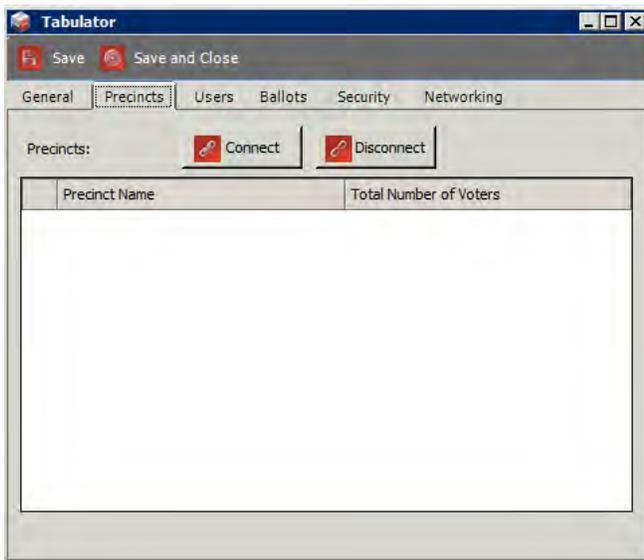


Figure C.9: Tabulator: Precincts Tab

11. Select the 'Precincts' tab and click on the **Connect** button as seen in Figure C.13
12. 'Tabulated Precincts' dialog will appear. Click on the **Search** button.
13. Select all precincts and click **Assign and Close**.
14. Click **Save and Close** and the "Absentee\Mail ICC" tabulator will be created.

Early Vote ICE - this tabulator will be used for processing early vote ballots before Election Day.

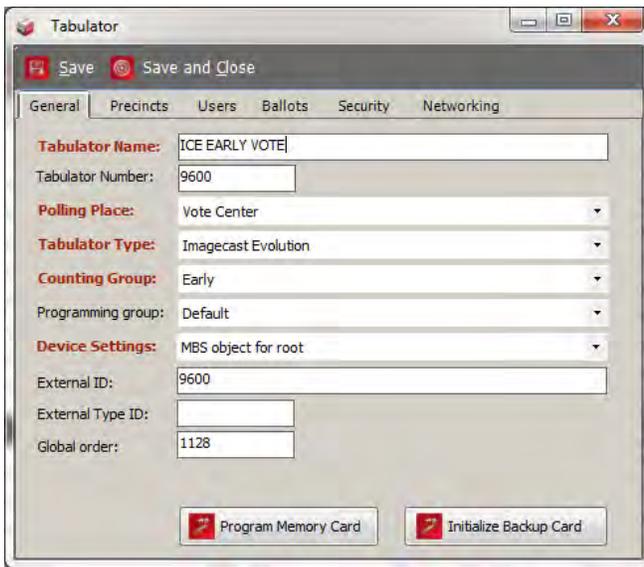


Figure C.10: ICE Early Vote tabulator creation

1. Expand the 'Tabulation' Navigation menu, and click on the Tabulators activity to open the Tabulation - Tabulators context sensitive screen.
2. Click 'Create New' to define a new tabulator. The 'Tabulator' dialog, as seen in Figure C.10 will appear.
3. Type in "ICE EARLY VOTE" as the 'Tabulator Name'.
4. Enter a unique tabulator number in the 'Tabulator Number' field.
5. Select the appropriate polling place from the drop down list.
6. Select "Imagecast Evolution" from the 'Tabulator Type' drop down menu.
7. Select "Early" counting group from the 'Counting Group' drop down.
8. Select the default programming group from the "Programming Group" drop down.
9. Select "MBS object for root" from the 'Device Settings' drop down (if there are multiple MBS object defined in the project, make sure the correct one for the Early Voting ICE tabulator is selected).
10. Set the "External ID" value to be the same as the "Tabulator Number" value.

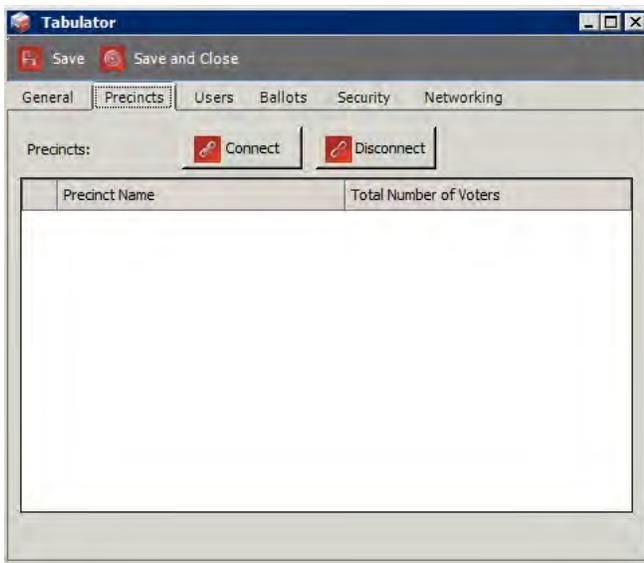


Figure C.11: Tabulator: Precincts Tab

11. Select the 'Precincts' tab and click on the **Connect** button as seen in Figure C.13
12. 'Tabulated Precincts' dialog will appear. Click on the **Search** button.
13. Select all precinct and click **Assign and Close**.
14. Click **Save and Close** and the "ICE Early Vote" tabulator will be created. **NOTE: If jurisdiction's election project has a large number of precincts it may be necessary to have more than one ICE Early Vote tabulator per project. Please refer to Section C.2.1.2 for instructions on how to determine the required number of Early Vote tabulators. Create all required Early Vote ICE tabulators in order to handle all precincts in the jurisdiction.**

Early Vote ICC - this tabulator will be used for processing early vote ballots after Election Day.

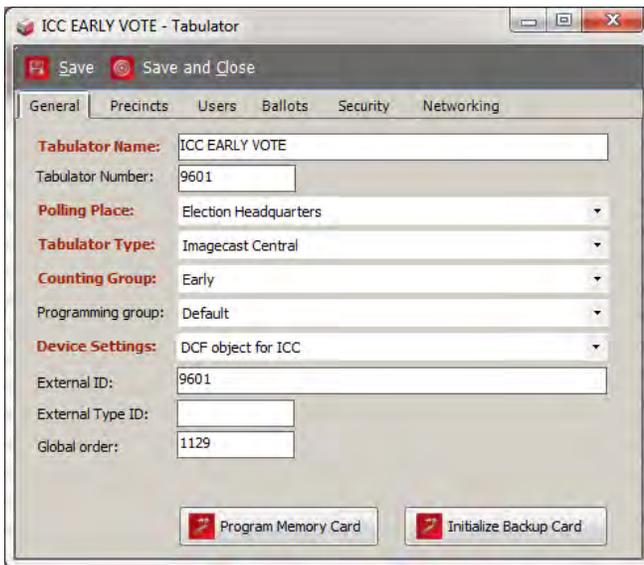


Figure C.12: ICE Early Vote tabulator creation

1. Expand the 'Tabulation' Navigation menu, and click on the Tabulators activity to open the Tabulation - Tabulators context sensitive screen.
2. Click 'Create New' to define a new tabulator. The 'Tabulator' dialog, as seen in Figure C.12 will appear.
3. Type in "ICC EARLY VOTE" as the 'Tabulator Name'.
4. Enter a unique tabulator number in the 'Tabulator Number' field.
5. Select the appropriate polling place from the drop down list.
6. Select "Imagecast Central" from the 'Tabulator Type' drop down menu.
7. Select "Early" counting group from the 'Counting Group' drop down.
8. Select the default programming group from the "Programming Group" drop down.
9. Select "DCF object for ICC" from the 'Device Settings' drop down.
10. Set the "External ID" value to be the same as the "Tabulator Number" value.

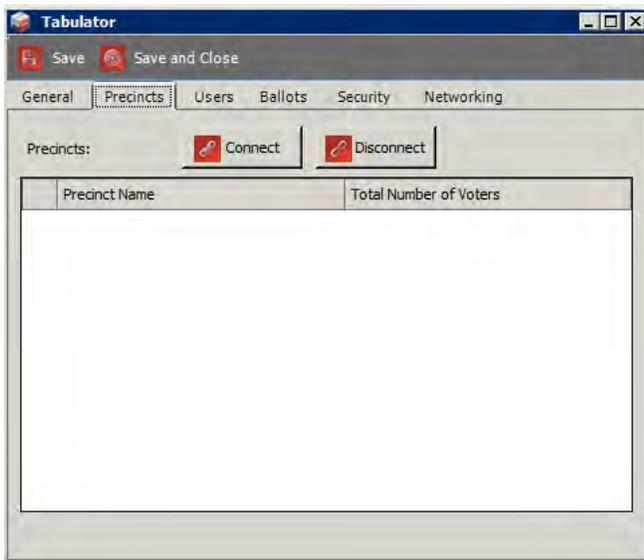


Figure C.13: Tabulator: Precincts Tab

11. Select the 'Precincts' tab and click on the **Connect** button as seen in Figure C.13
12. 'Tabulated Precincts' dialog will appear. Click on the **Search** button.
13. Select all precinct and click **Assign and Close**.
14. Click **Save and Close** and the "ICC Early Vote" tabulator will be created.

