

Democracy Suite[®] ImageCast[®] Central User Guide

Version: 5.11-CO::3

May 31, 2019

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CHAPTER 1: INTRODUCTION

1.1 Purpose and Scope

This document describes operation procedures for the ImageCast® Central. It provides all necessary information for the successful operation of the unit by all support personnel. The intended audience is those who use the unit for pre-election and election preparation, and post-election and central counting activities.

1.2 Relevant Disclaimers

This document may make reference to certain Democracy Suite functionalities that are not part of the current 5.11 campaign and should be disregarded throughout the document.

For a full list of relevant disclaimers, please see the “Relevant Disclaimers” section in the *2.02 - Democracy Suite System Overview* Document.

1.3 Design Responsibility

Dominion Voting is the design authority.

1.4 Patent Status

Certain system concepts, as well as many implementation and construction details, are protected by a series of U.S. and foreign patents pending.

CHAPTER 2: SYSTEM SETUP AND CONFIGURATION

2.1 System Overview

The ImageCast® Central configured with a Canon scanner consists of the following:

- Scanner:
 - DR-G1130
 - DR-G2140
 - DR-M160II
 - DR-M260
 - DR-X10C
- Integrated PC workstation and display
- Keyboard
- Mouse
- Data cable that connects the scanner to the PC workstation
- Memory card reader (Required only if using ImageCast® Evolution or ImageCast® Precinct)
- iButton security key reader

The ImageCast® Central configured with an InterScan scanner consists of the following:

- HiPro scanner
- PC workstation and monitor
- Keyboard
- Mouse
- Data cable that connects the scanner to the PC workstation
- Memory card reader
- iButton security key reader

Prior to the election, the system must be installed and validated as part of acceptance and readiness testing. The central scanning platform has a limited number of configuration procedures. These are listed in “Configuring the ICC Application” on page 5.

NOTE: While some procedures are scanner-specific, others are not. Instructions pertaining to a particular scanner will be clearly marked throughout this document. If the section title does not specify the scanner, the instructions are applicable to all scanners.

2.2 Powering up the ImageCast Central Application and Scanner

This procedure assume that at least one tabulator has been imported into the system as per the *Democracy Suite® ImageCast® Central Installation and Configuration Procedures*.

This section provides instructions on powering up the PC workstation and scanners.

1. Ensure that the computer is powered up and that the scanner is connected to the ImageCast Central workstation via the USB cable.
2. Turn the scanner on and wait for its LCD to display "Ready" or "Device Ready".
3. Once ready, turn the workstation on to prompt the start up of Microsoft Windows.
4. Once the workstation has entered the Windows desktop, the application can be started from the shortcut on the desktop.
5. During the initial execution, basic startup log messages are displayed in the ImageCast Central application window.

If a Canon DR-G1130 scanner is connected, the scanner driver version is verified. A warning message, advising to update the scanner driver appears, if the driver version does not meet the minimum requirements. Refer to *Democracy Suite® ImageCast® Central Installation and Configuration Procedures*, Section *Installing the Canon DR-G1130 Driver* for more information.

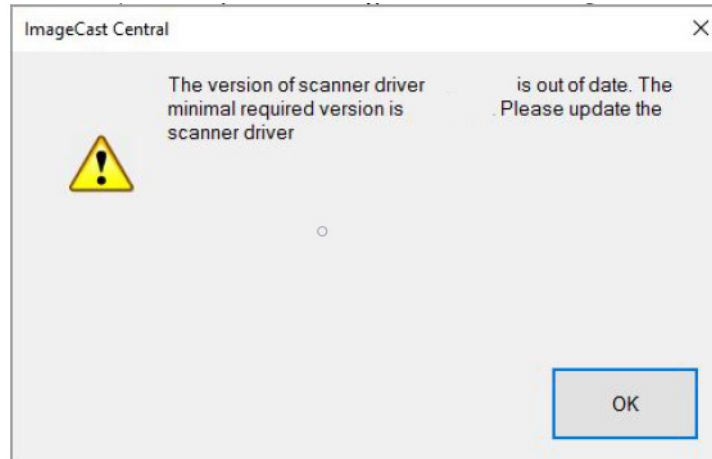


Figure 2-1: DR-G1130 driver version warning message

6. Click **OK** to close the warning message.
7. If a tabulator is not already set as the active project, a project selection window may appear. Select the desired tabulator from the dropdown, and click **Import**.

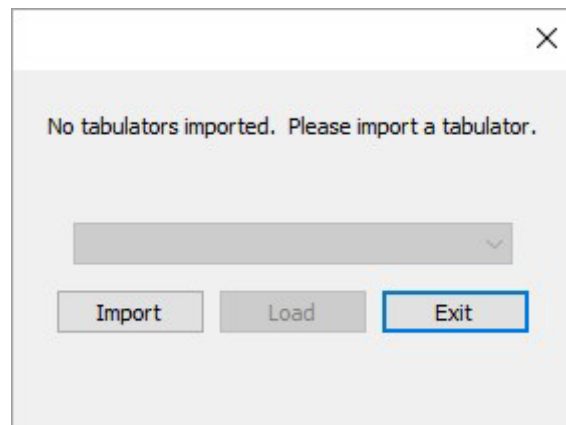


Figure 2-2: Import new project

8. 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 rewritten with the correct coding associated with the election you wish to load.

9. Once the ImageCast Central application has finished the initial execution, and the election files have been decrypted, it is ready to scan ballots.

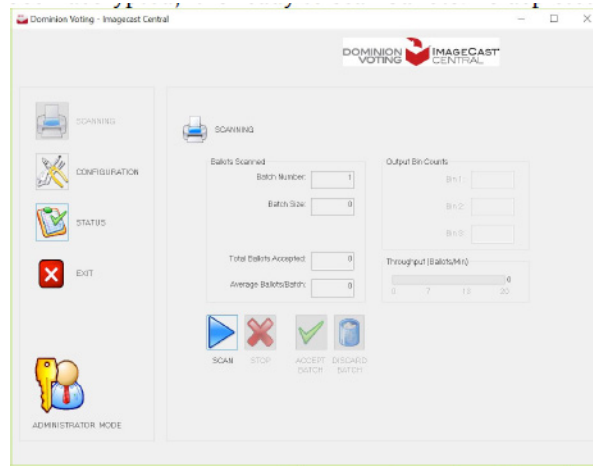


Figure 2-3: Scanning Menu in Administration Mode

2.3 Configuring the ICC Application

The following sections describe configuring the ICC application.

2.3.1 Setting up Poll IDs (Optional)

Some jurisdictions may require results reporting by precinct if consolidated. In this scenario, configure the ImageCast Central application to assign Poll IDs to each batch scanned.

Reporting by precinct can also be controlled by the consolidation setting/mode in EMS Election Event Designer (EED). If no consolidation is set in EMS EED, reporting is, by default, by precinct. Poll IDs must be used for reporting by precinct if medium or max consolidation of ballots has been set in EMS.

The ImageCast Central application also provides for Mixed Mode sorting. In this mode, ballots do not require manual sorting prior to scanning batches. Instead, the scanner will detect the ballot's ID and assign it to the appropriate precinct for results reporting at a precinct level.

NOTE: If Poll IDs are to be assigned to ballot styles that are not unique per precinct, ballots must be presorted such that each batch contains ballots from only one Poll ID. In the event that there are more ballots for a given precinct than the scanner can accept in a single batch, the same Poll ID can be assigned to multiple batches.

NOTE: To implement the Poll IDs feature, the user must have Administrator or Supervisor permissions.

1. Click **Configuration** in the **ImageCast Central** window.
The **Configuration** pane appears.
2. Click **Poll IDs**.
The **Specify Poll IDs** window appears.

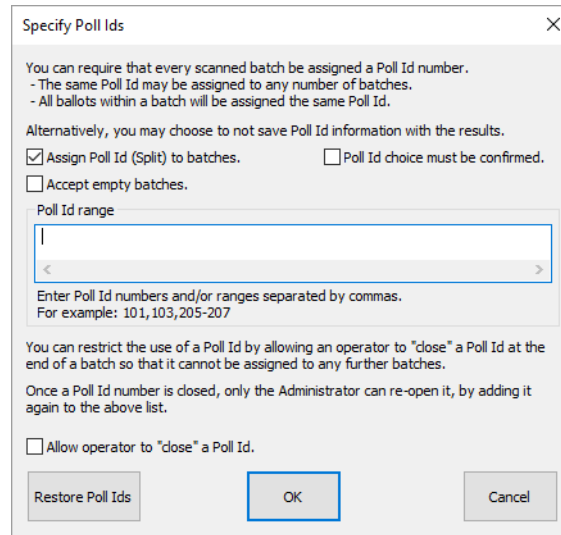


Figure 2-4: Specify Poll IDs window

3. From the Specify Poll IDs window:
 - Select the **Assign Poll IDs** check-box.
 - The poll ID range can be entered in the **Poll ID range** field.
 - The **Poll ID choice must be confirmed** option requires the poll ID be entered twice, for confirmation purposes, when scanning by Poll ID. See section Scanning with Poll ID (Optional) for further details.
 - The Administrator can also choose to allow an operator to close a Poll ID by selecting the **Allow operator to “close” a Poll ID** check-box.
4. Click **OK** to save your changes.