C.2.2 Creating Tabulators in the Ready for Elections Phase

In certain situations, it may be necessary to create additional tabulators in the Ready for Elections phase, after election files have been already created. For example, if a tabulator was forgotten during the initial setup or an additional tabulator must be deployed at a polling place.

1. Any number of tabulators may be created in Ready for Elections by following the same procedures outlined in Section C.2.1.5.
2. After creating the tabulators, election files must be manually generated. Select the newly created tabulators and click the **Generate Election Files** button.

C.2.3 Audio Studio Instructions

If Audio Studio is used to produce an Audio Studio export file, import it into the EMS EED by:

- Select Election Project, Import and clicking on “Dynamic Audio Files”.
- Browse to select the Audio Studio export file and then click on the “Import” button to import the file.
- A dialog box will appear saying that the requested files have been created.
- Close the box by clicking **OK** and then **Finish**.
- Confirm in EMS EED that all audio files are present.

C.2.4 Creating Additional Audio files for an Election Project

At times it may become necessary to manually use the Cepstral audio synthesizer to create an audio file for an election project. Additional audio files can be created using the built-in front-end application (SwiftTalker) that is packaged with Cepstral synthesizer used by EED. By selecting the same voices used for each language in the EED project being built, the additional audio material will be consistent with the audio that has already been created. Any missing audio content can be generated by copying & pasting the text for the missing audio string into the SwiftTalker main screen, selecting the option to Export Audio file (File, Export Audio File) and saving the audio string as a WAV file (16 bit,11KHz,Mono option). The saved audio file can then be imported directly into the election project in the EMS EED or indirectly through an Audio Studio export package. CepstralSwifttalker will be installed on the EMS workstation and optionally on other trusted computers.

C.2.5 Tabulator Threshold Settings

It is advisable to check the scanner threshold settings are correct for each of the tabulators. To do this, the Tech Advisor needs to log into the EMS EED project and navigate to Administrator menu item, System Settings option and click on “Scanner Configuration”. Default scanner settings might need to change depending on the ballot design or print method used to produce ballots.

C.2.6 Programming CF Cards and iButton Security Key

C.2.6.1 Programming of CF Cards

- Expand the ‘Tabulation’ Navigation menu and select the ‘Tabulators’ activity. Click ‘Search’ on the Tabulation - Tabulators context sensitive screen to populate a list of all available tabulators. Note that each tabulator on this list will need to have memory cards programmed for it.
- Double-click on a tabulator to open the ‘Tabulator’ dialog window.
- Click the ‘Program Memory Card’ button on the bottom of the dialog.
- Click ‘OK’ on the dialog that appears to begin the initialization process.
- After initialization is complete, Election Event Designer will notify you to remove, then re-insert, the memory card. Do so and click ‘OK’. At this point, Election Event Designer will begin copying files to the initialized card.
- Once the card is programmed, you will be notified with a dialog. Click ‘OK’ to confirm and remove the card from the Compact Flash card reader. Be sure to label it. There is no need to remove it safely from the drive as you would a USB stick.
- After creating the Primary memory card, you will create a blank backup memory card. Insert another Compact Flash memory card into the reader and click ‘Initialize Backup Card’ on the ‘Tabulator’ dialog.
- You will receive notification once the process is complete.
- Repeat each step for every tabulator requiring memory cards.

C.2.6.2 Programming of iButton Security Key

- Expand the ‘Tabulation’ Navigation menu and select the ‘Tabulators’ activity. Click ‘Search’ on the Tabulation - Tabulators context sensitive screen to populate a list of all available tabulators.
- Double-click on a tabulator to open the ‘Tabulator’ dialog.
- Click on the ‘Users’ tab and select the ‘Admin’ user from the list of available users.
- A dialog will appear asking you to insert an iButton Security Key into the reader. Do so and click ‘OK’.
- You will receive confirmation that the iButton Security Key has been programmed successfully. Click ‘OK’.
- Repeat these steps for each iButton Security Key you need to program.

C.2.7 Languages That Can Not be Rendered Normally On the Ballot

Characters for some languages can not be rendered on the ballot using normal use procedures in Election Event Designer. If your jurisdiction requires the use of Thai, Khmer or Hindi, your Dominion Voting representative will provide you with additional procedures for using these languages.

Appendix D

Troubleshooting and Problem Resolution

D.1 ImageCast[®] Evolution Troubleshooting

*NOTE Any troubleshooting procedures required to be performed on Election Day **MUST** be performed in the presence and with permission of the Election Staff on duty.*

D.1.1 Replacing a Machine

To replace a machine on Election Day, follow the steps described below in presence of an authorized Poll Official:

1. Record the number of ballots displayed in the Ballot Counter.
2. If you are in the 'Poll-Worker Menu' turn off the machine by pressing the **Power Down** icon on the top right corner of the Touchscreen LCD followed by the **Shut Down** tab. Otherwise, this step can be disregarded
3. Lay down the Touchscreen LCD into its storage position then press the *Service ON/OFF* switch into the OFF position in order to completely shut down the unit.
4. Ask the voting official to remove the two (2) Election memory cards from the poll worker port and the administrative port.
5. Lift the machine off from the ballot box and record it for diagnosis.
6. Place the two (2) memory cards into their respective ports of the replacement unit.
7. Place the replacement unit on the Ballot Box.
8. Lock the tabulator in place.
9. Lift the Touchscreen LCD of the replacement unit into its operating position then press the *Service ON/OFF* switch onto the ON position to power it up.
10. Upon the *Insert Security Token Screen* prompt, place a valid administrative key on the Security Keypad.

-
11. Type in the correct credentials to access the *Election Application Main Menu*.
 12. Select the **Open Poll** tab (in the Main Menu), followed by selecting **Open** under **Poll Status** (in the ICE Poll-Worker menu).
 13. Enter the correct credentials to Open the Polls in the new machine. The system will display a Warning message indicating that the ballot results already exist. Press the OK button to proceed to the ICE Poll-Worker Menu.
 14. In the Main Menu, select the **Utilities** button followed by **Report** in order to print an Interrupt Report. Verify that the *Total Voters* count on the Interrupt Report matches the “Ballot Counter” number you recorded in Step 1.
 15. Remove the paper printout from the original machine and hand it to the Poll Official for the permanent record.
 16. Ensure that the Poll Official places security seals on the *CF1 Door* and *CF2 Door* as required by their jurisdiction.
 17. The replacement unit is ready for operation. To proceed, select the desired option on the main menu. Follow standard close poll procedures at the end of voting.

D.1.2 Paper Jams

In the event of a paper jam, the system runs a self un-jam routine to eject the paper and return it to the user for re-feed. An error message is displayed if the un-jam routine fails to clear the paper jam.

The paper jam can occur either in the *Scanner path* or the *Printer path*. Visually, identify the location of the Paper Jam then refer to the appropriate section below to resolve the issue.

D.1.2.1 Paper Jam in Scanner Path

- If the ballot is visible from either the front ballot entry slot, or any of the two diverter slots on the bottom of the unit:
 - Gently pull the ballot out. Ensure that the ballot does not rip or tear in the process.
 - If you removed the unit from the ballot box to access the jammed ballot, place the unit back onto the ballot box.
 - Be sure to properly account for the jammed ballot, placing it in the ballot box if it has already been cast (this is unlikely) or placing in the ballot entry slot so that it can be tabulated.
 - Replace the unit if the jam reoccurs.
- If the ballot is stuck within the machine and is not visible from any of the accessible slots:
 - Place the iButton Security Key on the Security Keypad and insert the appropriate credentials.
 - The machine will automatically run the unjam procedure to clear the ballot jam.
 - If this fails to resolve the issue, replace the unit.

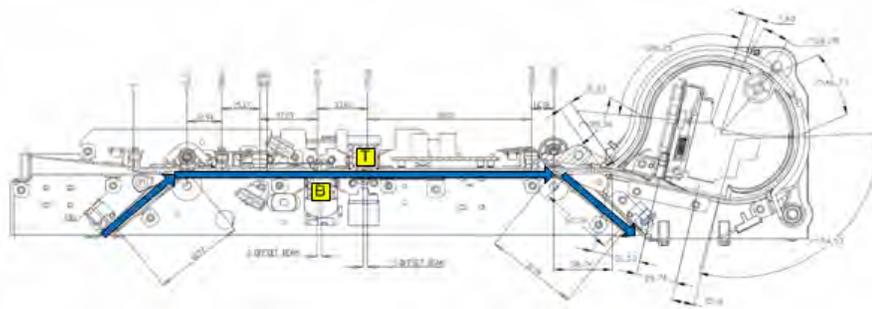


Figure D.1: The Ballot Path (Scanning)

D.1.3 Power Failures

In the event of a power failure, the unit automatically switches to its internal battery.

If the machine fails to turn on, or if the battery drains, check the connectivity and/or charge capacity of the battery.

If this fails to resolve the issue, perform any of the procedures outlined below.