2.3.2 Scan Options

The ImageCast Central is configured to stop scanning on various types of voting errors. These errors include:

- Ambiguous marks
- Blank ballots
- Overvotes
- Undervotes

As well, the ImageCast Central can be configured to stop on write-in votes and ballot scan errors. The user must have Administrator or Supervisor privileges to view and configure the scan options.

NOTE: These settings are configured for the InterScan HiPro scanner and cannot be modified through ICC. They can viewed and modified at the InterScan scanner. For more details please refer to *Democracy Suite® ImageCast® Central Installation and Configuration Procedures*, Section HiPro Scanner Configuration.

NOTE: It is recommended to not alter the existing configured settings.

To view the configured settings for the Canon scanners:

1. From the ICC application, click **Configuration**.
The **Configuration** pane appears.
2. In the **Configuration** pane, click **Scan Options**.
The **Scan Options** window appears. This window allows the user to configure the scanner and ImageCast Central so that certain voting errors will be flagged and scanning will be stopped.

3. Select the errors on which you would like the ImageCast Central to stop scanning, and click **OK**.

Figure 2-5: Scan Options window

Included in the options is the Ballot Configuration option to switch between scanning standard hand- marked ballots, scanning machine generated ballots which contain votes encoded in a 2D barcode, or dynamic detection (allowing both types of ballots to be scanned).

Also included in this menu is the Constant Countback option. When enabled, this option forces the scanner to overrun by the same number of ballots any time scanning is stopped or paused mid-batch (provided that there are a sufficient number of ballots left in the input tray). It is recommended that this option be set to 5 or greater.

2.3.3 Batch Management

This chapter describes ICC's options for managing scanned batches.

Batch Start cards can be printed ahead of scanning and one is placed as the leading card of each batch to be scanned. Their purpose is to reduce the user's need to interact with ICC screen. Batch Start cards most typically will specify the batch's Poll ID, so the user does not have to enter it manually. When using the InterScan HiPro scanner, they also eliminate the need to press the Start Scan and Batch Accept buttons.

Batch Summary reports can be printed automatically at the end of each scanned batch. If the option is enabled, then as each batch is Accepted (either manually or automatically on detection of a 'Batch Start' card) a page is printed indicating the tabulator ID, batch number, the time of the scan as well as and number of ballots scanned.

2.3.3.1 Batch Start Cards

Batch Start cards can be printed on or before election day from EED. The primary content of the card is a QR code, which encapsulates up to three fields of information about the upcoming batch:

- Poll ID
- Batch Number
- Tabulator ID

Some, All or None of these fields may be included in the Batch Start card. Those fields that are included are also printed in human readable form on the card. Below are examples of Some, All and None of the fields



Figure 2-6: Some of the fields



Figure 2-7: All of the fields



Figure 2-8: None of the fields

To print Batch Start cards from the ICC application:

1. From the **Status** pane, click **Pre-Print Batch Start Card**.

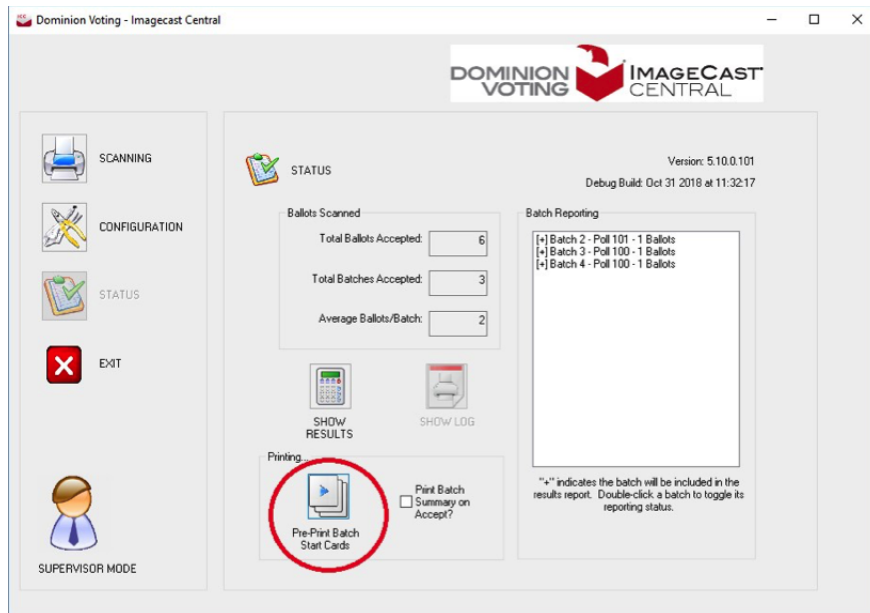


Figure 2-9: Batch Card Start button

A window appears, allowing the user to choose the fields and values to be printed on the Batch Cards:

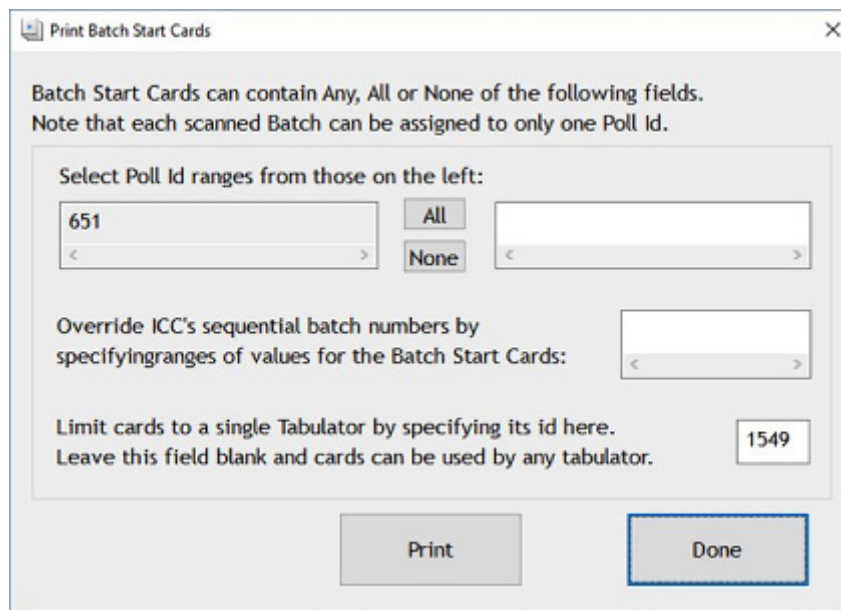


Figure 2-10: Batch Start Cards window

The user can specify multiple values for the Poll ID field and Batch Number fields (with restrictions noted below) and a single value for the Tabulator ID. They can also leave any or all of the fields blank.

The Print button will print one or more sheets depending on the values entered. Each printed sheet will define at most one Poll ID, Batch Number and Tabulator ID. Multiple sheets will be printed if either the Poll ID or Batch Number field specify multiple values.

Specifying Poll ID Ranges

The user can manually enter any number of Poll ID values in the box at the top right corner. They can also choose 'All' known Poll IDs by using the button of that name (or undo such via the 'None' button).

Poll IDs can be entered individually, or as ranges (e.g. 10,11,13, 100-109, 150-169, 200-299). The user can even enter Poll IDs that are not known to the current ICC configuration. The ICC will warn them of this fact before printing, but will still allow the process (in case the human knows better than the machine).

If the Batch Number field is already filled in with a value, then the user will only be able to specify a single Poll ID value. This is because the ICC cannot assign multiple Poll IDs to a single batch.

If the Batch Start card contains a Poll ID value, then the newly created batch will be assigned that Poll ID.

If the Poll ID field is left blank, then the new batch will be given the same Poll ID as the previous batch.

Specifying Tabulator ID

When the dialog is presented from the ICC application, the Tabulator ID field is prefilled with the ICC's tabulator ID. The user can remove this value if not desired.

If the Batch Start card contains a Tabulator ID, then only the ICC with the specified tabulator ID will accept the batch. If the Tabulator ID field is left blank, then the Batch Start card will be accepted by any ICC tabulator.

Printing Batch Start Cards

Precinct batch start cards are generated from the EED. To print batch start cards:

1. In EED, click **Actions -> Tabulation-> Create Precinct Batch Cards**. Batch cards are generated for all existing precincts in the project and stored on:
\$NAS\{Project Name}\Precinct Batch Cards.