D.1.3.1 Faulty Main's Power Source

To identify whether the wall outlet is functional:

- Plug in any other electrical product into the outlet and check if it powers up.
 - If the other electrical product fails to power up, plug the ICE unit to another wall outlet and confirm power up.
 - If the other electrical product powers up, refer to Section D.1.3.2.

D.1.3.2 Faulty or Disconnected Power Adaptor

Obtain permission from an authorized Election Official to gain access to the Ballot Box in order to inspect the power adaptor.

- Check cable connectivity
- If cables are connected, measure the voltage (at the 2.5mm power pin), which should read 20V DC. If this is not the case, replace the power adapter.
- If this fails to resolve the issue, replace the unit.

D.1.4 Thermal Printer

Issues related to this printer are very minimal. The primary causes of concern are discussed below:

D.1.4.1 No Print on Thermal Paper OR Fails to Print

In order to resolve this issue, follow the check sequence below:

- Verify that the thermal paper is seated in the correct orientation in the Printer compartment. Because thermal paper can only be printed on one side, it is important that the paper roll sits such that it rolls along the Printer Compartment base surface and protrudes upwards and through the slot on the compartment door as indicated by the arrow in the figure below.
- Verify that the Thermal Printer is receiving power by checking for a green LED on the Printer mechanism. If the green LED is off, ensure that the cables are properly plugged into the printer mechanism.
- If this fails to resolve the issue, replace the unit.

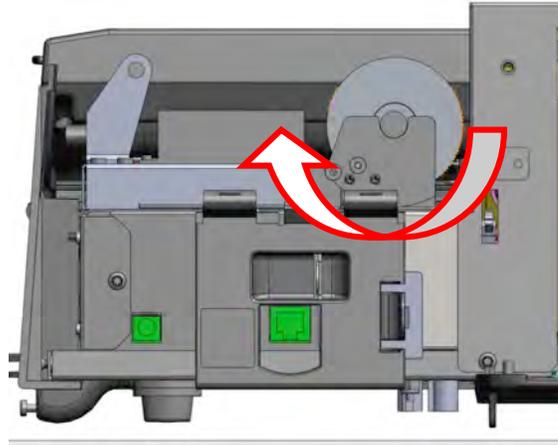


Figure D.2: Thermal Printer X-section View

D.1.4.2 Thermal Printer Prints Invalid Characters

To resolve this issue, check to ensure that the cables are plugged in properly into the printer mechanism. If this fails to resolve the issue, replace the ICE unit.

D.1.5 LCD Touchscreen Failures

Touchscreen failures are associated with loss of calibration on the touchscreen. Common symptoms include:

- Wrong button selected when attempting to press a particular button.
- No response at screen touch.

D.2 ImageCast® Central Troubleshooting

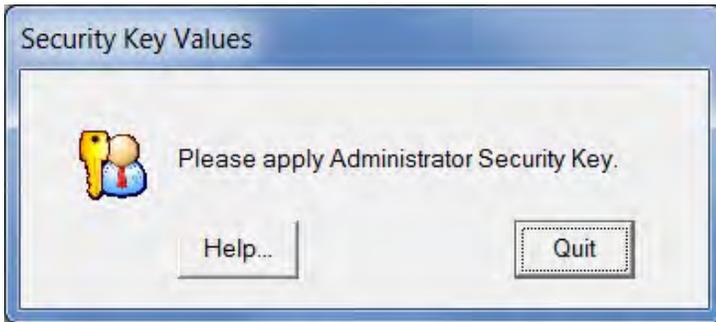


Figure D.3: Security Key Values Prompt

This prompt indicates that you do not currently have the Administrator privileges required to display a screen or perform an action. The Administrator iButton key must be inserted into the security keypad in order to gain access to administrative functions. Insert the iButton Security Key into the security keypad. A prompt asking for the Administrator password appears.

This message also appears while starting up the application.



Figure D.4: Administrator Passcode Prompt

This prompt indicates that you do not currently have the Administrator privileges required to display a screen or perform an action. The Administrator iButton key should already be inserted into the security keypad when this message occurs. Enter the Administrator passcode and click **OK**.

This message also appears while starting up the application.



Figure D.5: Supervisor Password Prompt

This prompt indicates that you do not currently have the Supervisor privileges required to display a screen or perform an action. The Supervisor iButton key should already be inserted into the security keypad when this message occurs. Enter the Supervisor password and click **OK**. See 6.6 for further information.

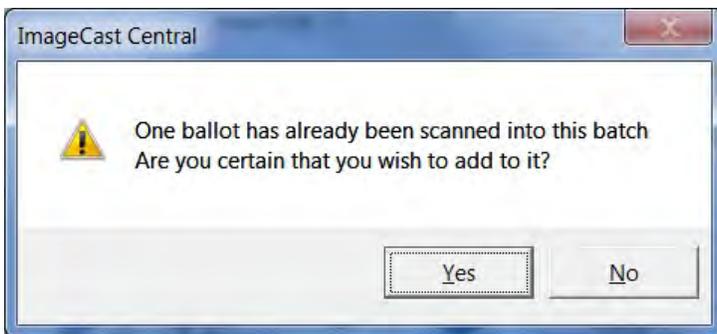


Figure D.6: Add Ballots Prompt

This prompt will display if the user tries to add scan more ballots after a batch has been completed. If it occurs after removing problem ballots, click **Yes**. Otherwise, follow jurisdiction procedures.



Figure D.7: Accept Batch Confirmation

This prompt displays after the user clicks **ACCEPT BATCH** on the scanning screen. Click **OK** to accept the batch or **Cancel** to continue scanning.

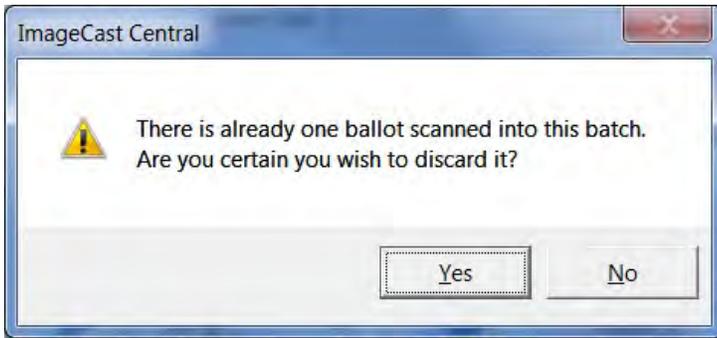


Figure D.8: Discard Batch Prompt

This prompt displays after the user clicks **DISCARD BATCH** on the scanning screen. Click **Yes** to discard the batch or **No** to continue scanning.

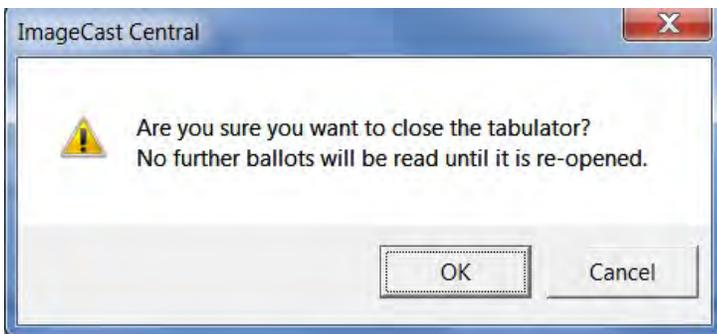


Figure D.9: Closing the Tabulator Message

This prompt displays after clicking **CLOSE TABULATOR** on the Configuration screen. If it was pressed by accident, click **Cancel** to continue scanning. Otherwise, click **OK** to close the tabulator. See 6.9.1 for further information.

NOTE: Tabulators may be reopened, however, the tabulator should not be closed until scanning is complete.

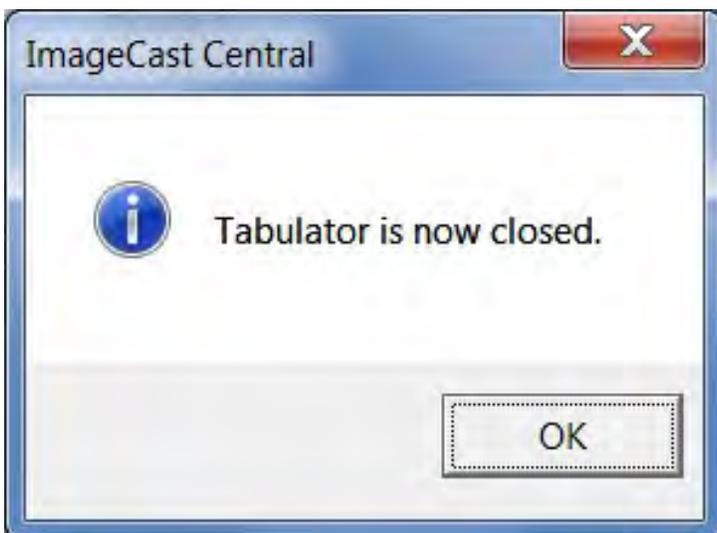


Figure D.10: Tabulator Closed Message.

This prompt displays after pressing the 'CLOSE TABULATOR' button on the Configuration screen and confirming your selection by pressing 'OK'. It indicates that the tabulator is closed and no more ballots can be scanned unless it is reopened. See 6.9.1 for further information.

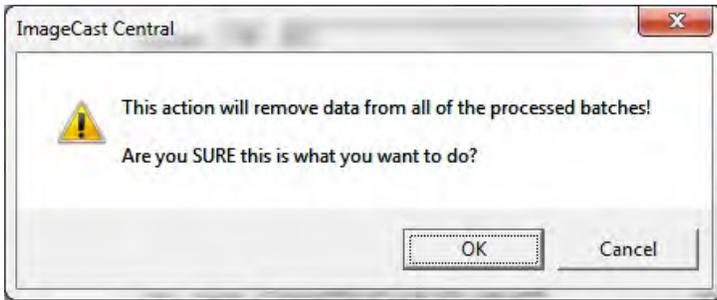


Figure D.11: Resetting the Tabulator message.

This prompt displays after clicking **REZERO** on the Configuration screen. If it was pressed by accident, click **CANCEL** to continue working on the ImageCast® Central application. Otherwise, click **OK** to close the tabulator.

NOTE: Re-zeroing the tabulator will result in the loss of all information. Any batches scanned prior to resetting the tabulator will need to be re-scanned in the next session.

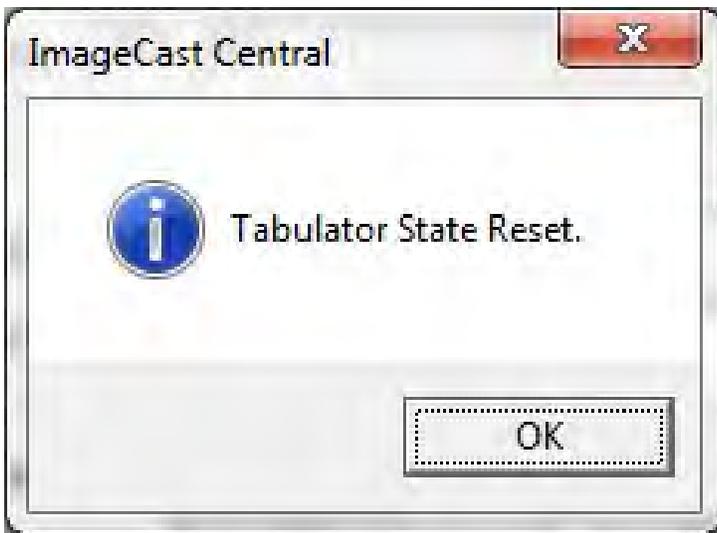


Figure D.12: “Tabulator State Reset” Message.

This prompt displays after pressing the ‘REZERO’ button on the Configuration screen and confirming your selection by pressing ‘OK’. It indicates that the tabulator has been reset and all information contained in all previously scanned batches has been deleted.

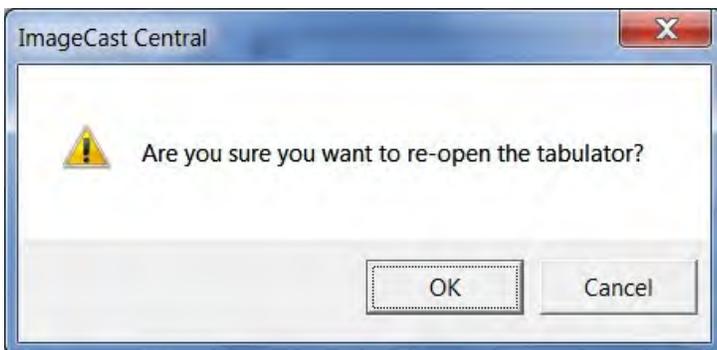


Figure D.13: The Re-Open Tabulator Prompt.

After clicking **RE-OPEN TABULATOR**, the prompt shown in Figure D.13 will appear. If you wish to scan more ballots, click **OK**. If you do not wish to scan more ballots at this time, click **Cancel**. See 6.7 for further information.

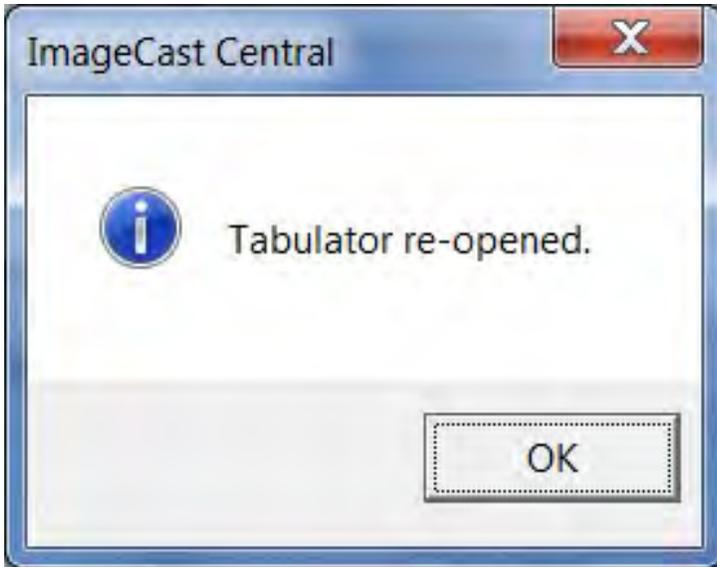


Figure D.14: Tabulator Re-opened Message.

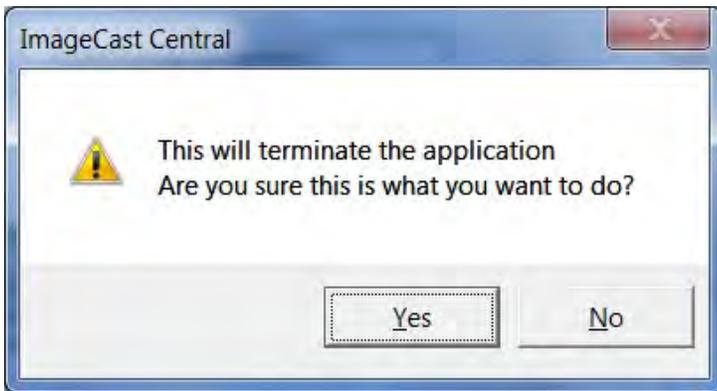


Figure D.15: Exit Prompt.

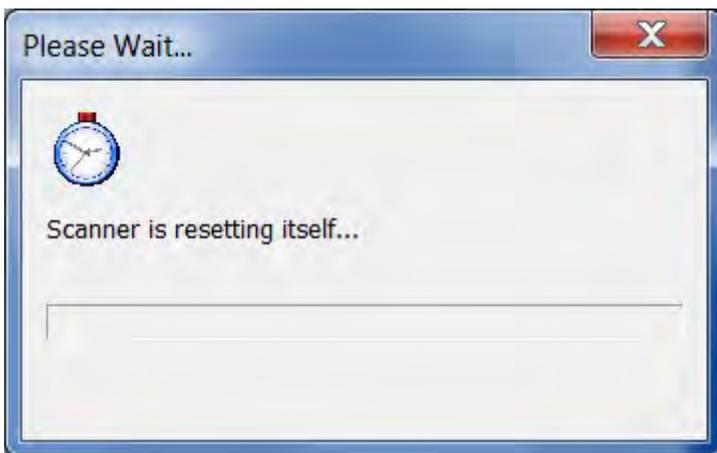


Figure D.16: Scanner Resetting Itself Message.

After clicking **RE-OPEN TABULATOR** and confirming your choice, the following message appears to indicate that the tabulator has been successfully reopened. See 6.7 for further information.

This prompt displays after pressing the **EXIT** button on the left hand bar. If it was pressed accidentally, select **No** to continue scanning. Otherwise, select **Yes** to close the tabulator. See 6.9.1 for further information.

NOTE: If the application is closed, results will not be saved and scanning must restart from the beginning.

This screen will display after all ballots have been scanned or when the application encounters a stop flag.

D.2.1 Ballot Scanning Errors

D.2.1.1 Ambiguous Errors

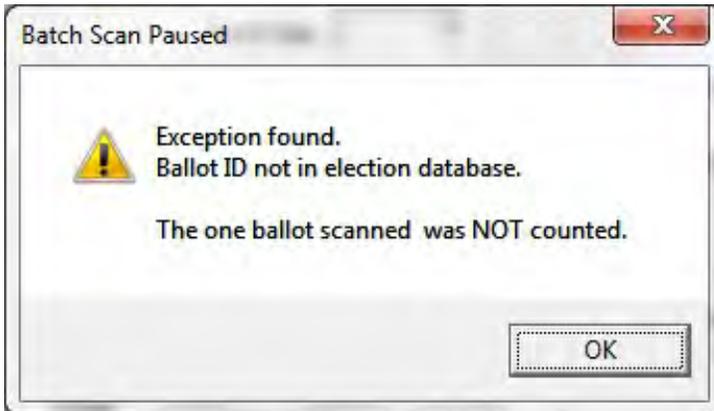
NOTE: All ballots that cause any of the ballot scanning errors listed below are saved as images in C:\dvs\scannedBallots for further examination or adjudication.