Scanning Batch Start Cards in ICC

To make use of the Batch Start cards in the ICC application, the feature must be enabled. From the Configuration Dialog, select the Scan Options button, then check the “Use Batch Start Cards” check-box:

The screenshot shows the 'Scan Options' dialog box. The 'Batch Mode' section is highlighted with a red circle, indicating that the 'Use Batch Start Cards' checkbox is checked. Other sections include 'Stop Scan on...' with checkboxes for 'Misread or Unknown Ballot', 'Ambiguous Voting Mark', 'Ballot not linked to Poll ID', 'Blank Ballot', 'Missing DRO Signature', 'Write in Vote', and 'Write-In Precedence'. 'Rank Choice Voting Errors...' includes 'Overvoted Ranking', 'Inconsistent Ordering', 'Skipped Ranking', 'Duplicated Candidate', and 'Unranked Contest'. 'Overvoted Contests...' and 'Undervoted Contests...' have radio buttons for 'All' and 'Major contests only'. 'Primary Voting Errors...' includes 'Party Preference Overvoted', 'Party Preference Unvoted', 'Cross-Vote', and 'Partisan Contests Unvoted'. 'Scanner continuity' has radio buttons for 'Single sheet scan' and 'Continuous scan'. 'Constant Countback' has an 'Enable' checkbox and a value of '0'. 'Ballot Configuration' has radio buttons for 'Hand-Marked Ballot', 'Machine Generated Ballot', and 'Dynamic'. There are 'Reset Options', 'OK', and 'Cancel' buttons at the bottom right.

Figure 2-11: Scanning Batch Start Cards

2.3.3.2 Batch Summary Reports

Batch Summaries can be automatically printed each time the ICC accepts a Batch (either manually or by reading a Batch Start card). The ICC must have a compatible printer connected (either directly or over the local network). The summary sheet printed will list:

- Tabulator ID number
- Batch Number
- Poll ID (if in use)
- Date and Time batch was accepted

- Number of Ballots in the batch

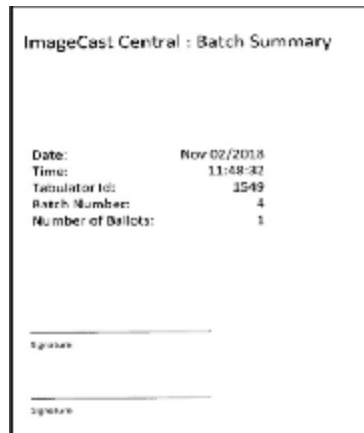


Figure 2-12: Batch Summary Report

The user can enable or disable this feature via a check-box on the Status Dialog.

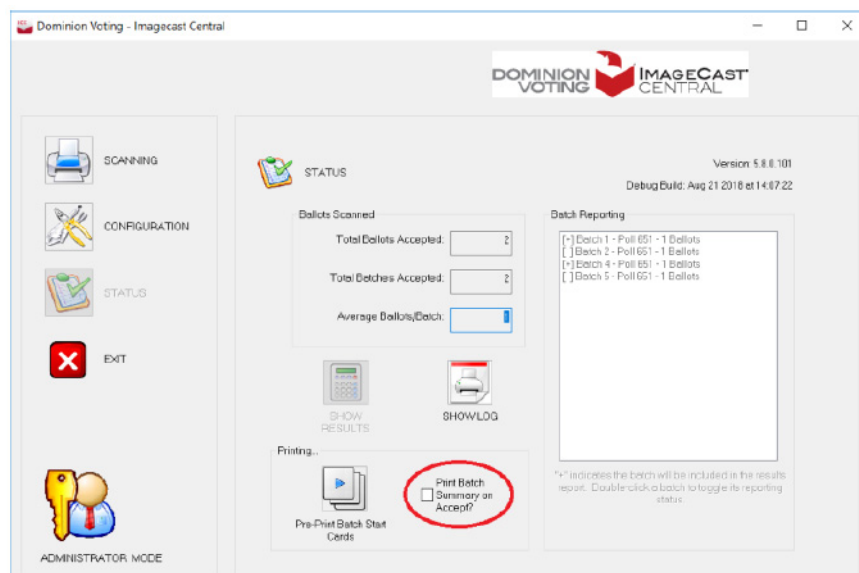


Figure 2-13: Select Batch Summary Report

Each time the feature is enabled, a Printer dialog is presented which allows the user to select the printer and number of copies to be printed.

2.3.4 Adding/Switching Tabulators

Multiple tabulators from multiple election projects can be loaded onto the same ImageCast Central system. ImageCast Central provides a way to manage these tabulators from inside the application.

1. Click **Configuration** in the ImageCast Central window. The Configuration pane appears.

2. Click **Project Management**.

The **Project Management** window appears. Information regarding the currently loaded tabulator is displayed at the top of the window.

The **Active Projects** tab contains a list of all other loaded tabulators that have been designated as active. The **Inactive Projects** tab displays all loaded tabulators which have been designated as inactive. This helps sort and manage tabulators, as tabulators cannot be loaded unless they are set to active. The buttons at the bottom of the window perform the following tabulator management actions:

- **Import:** Imports a new tabulator into the system. Ensure the selected directory contains a Project folder. New tabulators are designated as active by default.
- **Remove:** Removes a tabulator from the list
- **Set Inactive:** Moves an active tabulator to the inactive list. When looking at the Inactive Projects tab, this button will be labeled Set Active and will move inactive tabulators back to the active list
- **Load:** Makes the selected tabulator the currently loaded tabulator. The application will then reload with the new information and settings. Only active tabulators can be loaded
- **Close:** Closes the **Project Management** window

CHAPTER 3: ADMINISTRATOR AND SUPERVISOR MODES

Administrator mode provides access to ICC's pre-scanning and post-scanning functionalities. These include resetting, opening, and closing the tabulator. To obtain administrator access, the election official touches the iButton security key to the iButton reader. A large colored Administrator mode icon appears in the bottom left corner of the application and remains there as long as the user is in Administrator mode. The administrator passcode is managed in EED. For more information on managing the administrator passcode, please refer to *Democracy Suite® EMS Election Event Designer User Guide*, Section Defining Tabulators.

Supervisor mode is a high-level mode reserved for technicians authorized by Dominion Voting. Access to Supervisor mode functions is restricted by a password. The supervisor passcode is maintained in the DCF settings which can be changed in EED. For more information on managing the supervisor passcode, please refer to *Democracy Suite® EMS Election Event Designer User Guide*, Section Setting the ICC Supervisor User's Password. Supervise mode functions include pre-configuration parameters, debug level tools for troubleshooting, and technician-specific functions used internally to monitor the tabulator's status and health during service cycles.

NOTE: The iButton security key must remain attached to the security keypad while in Administrator and Supervisor mode. Removing the iButton security key automatically returns the user to Poll Worker mode.

3.1 Administrator Mode

3.1.1 Accessing Administrator Mode

1. From the ICC workstation, touch the iButton security key to the iButton reader.
In ICC, a prompt appears asking the user to enter the Administrator passcode.
2. Type the passcode and click **OK**.
Administrator mode is accessed.

3.1.2 Pre-Scanning Requirements: Producing a Zero Report

Before scanning, the Administrator must produce a zero report to confirm that no votes have been recorded by the application. The zero report is a results report that shows that there are no ballots yet cast in the election. The report lists:

- Name and details of the election

- Date and time of when the report was generated
- All candidates and the number of votes they each received by precinct. In a zero report, these totals should all equal zero (0), indicating that no votes have been cast

Dominion recommends that the printed zero report be kept in a physically secure location for a period of at least 22 months. To produce a zero report:

1. Click **Status**.
The **Status** pane appears.
2. Click **Show Log** in the **Status** pane.
The ImageCast Central Log window appears.
3. Select all of the data in the window and copy/paste it to Notepad.
4. In Notepad, print the content and save the report for audit purposes.
5. In the **Status** pane of the ImageCast Central window, click **Show Results**.
The **Display Batch Results** window appears.
6. Confirm the **Display all ballot IDs and Precincts (even those with no ballots scanned)** check-box is selected and click **OK**.
Notepad appears with a listing of all votes recorded by the scanner.
7. Save the Notepad file.
8. Print and retain the report for audit purposes.

3.1.3 Post-Scanning Responsibilities

3.1.3.1 Closing the Tabulator

Once scanning is complete, the tabulator can be closed. To close the tabulator:

1. Click **Configuration** in the ICC application screen.
The Configuration pane appears.
2. In the Configuration pane, click **Close Tabulator**.
The message “Are you sure you want to close the tabulator?” appears.
3. Click **OK**.
A message confirming the tabulator is successfully closed appears.
4. Click **OK**.

3.1.3.2 Rezeroing the Tabulator

Rezeroing the tabulator clears the scanned ballots' results and the tabulator's history. This process cannot be undone. To rezero the tabulator:

1. Click **Configuration** in the ICC application screen.
The **Configuration** pane appears.
2. In the **Configuration** pane, click **Rezero**.
If there are no un-cast ballots, the message “This action will remove all processed batches!” appears.