The information message indicating that ‘Ambiguous’ may display during scanning. It informs the user that an ambiguous mark has been detected and the number of ballots that have not been counted as a result of the ambiguous mark.

If this occurs do the following steps:

1. Close the ImageCast[®] Central application.
2. Turn off the scanner.
3. Wait 1 minute.
4. Turn the scanner back on.
5. Open the ImageCast[®] Central application again and resume scanning.
6. If the problem persists, please contact your Dominion Voting Representative.

D.2.1.2 Invalid Ballot Errors



This message indicates that the User has inserted a ballot not programmed to scan in the machine. Ensure that the ballot is printed on valid ballot paper and is in the correct batch.

Figure D.17: “Ballot ID not in election database” Message.

D.2.2 Error Messages



Figure D.18: Local Configuration Path Error Message.



Figure D.19: Passcode Error Dialog.

If this prompt displays upon opening the application, the Local File Paths have either been misconfigured, or the application is running out of the wrong location. Another reason for this prompt occurring could be the incorrectly programmed iButton for the election files used. Reset the file storage paths and reset the application.

If this message appears, you may have entered an incorrect passcode and should check with an election official to make sure you have received the right code.

If the error persists after checking the passcode, the wrong iButton security key may have been inserted. Please ensure that you are using the correct iButton security key for your device.

If the error message continues to appear, there may be a problem with your iButton security key and it may need to be replaced. Contact an election official or the Dominion support helpline for further information.

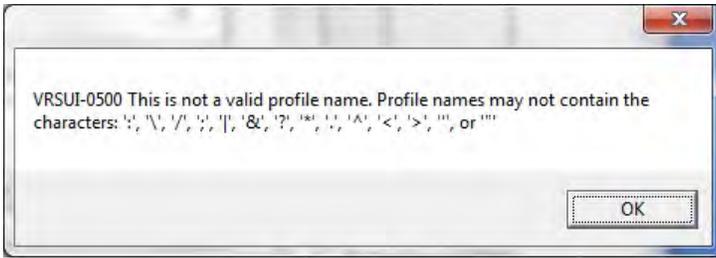


Figure D.20: “Profile Error” Message.

This message appears should the User enter a profile name that contains invalid characters in the Kofax VRS Interactive Viewer. Click **OK** and enter a valid profile name.

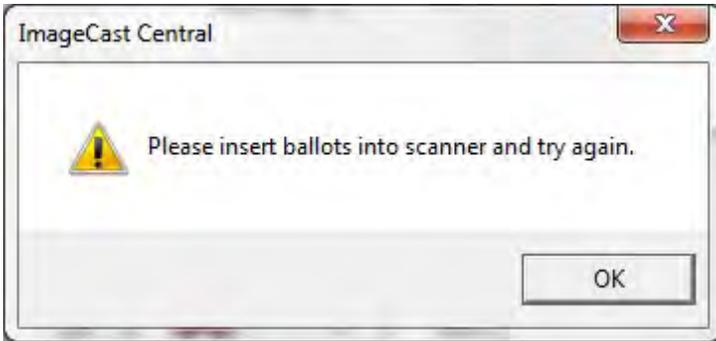


Figure D.21: Insert Ballots Message.

A prompt appears **Change** is selected from the scanner section of the Configuration Menu while the current scanner is on. This option is only available to Supervisors.

This message will display when you try to scan ballots before they have been loaded into the scanner. Click **OK**, load the ballots into the tray, and click **SCAN**.

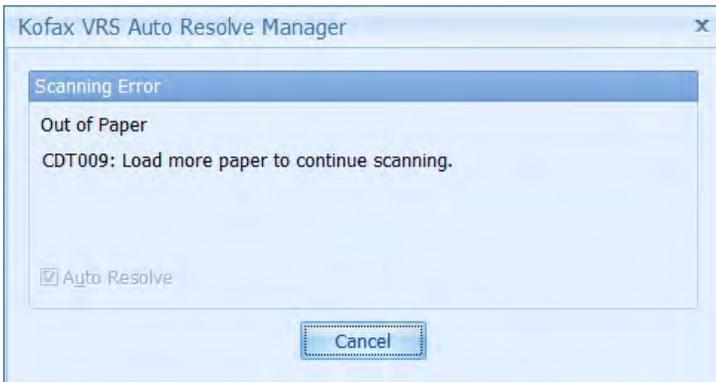


Figure D.22: Out of Paper Message.

This prompt displays when the scanner runs out of paper. If all ballots have been scanned, select ‘Cancel’. If you wish to scan more ballots, add them to the scanner feed tray.

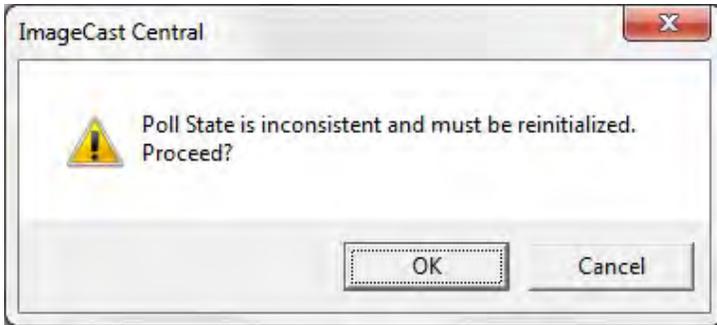


Figure D.23: “Reinitialize Poll State” Message.

This message appears should the User try to re-start the ImageCast[®] Central application after terminating an earlier session. It indicates that the application has encountered a data file created by the first session and must rewrite the file to create a new one. Consult with a technician before proceeding. Do not click **OK** until you consult a technician to avoid the loss of previously scanned results.

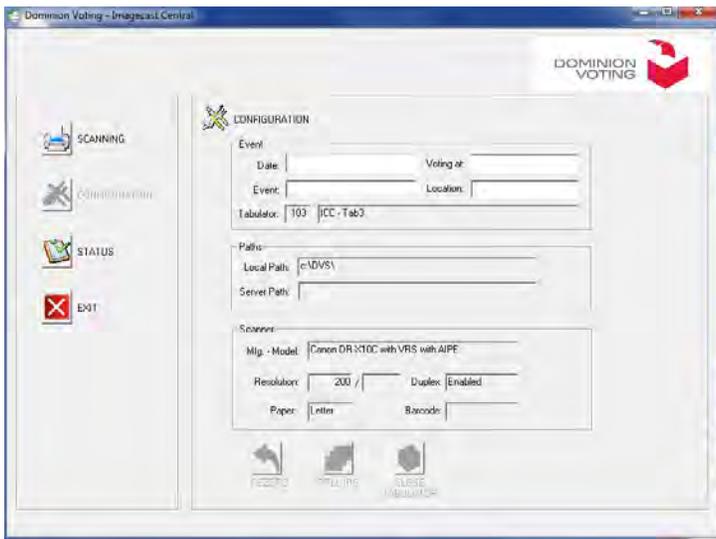


Figure D.24: The Configuration Menu in User Mode after the Tabulator is Closed.

If you wish to access an option but the button is greyed out, you do not have the Administrator or Supervisor privileges necessary to perform this action. Insert the iButton security key or contact an Administrator to access these options.

D.3 ImageCast[®] Adjudication Troubleshooting

D.3.1 Communication with the Adjudication Service

Certain network connectivity events may prevent the Adjudication application from receiving ballots. When this occurs, communication can be restored as follows:

1. Verify that both the server and the client machine in question have a network connection.

Hover over the network icon on the notification area of the Windows taskbar. This should display the message “No Internet access” below the name of the network. If this is not the case, check that the network cable is plugged in on both ends, and ask an administrator to verify that the network is functioning correctly.

2. Close and reopen the Adjudication application.
3. Verify that ballots can be received.
NOTE: This might take a few minutes.
4. If problems persist, restart the workstations and the server as follows:
 - Power down the Adjudication workstations.
 - Restart the EMS server.
 - Wait for the EMS server to start. After it's fully started, wait two to five minutes for the Adjudication services to start.
 - Power up the Adjudication workstations.

D.4 EMS Troubleshooting

If any issues are encountered while configuring the EMS Application Server (EMS APPS) using DCM, please try the following troubleshooting procedure:

1. Open SQL Configuration Server.
2. Open SQL Server Service.
3. Change user to **Local System** and click **Apply**.
4. Restart SQL Server Service.
5. Start SQL server agent service if it is available.
6. Open Computer Management.
7. Navigate to ‘Local Users and Groups’.
8. Delete the following user accounts:
 - emssqluser
 - emsdbuser
 - emsdbadmin
9. Reboot the computer.

-
10. Run DCM again.
 11. If the problem persists, please contact Dominion Technical Support.

If the EMS system becomes unresponsive during any interaction with the operator, please follow the steps below to recover from that state:

- Make sure that all servers you are using are switched on and working, and that all network equipment (if any) is switched on and working.
- Make sure that all client computers you are using are switched on and working.
- For any problems encountered during installation, make sure you followed the installation and configuration manual for both the server and the client computers.
- Try to log in to the server you are using with the default administrator account. Open Task Manager (press **Ctrl+Alt+Delete** and click on the **Start Task Manager** button). Under the **Process** tab, make sure that no process that begins with the name “DVS” occupies 0% of CPU usage. If so, select that process and click on the End Process button at the bottom. Repeat the process, if necessary.
- Try to log in to each client computer you are using with the default administrator account.
- Open the EMS EED client application. Ensure that the entered EMS database and network settings, as well as the application user accounts, are correct. Check to see if the election event properties have been entered correctly. Create and then ensure the System and Audio Log reports are correct.
- Open the EMS RTR client application. Ensure that the entered EMS database and network settings are correct. Ensure the transfer point parameters are correct. Reboot the server and try again.
- reboot the defected client computer(s) and try again.
- If the problem persists, please contact Dominion Technical Support.

Appendix E

Threat Register

The following list outlines potential threats and vulnerabilities that relate to critical information assets (i.e. digital records). Only information assets that have their communication vulnerability attribute set to 'Yes' are considered for possible vulnerability exploitation.

- **Tampering with Election Definition**

- **Description:** In addition to the EMS Database which stores election project definition in the form of a relational database, election definition is contained within the election definition files. These files are generated by the EMS platform and communicated with the target PCOS/ICC devices using memory cards. Each memory card is unique to the target PCOS/ICC instance.
- **Threat:** A malicious user decrypts, discovers, and modifies election definition files/database between file creation and ballot counting.
- **Impact:** By changing the election definition files or database, the malicious user (technician, poll worker) can make the voting system inaccurate or inoperable. Confidentiality of election data is of less concern in this case, considering that election definition data is usually publicly available information.
- **Impacted Security Pillars:** Integrity and availability.
- **Risk Rating:** High.
- **Mitigation:** Implement proper process (access control) for memory card handling and unit storage. Cryptographic and digital signing controls mitigate data tampering. This tampering would be evident to operators and voters. See Chapter 14.

- **Tampering with Device Configuration**

- **Description:** In addition to election definition files, the EMS platform provides PCOS/ICC devices with DCFs (Device Configuration Files) in case of ICC, and MBS (Machine Behavioral Settings) files in case of ICE. These files do not carry any election project related logic, however, they are important for proper functioning of the devices.
- **Threat:** A malicious user decrypts, discovers, and modifies DCF or MBS files.
- **Impact:** By changing DCF/MBS files, a malicious user (technician, poll worker) can make a PCOS/ICC device inoperable.
- **Impacted Security Pillars:** Integrity and availability.
- **Risk Rating:** High.

-
- **Mitigation:** Implement proper process (access control) for memory card handling and unit storage. Cryptographic and digital signing controls mitigate data tampering. The DCF and MBS files are paired with corresponding .SHA files that are created at the time the DCF/MBS files are created. The .SHA file includes a SHA-256 value that is seeded with a Dominion private input vector. When Election Event Designer imports the DCF/MBS files into an election project, it verifies the integrity of the DCF or MBS file against its .SHA file. EED generates a SHA-256 value with the Dominion private input vector and compares that against the .SHA file. If the verification fails, Election Event Designer will refuse to import the DCF/MBS file and will display an appropriate error message indicating that the verification was not successful. As such, this tampering would be evident to operators and voters.

- **Tampering with Ballot Representation**

- **Description:** In addition to election definition, election database, device configuration files and machine/device behavioural settings, the EMS platform provides PCOS devices (except ICC) with ballot representation files. These files represent electronic versions of paper ballots and include PNG (electronic image of the paper ballot for display presentation) and XML (coordinates of the ballot elements) files. Ballots in PDF format are not used by devices, but represent ballot format data for the mass printing of ballots. Finally, there is an audio representation of the ballot content, which is provided to the ballot counting or marking device. It is important to note that these ballot presentations are used only when PCOS devices provide AVS capabilities.
- **Threat:** A malicious user decrypts, discovers, and modifies ballot representation files.
- **Impact:** By changing ballot representation files, a malicious user (technician, poll worker) can make a PCOS/ICC device inaccurate. Confidentiality of election data is of less concern since election definition data is usually publicly available information.
- **Impacted Security Pillars:** Integrity.
- **Risk Rating:** Medium.
- **Mitigation:** Implement proper access control measures for memory card handling and unit storage. Cryptographic and digital signing controls mitigate data tampering. This tampering would be evident to voters.

- **Tampering with iButton Security Keys**

- **Description:** iButton Security Keys represent secure electronic tokens used to activate administrative functions of the voting device (open poll, close poll, diagnostics, start accessible vote session, etc.). The iButton security keys carry electronic representation of the administrative poll worker password.
- **Threat:** A malicious user decrypts, discovers, and uses iButton security key content.
- **Impact:** By discovering the content of the iButton security key, a malicious user (technician, poll worker) can activate administrative operations on the device. The likelihood of this action is low because the malicious user would also have to know the password to access the iButton security key content.
- **Impacted Security Pillars:** Integrity, Availability.
- **Risk Rating:** High.
- **Mitigation:** Implement proper process (access control) for iButton security key handling and storage. Cryptographic and digital signing controls mitigate data tampering. This tampering would be evident to operators and voters.

- **Tampering with Device Audit and Log Reports**

-
- **Description:** During the voting session, PCOS/ICC devices constantly keep and update audit and log reports. These reports are important for the analysis of the system functions and also for the audit process.
 - **Threat:** A malicious user decrypts, discovers, and modifies the content of the audit and log reports.
 - **Impact:** This threat is more likely to occur in combination with some other threats (like voting results tampering) with the main goal to cover up any malicious actions.
 - **Impacted Security Pillars:** Confidentiality and integrity.
 - **Risk Rating:** Medium.
 - **Mitigation:** Implement proper process (access control) for memory card handling and unit storage. Cryptographic and digital signing controls mitigate data tampering. This tampering would be revealed during auditing.

- **Tampering with Scanned Ballot Images**

- **Description:** During the voting session, PCOS/ICC devices constantly record images of the scanned paper ballots. It is important to state that in paper based voting systems, such as PCOS/ICC platforms, a paper trail of the ballots always exists in the form of the original paper ballots.
- **Threat:** A malicious user decrypts, discovers, and modifies scanned ballot images.
- **Impact:** This threat is more likely to occur in combination with some other threats (like vote results tampering) with the main goal to cover up any malicious actions.
- **Impacted Security Pillars:** Confidentiality and integrity.
- **Risk Rating:** Medium.
- **Mitigation:** Implement proper process (access control) for memory card handling and unit storage. Cryptographic and digital signing controls mitigate data tampering. This tampering would be evident to operators

- **Tampering with Election Result Files**

- **Description:** Election result files hold the up-to-date raw and tabulated (per voting device) voting results and it is imperative to protect their content.
- **Threat:** A malicious user decrypts, discovers, and modifies election result files, and, within the proper chain of custody, replaces the valid memory card with a tampered card produced by the ballot counting device.
- **Impact:** By changing these files, a malicious user would jeopardize the whole election event.
- **Impacted Security Pillars:** Confidentiality and integrity.
- **Risk Rating:** High.
- **Mitigation:** Implement proper process (access control) for memory card handling and unit storage. Chain of custody for memory cards with results as well as cryptographic and digital signing controls mitigate data tampering. This form of tampering is immediately evident when the voting machine paper record (printout) is compared to the memory card results.

- **Tampering with Transmitted Election Result Files**

- **Description:** Election result files hold the up-to-date raw and tabulated (per voting device) voting results and it is imperative to protect their content.
- **Threat:** A malicious user decrypts, discovers, and modifies election result files, before, during, or after transmission, and, within the proper chain of custody, replaces the valid results with those that have been tampered with.

-
- **Impact:** By changing these files, a malicious user would jeopardize the whole election event.
 - **Impacted Security Pillars:** Confidentiality and integrity.
 - **Risk Rating:** High.
 - **Mitigation:** Implement proper cryptographic signing controls to detect tampering. This form of tampering is immediately evident when the voting machine paper record (printout) is compared to the tampered results.

- **Tampering with EMS Datacenter Environment**

- **Description** physical or logical destruction of the EMS Datacenter equipment.
- **Threat:** Due to unexpected or intentional activities, prior or after the election night (i.e. during election preparation or during the results tally), EMS Datacenter equipment could become inoperable.
- **Impact:** Postponing the election event preparation and/or result processing and reporting.
- **Impacted Security Pillars:** System availability.
- **Risk Rating:** Medium.
- **Mitigation:** Proper redundancy and backup procedures for hardware, software and data should be in place to mitigate the risk from intentional or unexpected destruction of the EMS Datacenter equipment.

- **Tampering with Election Database**

- **Description:** Logical destruction and/or alteration of EMS Database content or structure.
- **Threat:** A malicious attacker can try to infiltrate the EMS Database system to perform the destruction or alteration of the election data prior, during or after voting. This can be done remotely or internally if attacker has help from an insider. In this case, the validity of the election event becomes questionable.
- **Impact:** Invalidation of the election event.
- **Impacted Security Pillars:** Data integrity, data confidentiality, access control.
- **Risk Rating:** Medium.
- **Mitigation:** Proper design of the underlying election software and hardware shall prevent or detect this type of attack. In case of Democracy Suite[®], all in-transit data is encrypted and signed, while the database platform implements per-record signing of data using atomic triggers with every transaction. Coupled with auditing mechanisms, this approach prevents and detects any attempt to break into the database.