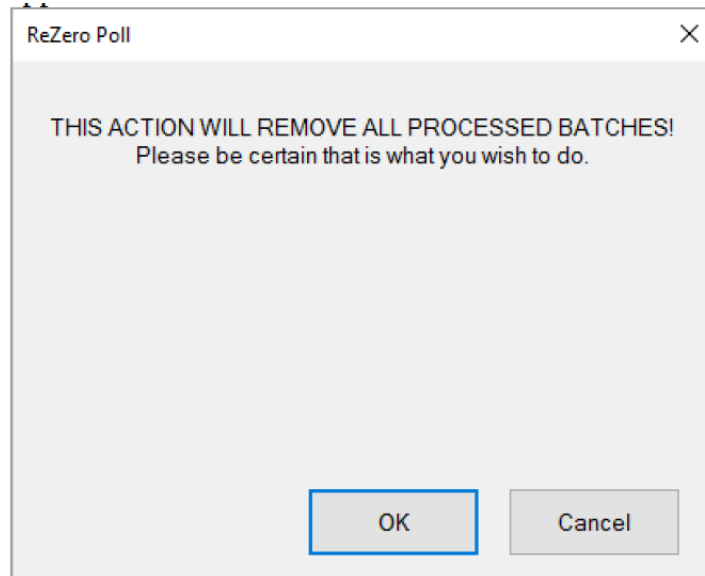


Figure 3-1: Rezeroing the tabulator no un-cast ballots

3. Click **OK**.
If there are un-cast ballots, you are given the option to delete the un-cast ballot images.

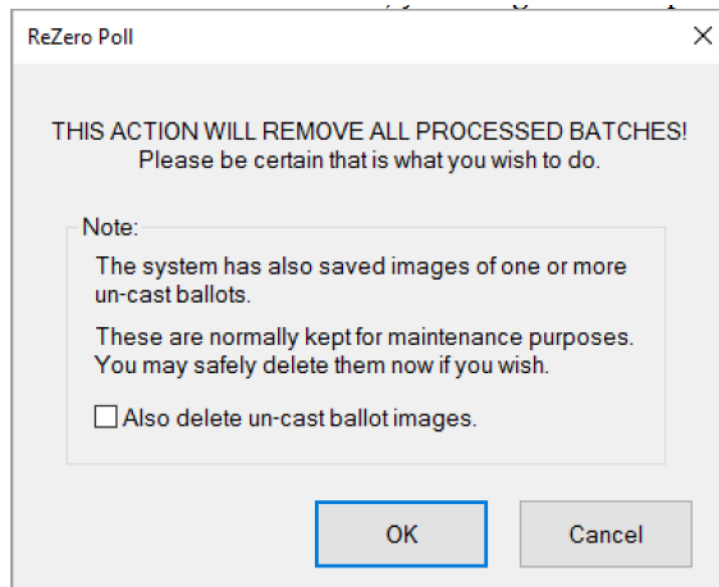


Figure 3-2: Rezeroing the tabulator with un-cast ballots

4. If applicable, select the **Also delete un-cast ballot images** check box, then click **OK**.
The **Security Passcode** window appears.
5. Type the Supervisor passcode and click **OK**.
The message “Tabulator State Reset” appears.
6. Click **OK**.

3.2 Supervisor Mode

3.2.1 Accessing Supervisor Mode

1. Touch the iButton security key to the iButton reader.
A prompt appears asking the user to enter the Administrator passcode.
2. Type the passcode and click **OK**.
3. Click Administrator Mode.
The **Security Password** window appears.
4. In the **Enter Passcode** field, type the supervisor passcode and click **OK**.
The Supervisor Mode icon replaces the Administrator Mode icon.
Supervisor mode is accessed.

- To return to Administrator Mode, click **Supervisor Mode**.
The Administrator Mode icon replaces the Supervisor Mode icon to indicate that the application has returned to Administrator Mode.

3.2.2 Advanced Settings on the ImageCast Central and Canon Scanners

The ImageCast Central's advanced settings allow for adjustment of the scanning properties, however the ICC application installation procedure automatically configures the scanner settings to the default values. For more information, refer to *Democracy Suite® ImageCast® Central Installation and Configuration Procedures*, Running the ImageCast® Central Application.

- With the application in Supervisor mode, click **Configuration**.

NOTE: If the Configuration button is unavailable, you are currently in the Configuration menu.

- In the **Configuration** pane, click **Properties**.
The **Scanner Settings** window appears. An example of the DR-M160II Scanner Settings window appears below.

NOTE: Canon scanner settings vary by model.

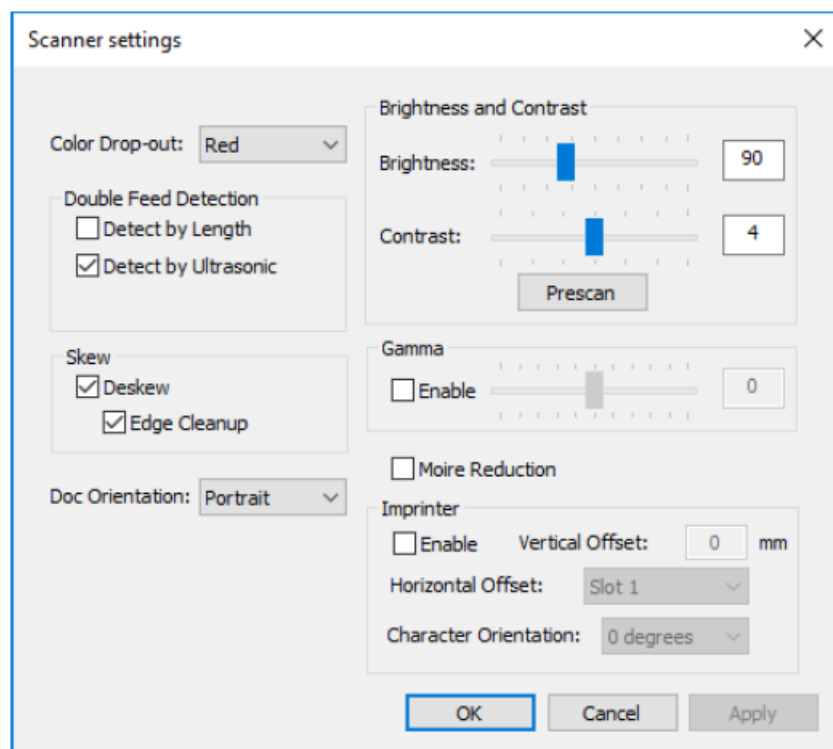


Figure 3-3: DR-M160II Scanner Settings window

The DR-M160II scanner setting options are as follows:

- **Color Drop-out:** Allows for the removal of a color from the scanned image prior to its conversion to black and white
- **Double Feed Detection:** Methods through which the scanner can detect a multifeed condition.
 - **Length** tells the scanner to assume that the length of the first ballot scanned is the accepted length, and anything longer would be considered a double feed. Not for batches with varying ballot lengths.
 - **Ultrasonic** tells the scanner to use ultrasonic sensors to detect the gap of air between overlapping pages.
 - **Separation Retry** tells the scanner to reverse a multifeed and retry.
- **Skew:** Options to correct issues related to physical ballot skew as it passes through the scanner.
 - **Deskew** straightens the ballot
 - **Edge Cleanup** removes black spaces around the page that might appear on the ballot image
- **Doc Orientation:** Sets the orientation (portrait or landscape) of the ballot.
- **Brightness/Contrast/Gamma:** Sets the clarity levels at which the ballot should be scanned at. Levels can be set as a combination of brightness and contrast values, or as a gamma value.
 - To use the gamma level, select the **Enable** check-box. This will cause the brightness and contrast settings to be ignored.
 - The **Prescan** button can be used to test settings by scanning a single ballot without the ballot being tallied.
- **Moire Reduction:** Reduces image noise

To test the brightness and contrast:

1. Click **Prescan**.
The **Prescan** window appears.

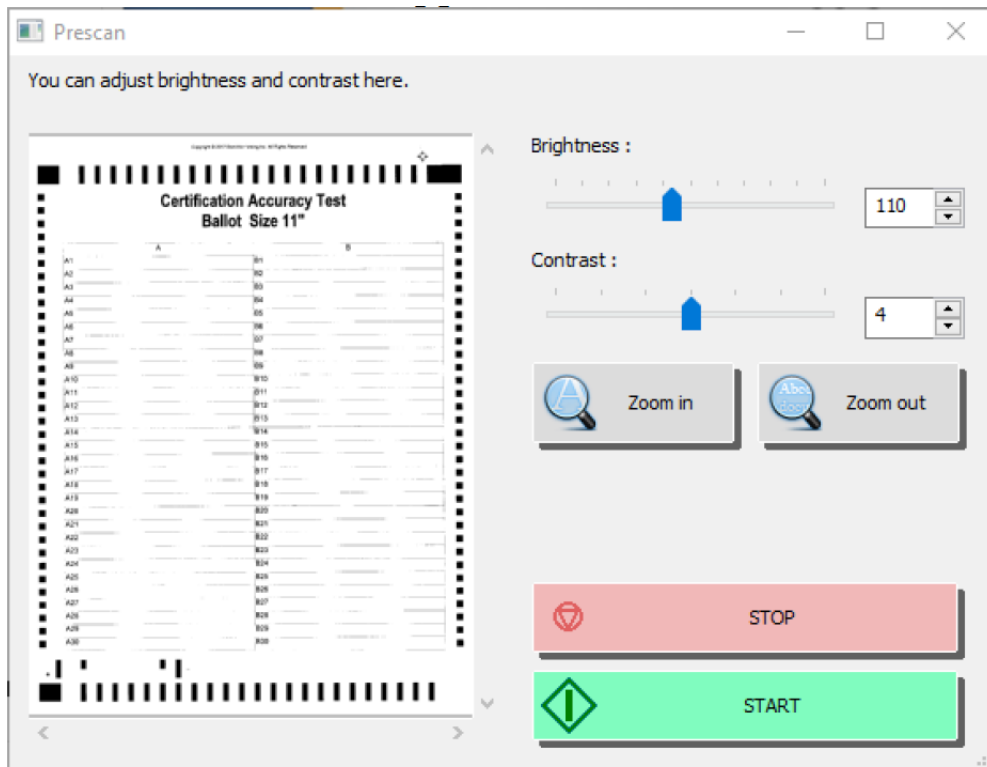


Figure 3-4: Prescan window

2. Insert a ballot into the input tray.
3. From the **Prescan** window, click **Start**.
The ballot is scanned and appears in the **Prescan** window.
4. Use the Zoom in and Zoom out buttons to preview the ballot.
5. Adjust the brightness and contract, if necessary.

NOTE: Brightness and contrast changes made in this window update the values in the **Scanner Settings** window.

6. Exit the Prescan window when done previewing the ballot.
7. Click **OK** to close the **Scanner Settings** window.

3.2.2.1 Re-opening the Tabulator

In the event that the tabulator has been closed before all ballots have been scanned, or ballots to be scanned have been missed, the user can re-open the tabulator to continue scanning. This will add to the totals for the tabulator and be reflected on the results report. To re-open the tabulator:

1. Click **Configuration** in the ICC application screen.
The Configuration pane appears.
2. In the **Configuration** pane, click **Re-open Tabulator**.
The message “Are you sure you want to re-open the tabulator” appears.
3. Click **OK**.
The Security Passcode window appears.
4. Type the Supervisor passcode and click **OK**.
A message appears confirming the poll has been reopened.
5. Click **OK**.
You can now re-commence scanning.

CHAPTER 4: POLL WORKER MODE

Poll Worker 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: All scanner settings must be configured by either an authorized Administrator or Supervisor 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 Poll Worker Mode.

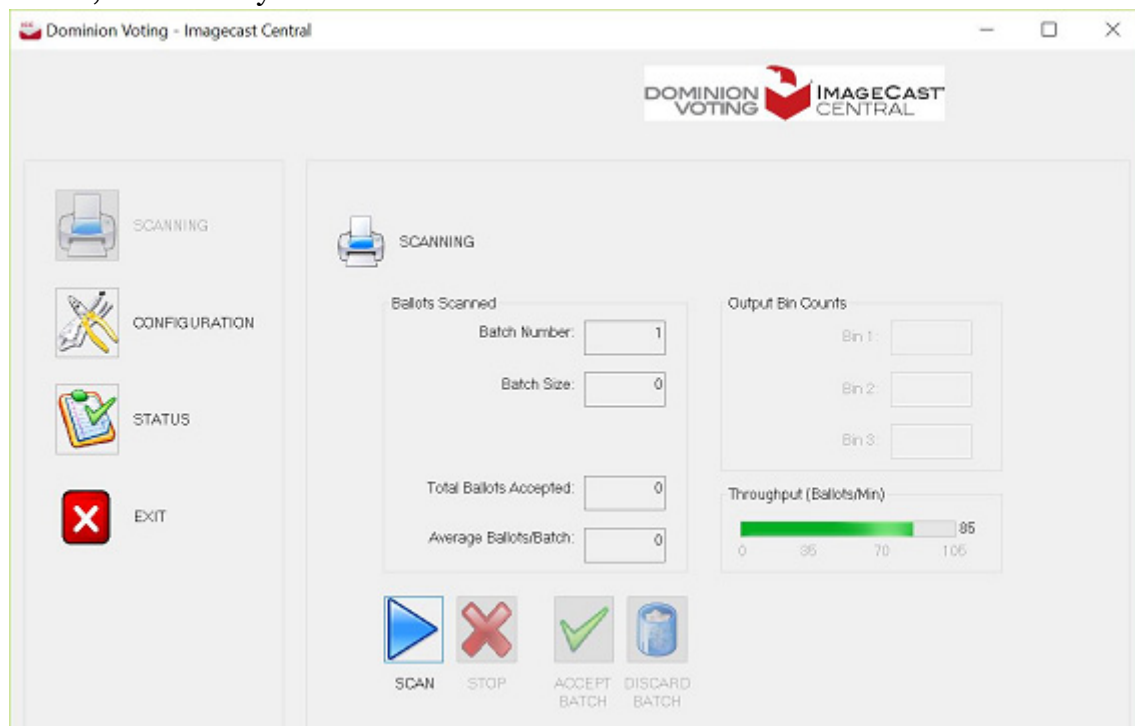


Figure 4-1: Poll Worker Mode shows basic status and scanning functions

4.1 Scanning and Accepting Ballots

In most cases, scanning with the Canon and Interscan scanners will be interrupted due to ballot exceptions. Examples of exceptions include overvotes, undervotes, ambiguous marks, blank ballots, write-in selections, or misread ballots. These exceptions are configured by following the steps outlined in Configuring Scan Options, and can only be performed by an authorized Administrator.

NOTE: The ImageCast Central application needs to be running and configured in order to begin scanning. Please see “System Setup and Configuration” on page 2 for instructions on setting up and configuring ICC.

1. Click **Scanning** in the ICC application screen.
The **Scanning** pane appears.

NOTE: If the **Scanning** button is unavailable, the scanning functionality is currently available.

2. In the **Scanning** pane, click **Scan**.
If poll IDs are not being used, the green Scan button on the InterScan scanner can be used to initiate scanning.
The scanner begins scanning the ballots the user has loaded into the input tray of the scanner while the ImageCast Central application counts the ballots in realtime. This information is displayed in the Ballots Scanned section of the Scanning pane.
Once all the ballots loaded into the scanner have been scanned, the user has options to select in the Scanning pane, Accept Batch and Discard Batch. Accepting the batch saves the results and ballot images to two separate folders within the project folder, e.g C:\dvs\project. Each batch will be numbered in the order it was scanned and processed. Any problem ballots that may need to be examined or adjudicated at a later time are found as images in the project folder, e.g. C:dvs\project\NotCastImages.
3. Click **Accept Batch**.
A message appears to confirm accepting the batch.
4. Click **OK**.

4.2 Scanning Multicard Ballots

ImageCast Central processes all ballots in the same manner. In the case of multicard ballots, cards may be inserted in any order so long as the complete set is included in the same batch. ImageCast Central will analyze each card of a multicard ballot individually and will stop on a specific card if a problem is encountered. ImageCast Central is able to identify which cards are part of a multicard ballot, and whether or not they are the first, "A" card or a subsequent card. This allows ImageCast Central to accurately state the number of voters in its report, even when multicard ballots are in use.

4.3 Scanning and Discarding Ballots

As discussed above, the ImageCast Central with the Canon and Interscan scanners can be configured to stop scanning on various configurable voting errors. Once a voting error is detected, the ImageCast Central application will inform the operator of the type of voting error that has been found. When this prompt appears:

1. Sequentially remove the ballots from the ballot output tray until the ballot with the voting error is found.

2. Segregate this ballot into an envelope containing other ballots of this type for manual review, adjudication, potential duplication, and for subsequent processing.

Ballots removed from the output tray prior to the detection of the voting error are not scanned.

3. Return the non-scanned ballots to the input tray for scanning.

NOTE: The DR-G1130 and DR-G2140 scanner input trays react differently when the scanning stops. The DR-G1130's input tray returns to the lowered position when the scanning stops. The input tray moves to the raised position when scanning resumes. Whereas the DR-G2140 scanner input tray remains in the raised position if there are ballots in the input tray when the scanning stops.

4. Click **Scan** to resume scanning.

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 quality of the batch is brought into question. To discard a batch:

Once a batch has been fully scanned, in the **Scanning** pane:

1. Click **Discard Batch**.
The message "There is already one ballot scanned into this batch. Are you certain you wish to discard it?" appears.
2. Click **Yes**.
The batch is excluded from the results totals.
3. If you have not accepted or discarded a batch and you press **Scan** again, the message appears asking if you want to add ballots to an existing batch or not.

NOTE: After scanning ballots, the Scan button appears only if the **Only one scan per batch** option is not selected in the **Scan Options** window.

4.4 Scanning with Poll ID (Optional)

Ballots can be segregated into precincts for final reports. Each batch can be assigned a specific Precinct/Poll ID. This option must be configured by an authorized Administrator by following the steps outlined in Section Setting up Poll IDs (Optional).