- **Producing Incorrect Vote Counts**

- **Description:** Attacker gains access to the results acquisition and tally computing platform, and changes the voting results.
- **Threat:** Depending on the skill set and level, the attacker can try to break into the result acquisition and tally system directly or remotely and change the votes. This can happen after the results have been imported into the system but before persisting the results into the election results database.
- **Impact:** A successful attack of this type would produce erroneous and invalid election results and invalidate the whole election event. An attack of this type would require a high level of computing skills and usually involves internal jurisdiction personnel or a vendor technical team.
- **Impacted Security Pillars:** Access Control, Data Integrity and Data Confidentiality.

-
- **Risk Rating:** High.
 - **Mitigation:** As stated earlier, this type of attack would require that the attacker has significant level of technical skills and knowledge of the system. In addition, if all the access control and data security measures were followed together with the system hardening procedures, this type of attack would require that attacker has helpers either within the jurisdiction or from vendor technical team. Therefore, to mitigate this type of attack it is important to follow the best security practices including access security, physical security, IT system security and auditing (including monitoring), data integrity and confidentiality.

- **Tampering with EMS System Availability**

- **Description:** Make EMS Datacenter and its computing components unusable for either pre-voting or post-voting activities.
- **Threat:** In this case the attacker performs a destructive action either by direct manipulation of the EMS Datacenter system components or by installing malicious software components that will make EMS Datacenter components inoperable.
- **Impact:** If the EMS Datacenter components are not operational or not capable of performing their set of predefined activities, the jurisdiction either will not be able to organize the election event or to tally and report election results.
- **Impacted Security Pillars:** System availability.
- **Risk Rating:** Medium.
- **Mitigation:** Proper access control and physical security shall prevent physical and logical destruction of the EMS Datacenter system. Proper availability and disaster mitigation and operation continuation procedures shall be implemented. Primary, redundancy from hardware and data backup from software/data point of view must be in place.

- **Tampering with Tabulator System Availability**

- **Description:** Prior or during the voting phase, voting devices become inoperable or not capable of processing ballots.
- **Threat:** The attacker can either perform physical destruction (in a warehouse or in transit) or logical destruction (install malicious software on the machine) of the device causing a denial of service type of an attack. Logical destruction of the device could not only cause the alteration of election data including votes), but could also cause a slow down of the system operation.
- **Impact:** System becomes unavailable for voting.
- **Impacted Security Pillars:** Data integrity, access control, availability.
- **Risk Rating:** Medium.
- **Mitigation:** Proper physical security controls prevent the physical destruction of the voting equipment, while the proper software security measures (code signing, data signing and encryption) prevent the attacker from breaking into the device and making it inoperable for election event.

- **Tampering with Ballot Secrecy**

- **Description:** Attacker influences how voters will vote by breaking the ballot secrecy.
- **Threat:** The attacker is usually unable to influence voting directly, but might still be able to determine how individuals or groups voted. The attacker might engage in either vote buying or information gathering. In a vote buying attack, the attacker pays or threatens individual voters to vote in a specific way. In order for this attack to be successful, the attacker needs to be able to verify how the voter voted. *Note: the attacker does not need to be absolutely certain how the voter voted he/she must only make the voter believe that the voters vote has a good chance of being verified.*

-
- **Impact:** Attacker can achieve a limited success and influence on the election results.
 - **Impacted Security Pillars:** Privacy, Confidentiality.
 - **Risk Rating:** Medium.
 - **Mitigation:** By implementing advanced ballot security mechanisms and by following the best information security practices, including the education of personnel and voters, the scope of this type of an attack can be drastically minimized. If voters and jurisdiction have sufficient knowledge about the system as well as trust in the security controls implemented into the system, an attacker will have a difficult task to influence how voters vote.

Appendix F

Democracy Suite[®] Physical Security of System and Components

F.1 Re-Zero Results Using the Advanced Admin Option



Figure F.1: Re-Zero Poll Authorization Screen.

1. If the election cards have been used for testing prior to election day (during Logic and Accuracy testing procedure) then all the recorder results need to be set to zero.
2. On the Poll Worker Menu screen, press the Advanced Admin option. Re-zero Results menu will appear in the right-side of the screen.
3. Depending on the configuration set in the MBS file, you may be asked to provide a username and password, password only when entering the Advanced Admin menu. In addition, the MBS gives an option to omit the authentication. Next, Re-zero Results menu appears. Press Re-zero button.
4. When prompted, enter the credentials (the poll worker's credentials are set in EMS EED client application).



5. The Confirmation screen will appear asking for the confirmation to set the results to zero. Press OK to proceed.

Figure F.2: Re-Zero Confirmation Screen.



6. Finally, Poll-Worker main screen will be presented. On the activity bar, the Ballot Counter indicates that the results are zero.

Figure F.3: Poll-Worker Main Menu- Zero Results

F.2 Physical Security

The physical security on the Democracy Suite[®] system and its components is supplemented by security seals as listed in Table F.1.

NOTE: The brand, type, and color of all seals may vary. Seals should be evaluated for functionality prior to deployment.

Color	Purpose
White self-adhesive enclosure seals	Applied on the ImageCast [®] Evolution 's CF0 door in the warehouse and left intact by the pollworker. Also used on workstations.
White or Red wire seals on the ballot box	Two are applied on the ImageCast [®] Evolution latch, and two on the ballot box lid latch. Semi-permanent/not broken.
Red padlock seal	To remain on the system and components throughout the election cycle.
Yellow padlock seal	To be removed by the pollworker once the polls are closed, or as required, in order to remove CF cards.
Green padlock seal	To be removed by the pollworker to remove the ballot box cover.

Table F.1: Security Seals

F.2.1 Plastic Ballot Box Physical Security



Figure F.4: Plastic Ballot Box and Security Seals

Figure F.4 depicts the location of the **Green** security seal on the front of the ballot box lid, the **Yellow** security seal on the Primary Compartment Door, and the locations of two locks – one on the side of the Ballot Box Lid, and one on the Primary Compartment Door.

The plastic ballot box is physically secured by seven color-coded security seals, and five locks.

No.	Color	Location
3	Yellow	Primary Compartment Door, Secondary Compartment Door, Auxiliary Compartment Slot
2	Green	Front of the ballot box lid, back of the ballot box lid
2	Red/White	Tabulator latches

Table F.2: Ballot Box Security Seals

No.	Location
2	Each side of the ballot box lid
1	Auxiliary Compartment Slot
1	Primary Compartment Door
1	Secondary Compartment Door

Table F.3: Ballot Box Locks



No.	Color	Location
2	White wire seals	Ballot box lid latches

Table F.4: Ballot Box Security Seals

Figure F.5: Plastic Ballot Box Security Seals located inside the auxiliary bin



Figures F.5 and F.6 depict the location of the white wire seals that are applied to the internal latches that lock the lid of the ballot box to the ballot box bin.

Figure F.6: Plastic Ballot Box Security Seals located inside the auxiliary bin

F.2.2 ImageCast[®] Evolution Physical Security

Figure F.7 depicts the location of the **Yellow** security seals on the CF1 Door and Thermal Printer Compartment Door, and the **Red** security seals on the CF2 Door, Ports Door, Internal Printer Door.

Figure F.8 depicts the location of the white self-adhesive seal that is applied over top of the CF0 door. The CF0 door is located behind security plating and below the CF1 and CF2 doors. This seal is applied once in the warehouse after the initial firmware installation and is not removed.

All gaps between the ImageCast[®] Evolution 's doors and main shell are minimized to prevent access.

Each CF card door audibly clicks into place to confirm that it has been fully closed. To open the door, a thumb clasp is actuated on the left edge of the door.

Locking mechanisms deploy hasp-type mechanisms. The metal loop is mounted to an internal metal component. When the door closes, loop provides a location to attach the security seals.



Figure F.7: ImageCast® Evolution and Security Seals

The ImageCast® Evolution is physically secured by five color-coded security seals.

No.	Color	Location
2	Yellow	CF1 Door, Thermal Printer Compartment Door
3	Red	CF2 Door, Ports Door, Internal Printer Door

Table F.5: ImageCast® Evolution Security Seals

NOTE: Some jurisdictions may wish to remove the CF2 card from the CF2 Door upon close of polls. In this case, the CF2 Door should be tagged in yellow.