When enabled, the **Current Poll ID** field appears in the **Scanning** pane. In addition, reporting by precinct is controlled by the lead card consolidation setting in EMS EED, where the setting can be set to Precinct Portion, Precinct, Ballot Type or Card (for more information, please refer to *Democracy Suite EMS Election Event Designer User Guide*, Section Ballot Generation Options). If no consolidation is used, the reporting will be done by precinct, whereas other two options will require Poll IDs to be assigned if reporting by precinct is desired

When scanning begins, the message “This scan begins a new batch. Please choose a Poll ID number from those listed below” appears. The precinct/poll ID may need to be entered twice, depending on the selection made in the **Specify Poll IDs** window discussed in Section Setting up Poll IDs (Optional). The duplicate entry is required to ensure that an operator does not mistype the ID prior to commencing scanning.

If an invalid Poll ID is entered, the **OK** button becomes unavailable.

When scanning a batch is complete, it can either be accepted or discarded. In the last batch of ballots from a specified precinct, the operator can indicate that the precinct is closed. In doing so, the ImageCast Central application removes the Poll ID from the list of acceptable IDs to prevent other ballots from being assigned to this precinct.

NOTE: Tracking Poll IDs is done on a tabulator-by-tabulator basis. Therefore, closing a precinct on one tabulator will not automatically close it on another.

CHAPTER 5: ENVIRONMENT AND SUPPLY REQUIREMENTS

The following facilities, furnishings, fixtures, and utilities are required at the central count location for the operation of the ImageCast Central scanner:

- Physically-secured for scanning
- Uninterruptible Power Supply (UPS) with minimum 1000 VAC capacity
 - The approved UPS device is the APC SMC1500 Smart-UPS (900 Watts/ 1500 VA Input 120V/ Output 120-Volt Interface Port USB with Uninterrupted Power Supply). Any UPS used must be capable of providing a minimum of 15 minutes of uninterrupted power in the event of a power failure. This will allow for a batch of ballots to complete the scanning process and their results saved in the ICC application. Only ballot batches that have been accepted by a user choosing to accept the batch are saved in ICC and available for later tabulation. Follow the enduser documentation for the UPS to understand any display or audible indications from the UPS that would indicate its status, remaining back-up power level or time, or any faults with the UPS. Be sure to perform a graceful shutdown of both the scanner and ICC workstation prior to the UPS' depletion of power.
- 120 Volt AC power outlet
- Surge protector
- Extension cord, depending on the distance between the AC power outlet and the ImageCast Central device
- Ballot transfer cases for transporting ballots within the location
- Table to support scanner
- Shelving units or containers or to store unscanned and scanned ballots
- High speed (100 Mbps) network infrastructure and cabling (if additional central ballot scan repository/data center is used)

NOTE: All computers used for election operations must be isolated from any connection to the Internet, as well as from any connection to jurisdiction computers that are not used for election operations. The election computing network must be isolated from all other networks.

CHAPTER 6: TESTING

6.1 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 installed firmware within the ImageCast Central. It should be performed prior to each election and initially for customer acceptance testing. To perform acceptance testing, the supervisor 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, if applicable.
3. Plug the scanner and the PC workstation, if applicable, into a suitable AC power source.
See “Environment and Supply Requirements” on page 28 for relevant information on power source requirements.
4. Power up the scanner and PC workstation, if applicable.
5. Log onto the computer.
6. Refer to the scanner driver installation document for your ImageCast Central brand/model to ensure that menus and parameters are set properly. Be sure to save these settings as a profile. If the ImageCast Central profile has already been setup/provided, then there is no need to re-create or resave the profile. Use the one provided.
7. More extensive diagnostic tests and procedures are contained within the product documentation and can be conducted by authorized technical staff.

6.2 Logic & Accuracy Testing

Formal Logic & Accuracy Testing can be performed to ensure that the system has been configured correctly for an election. This is typically performed using a set of ballots for which the correct results are known ahead of time. Such a test is run through the system to make sure that the results shown by the tabulator agree with those expected.

After Logic & 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 to be scanned.

NOTE: All tabulation reports for Logic & Accuracy Testing (as well as regular election-day results) must be taken from the Results Tally & Reporting software application.

Logic & Accuracy Testing consists of the following:

1. Configure the election system using Election Management System's (EMS) Election Event Designer. Please refer to the Democracy Suite EMS Election Event Designer User Guide for more information on Election Event Designer.
2. Generate test ballots, either manually from unmarked ballots, or automatically using EMS.
3. If using unmarked ballots, mark a number of ballots in pre-determined ways to create what is referred to as a test deck. This deck of ballots should be created for each ballot style and tabulator. Make a control sheet that summarizes the total results for the test decks.
4. Alternatively, if allowed by your jurisdiction, use the Automated Test Deck application. This application, available from Dominion Voting, can automatically generate the appropriate test decks and expected results totals.
5. Run the appropriate test deck through each of the ImageCast Central scanners in the system.
6. Close the polls and inspect the show results report to ensure that the results are correct for each ImageCast Central tabulator.
7. Upload the results files from each of the tabulators into the EMS Results Tally & Reporting application. Please refer to the Democracy Suite EMS Results Tally & Reporting User Guide for more detailed instruction on uploading files.
8. View a set of audit-marked images for each of the ballot styles to confirm that the system is interpreting each type of ballot correctly.

NOTE: It is not necessary to view images of all the ballots used during testing. At a minimum, however, a set of images should be viewed from one complete test deck that includes each of the different ballot styles that will be used in the election.

9. If any vote discrepancies or errors are encountered during this process, review the ballots and the procedure, as human error is the most likely cause. Once the problem has been resolved, repeat the entire Logic & Accuracy Testing procedure for the affected tabulator(s).

10. Purge the system of test results once testing is complete, prior to using it for the election. This includes purging data from each individual memory card, and purging the Results Tally & Reporting database. Once the system has been purged, a zero report must be printed to confirm that the system was successfully purged. Refer to Pre-Scanning Requirements: Producing a Zero Report (see page 24) for instructions on how to print zero reports. Save the zero report files as part of the permanent audit record.
11. Retain all documents and supplies used during the testing process. Place all documentation in envelopes and/or boxes. Seal, initial, and date the envelopes and/or boxes, as applicable.
12. Secure equipment until Election Day. Once the testing is complete, the equipment must be securely stored so that it is safe from unauthorized access or use.

APPENDIX A: TROUBLESHOOTING

This section is discusses common prompts and directs the user to the appropriate section of the User Guide for additional information. For issues involving the PC workstation or the scanners, please consult the documentation received with the device. For any hardware or software issues not covered in the User Guide, please contact the Dominion Voting Systems helpline at 1-866-564-VOTE (8683), or contact our head office directly at:

Dominion Voting Systems
1201 18th Street, Suite 210
Denver, CO 80202
Email: help@dominionvoting.com
Website: www.dominionvoting.com

For instructions related to hardware upgrades, please contact Dominion Voting Systems at the address above. Instructions for specific hardware upgrades will be provided, as required.

For information related to new software releases, please refer to the release notes accompanying the specific software release.

For additional information, please contact Dominion Voting Systems at the address above.

A.1 Common Prompts and Messages

A.1.1 Security Key Values

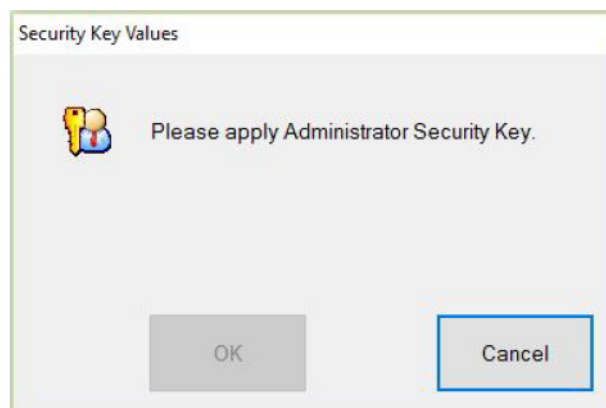


Figure A-1: Security Key Values Prompt

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 should appear.

A.1.2 Administrator Passcode

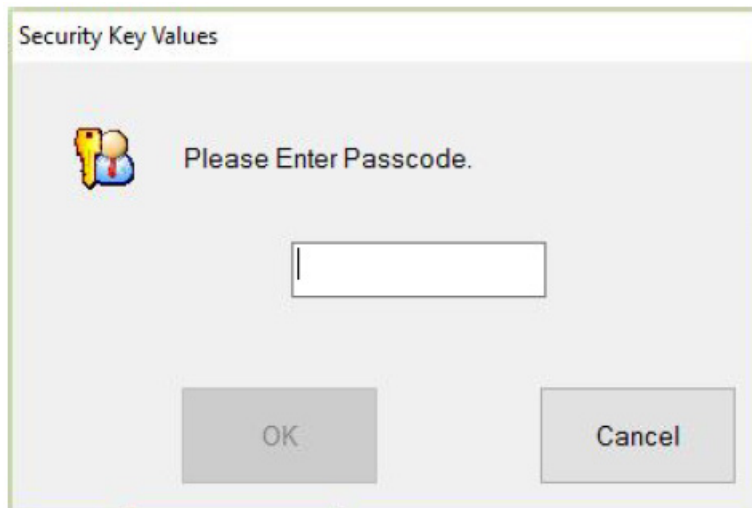


Figure A-2: Administrator Passcode Prompt

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 appears. Type the Administrator passcode and click OK to continue, or Cancel to continue operating in Poll Worker mode. This message also appears when starting up the application.