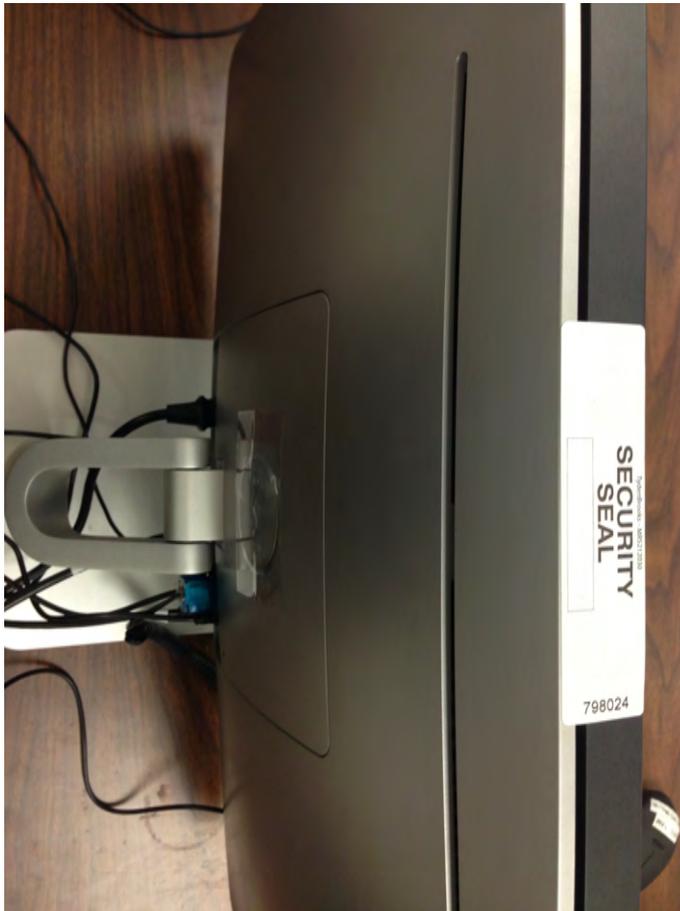
Figure F.8: ImageCast® Evolution and Security Seals

No.	Color	Location
1	White self-adhesive seal	CF0 Door

Table F.6: ImageCast® Evolution Security Seals

F.3 ImageCast® Central Physical Security

Procedural and physical controls for ballot boxes and ballot handling in a central scanning application scenario should be done in accordance with jurisdictional and State requirements.



External enclosures on the ImageCast® Central All-in-One workstation should be sealed with tamper evident self-adhesive security seals, as seen in Figure F.9.

Examine the workstation's enclosure and chassis to determine places where these separate when the workstation is opened. Apply two or more tamper evident seals, preferably at points opposite to one another on the All-in-One to provide tamper evidence of the workstation being opened.

Figure F.9: ImageCast® Central Workstation Self-Adhesive Seal

F.4 EMS Workstation Physical Security

F.5 Election Management System Datacenter Physical Security

The Democracy Suite® EMS environment must be physically secured in a locked area with security access controls in place. No access to this area should be permitted to unauthorized personnel. Your State Election Authority may require that an access control system is utilized that will automatically log and record each individual's access to the EMS Datacenter environment. Such systems include the use of electronic passes or biometrics to gain entry into the secure area. In addition, if cameras and/or cardkey system are not in use, all personnel must be required to sign in and out when accessing the secure Democracy Suite® EMS environment area. The access log would at minimum include such items as:

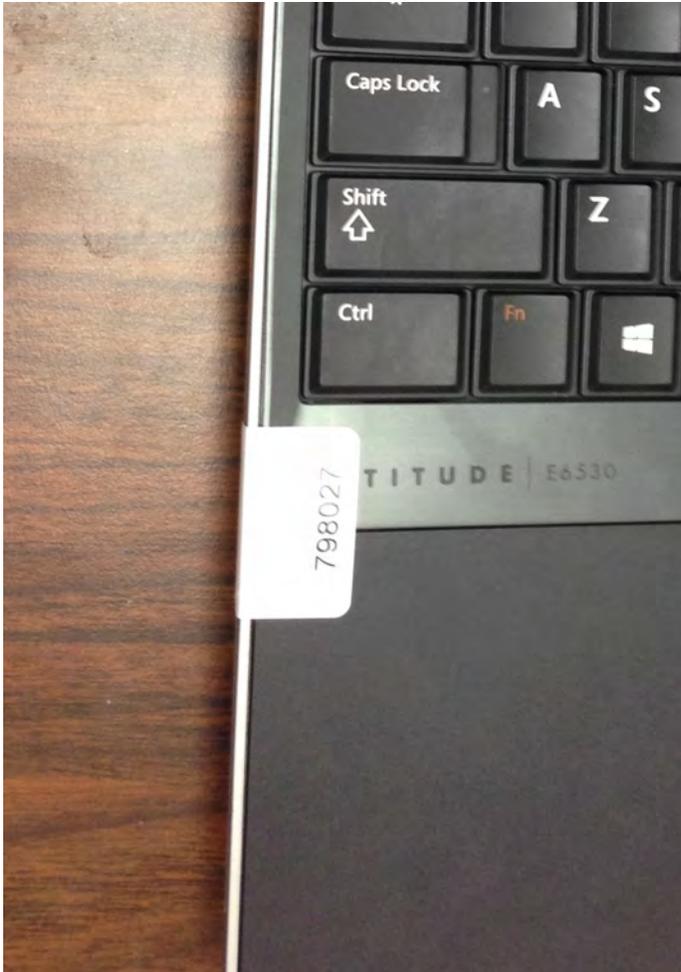


Figure F.10: Self-Adhesive Security Seal on the EMS Laptop Workstation

External enclosures on the EMS laptop workstation should be sealed with tamper evident self-adhesive security seals, as seen in Figures F.10 and F.12

Examine the workstation's enclosure and chassis to determine places where these separate when the workstation is opened. Apply two or more tamper evident seals, preferably at points opposite to one another on the workstation to provide tamper evidence of the workstation being opened.

- Name
- Organization
- Purpose of access
- Date
- Time in
- Time out
- Signature

All server components of the EMS Datacenter back-end system have built-in intrusion detection systems. On one side, the server chassis has an intrusion switch, which is connected to a motherboard intrusion jumper (two-wire interface). The intrusion alarm is activated if the chassis cover is open and recorded by the supported server monitoring application.



Figure F.11: Self-Adhesive Security Seal on the EMS Laptop Workstation

NOTE: If the laptop is equipped with laptop lock functionality, you may use third party locks to secure the workstation to a desk. It is recommended that locks are evaluated for functionality prior to deployment.



Figure F.12: Lockable EMS Server Cover

If the external enclosures of the servers you receive allow for tamper-evident sealing via a hasp, utilize a “redwire” or lock style tamper-evident seal to provide tamper evidence over intrusion into the workstation chassis. A lock is another possibility when the server has hasps. If no hasps are present, examine the server’s enclosure and chassis to determine places where these separate when the server is opened. Apply two or more tamper evident seals, preferably at points opposite to one another on the workstation chassis to provide tamper evidence of the workstation being opened.

Appendix G

Permanent Printed Reports

The following sections outline the reports generated on the ImageCast[®] Evolution thermal printer.

G.1 Diagnostics Report

During diagnostics, the printer produces a record of each test performed by the user. It also provides the ability to produce multiple records.

G.2 Zero Report

The zero report is a results report that shows that there are no ballots yet cast in the election. The report:

- Lists the name and details of the election,
- Lists the date and time when the report was generated,
- Lists all of the candidates and their vote totals, by contest, ballot, or by precinct.

The LCD offers the option to print additional copies of the report to ensure that the user receives a successful copy. Please note that the default number of precincts on a zero report is set to twenty five. However, this value can be decreased within the DCF or MBS file should the election content breach the length of a roll of thermal printer paper. Should the printer roll deplete during printing:

1. Change the printer roll.
2. Press **RESUME** on the LCD screen.
3. The printer will:
 - Print a line indicating that the printer was interrupted.
 - Re-print the Zero Report's header.
 - Print a line indicating that the report is continuing on a new 'Tape Section'.
 - Resume printing the report from approximately two lines prior to the previous roll's depletion.

G.3 Interrupt Report

If any sort of failure occurs (such as power or other errors), the device can be returned to the same operating condition that existed immediately prior to the error or failure without loss or corruption to the voting data stored in the device. The interrupt report is generated when the unit is powered up successfully with processed ballots. The report:

- Lists the name and details of the election
- Lists the date and time of when the report was generated
- Total number of ballots processed

There is no information reported about any contest as the poll has not yet been closed.

The LCD offers the option to print additional copies of the report to ensure that the user receives a successful copy.

G.4 Results Report

The results report is generated when the 'Poll Close' action is selected. The report contains the:

1. Name and details of the election
2. Date and time of when the report was generated
3. The order of candidates as they appear on the results tape, which is set in the DCF or MBS options via EMS. Candidates listed on the reports can either be listed by the number of votes for each candidate in each contest, by precinct, or by the ballot order (i.e. in the same order as they appear on the ballot)
4. Election totals

Should the printer roll deplete during printing:

1. Change the printer roll by following the steps outlined in Section B.8.
2. Press **RESUME** on the LCD screen.
3. The printer will:
 - Print a line indicating that the printer was interrupted.
 - Re-print the Result Report's header.
 - Print a line indicating that the report is continuing on a new 'Tape Section'.
 - Resume printing the report from approximately two lines prior to the previous roll's depletion.

The LCD offers the option to print additional copies of the report to ensure that the user receives a successful copy.

G.5 Status Report

The election statistics report contains the following:

- Tabulator Name
- Tabulator ID
- Voting Location
- Precinct Number
- Total Ballots Scanned
- Total Voters
- Unit Model
- Unit Serial Number
- Software Version