A.1.3 Supervisor Passcode

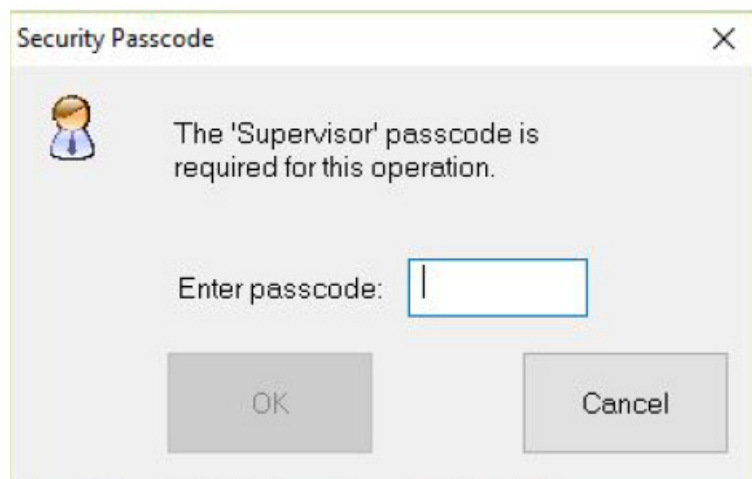


Figure A-3: Supervisor Password Prompt

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 to continue, or click Cancel to continue operating in Administrator Mode. See “Accessing Supervisor Mode” on page 19 for further information.

A.1.4 Add Ballots

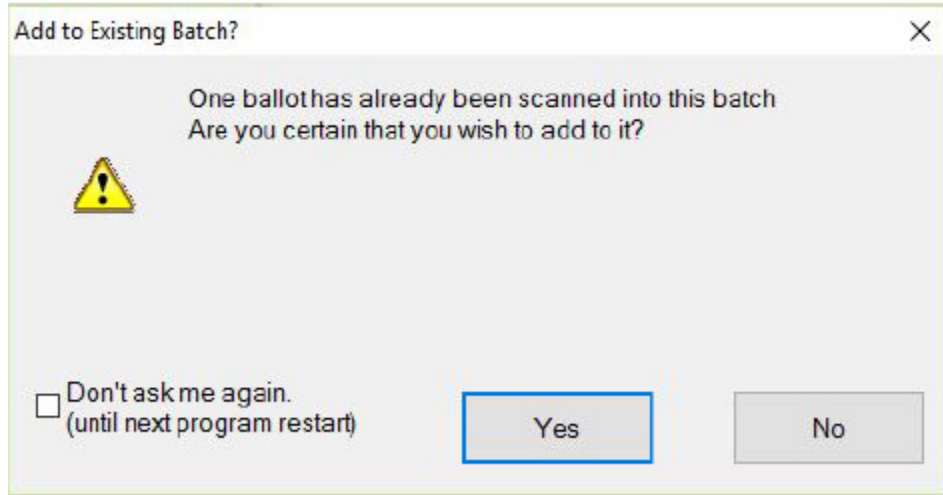


Figure A-4: Add Ballots Prompt

This prompt appears if the user attempts to scan more ballots after a batch has been completed. If this prompt appears after removing problem ballots, click Yes. Otherwise, follow jurisdiction procedures.

A.1.5 Accept Batch

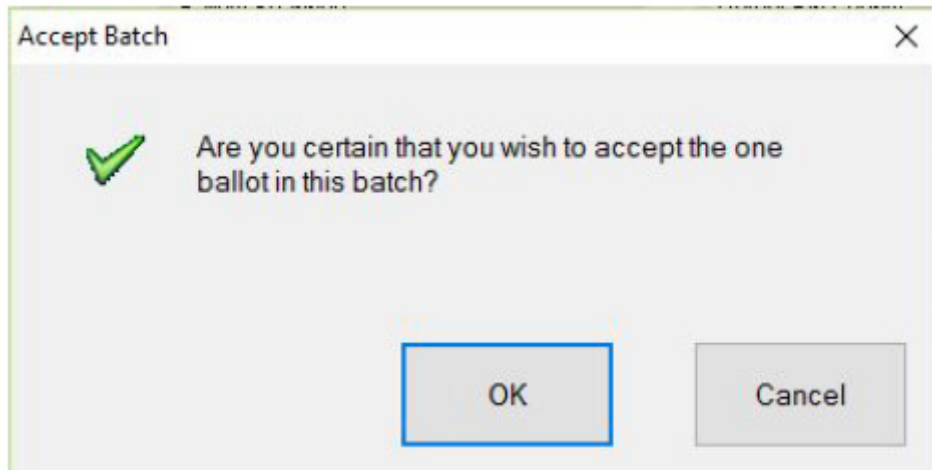


Figure A-5: Accept Batch Confirmation

This prompt displays after the user clicks Accept Batch in the Scanning window. Click OK to accept the batch or Cancel to continue scanning.

A.1.6 Discard Batch Prompt

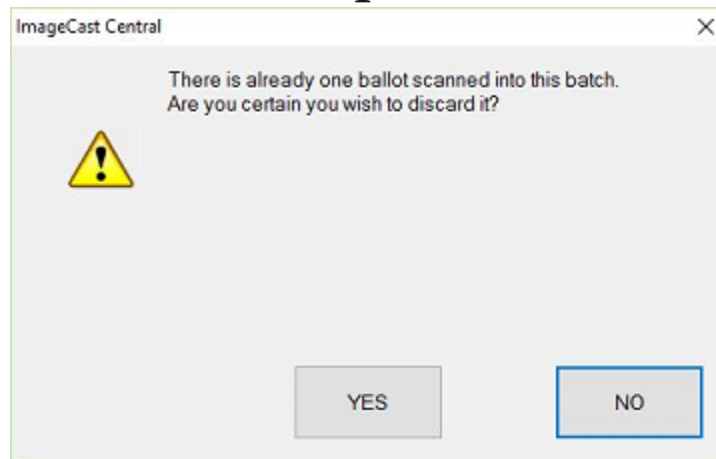


Figure A-6: Discard Batch Prompt

This prompt displays after the user clicks Discard Batch in the Scanning screen. Click Yes to discard the batch or No to continue scanning.

A.1.7 Closing the Tabulator

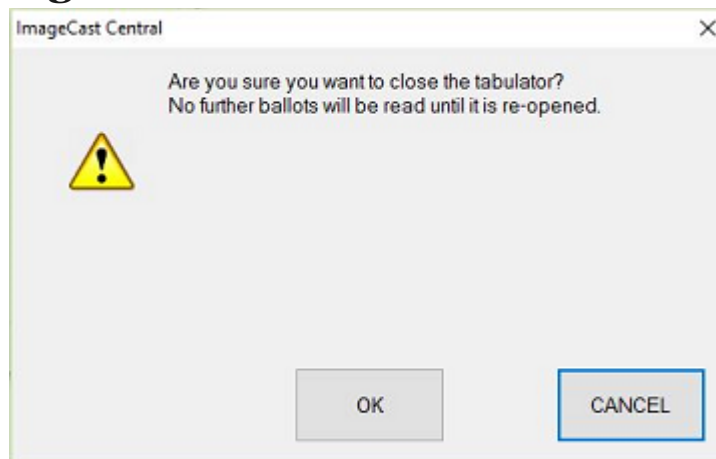


Figure A-7: Closing the Tabulator Message

This prompt displays after clicking Close Tabulator in the Configuration window. If Close Tabulator was clicked by accident, click Cancel to continue scanning. Otherwise, click OK to close the tabulator. For further information, refer to “Closing the Tabulator” on page 17

NOTE: Tabulators may be reopened, however, the tabulator should not be closed until scanning is complete.

A.1.8 Tabulator Closed

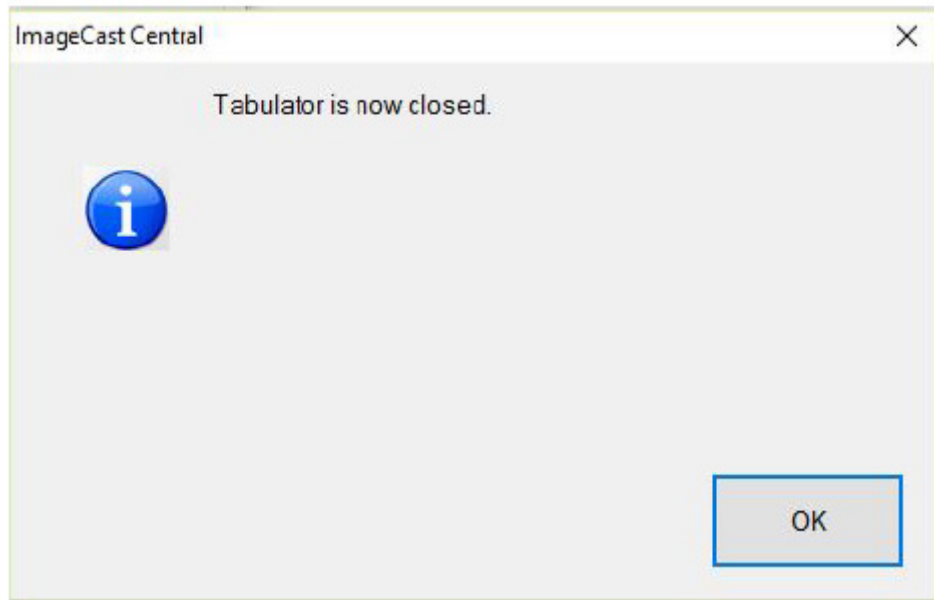


Figure A-8: Tabulator Closed Message

This prompt displays after clicking CLOSE TABULATOR in the Configuration window and confirming your selection by clicking OK. It indicates that the tabulator is closed and no additional ballots can be scanned unless it is reopened. For further information, refer to “Closing the Tabulator” on page 17.

A.1.9 Resetting the Tabulator

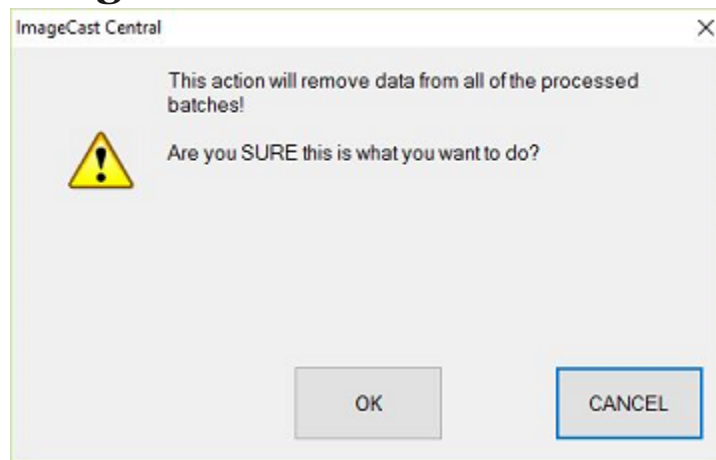


Figure A-9: Resetting the Tabulator message

This prompt displays after clicking Rezero in the Configuration window. If it was clicked by accident, click Cancel to continue working on the ImageCast Central application. Otherwise, click OK to close the tabulator. For further information, refer to “Rezeroing the Tabulator” on page 18.

NOTE: Re-zeroing the tabulator results in the loss of all information. Any batches scanned prior to resetting the tabulator will need to be rescanned in the next session.

A.1.10 Tabulator State Reset

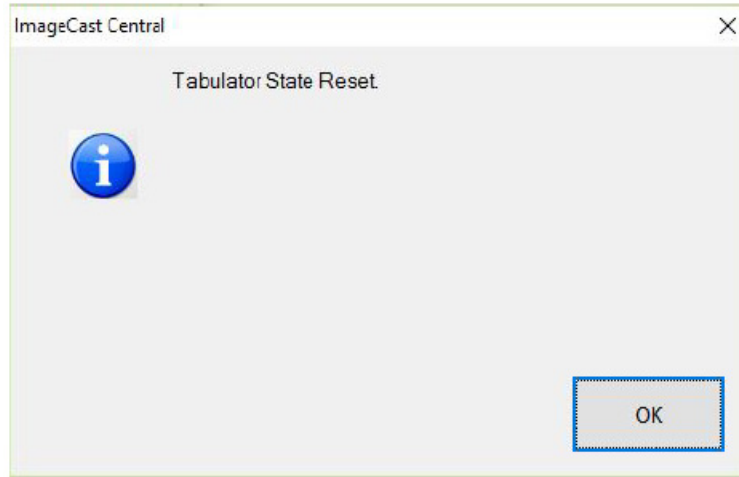


Figure A-10: Tabulator State Reset Message

This prompt displays after clicking Rezero in the Configuration window and confirming your selection by clicking OK. It indicates that the tabulator has been reset and all information contained in all previously scanned batches has been deleted. For further information, refer to “Rezeroing the Tabulator” on page 18.

A.1.11 Re-Open Tabulator

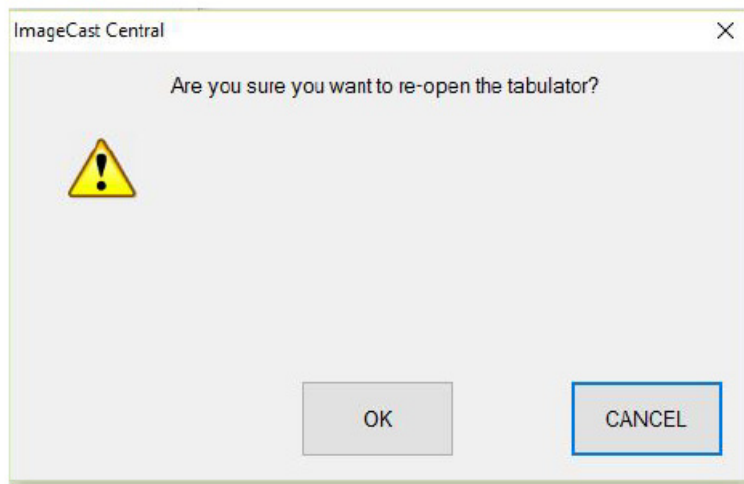


Figure A-11: Re-Open Tabulator Prompt

After clicking RE-OPEN TABULATOR, this prompt appears. If you wish to scan additional ballots, click OK. If you do not wish to scan more ballots at this time, click Cancel. For further information, refer to “Re-opening the Tabulator” on page 23.

A.1.12 Tabulator Re-opened

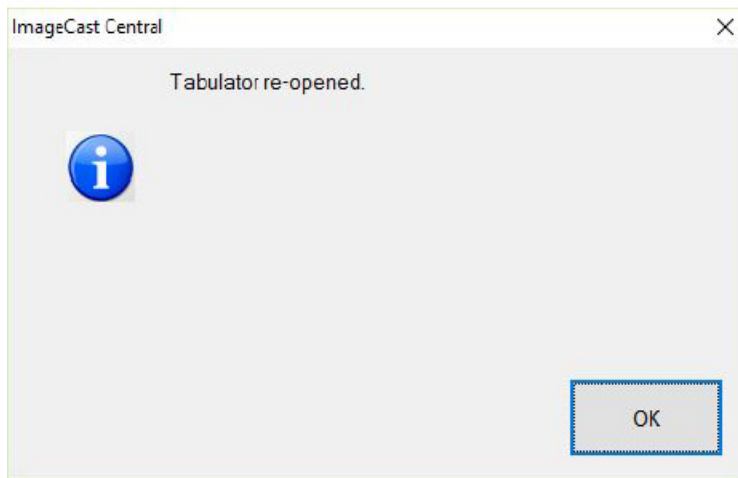


Figure A-12: Tabulator Re-opened Message

After selecting RE-OPEN TABULATOR and confirming your choice by clicking OK, the following message appears and confirms that the tabulator has been successfully reopened. For further information, refer to “Re-opening the Tabulator” on page 23.

A.1.13 Exit

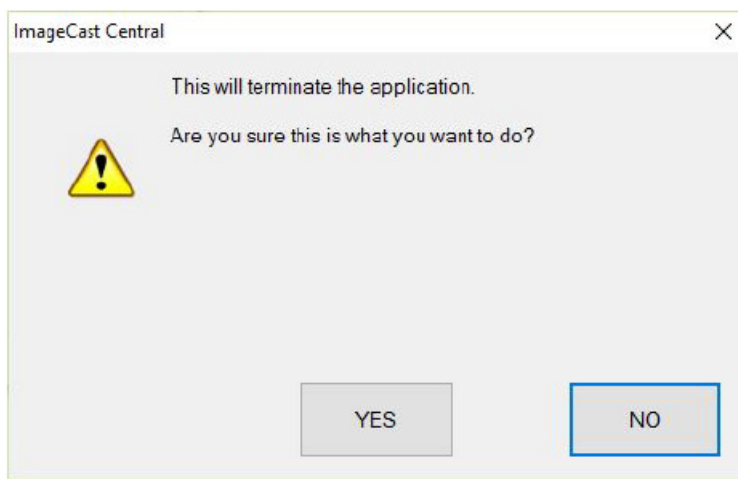


Figure A-13: Exit Prompt

This prompt displays after clicking Exit button or clicking X at the top right of the screen. If it was pressed by accident, click No to continue scanning. Otherwise, click Yes to close the tabulator. For further information, refer to “Closing the Tabulator” on page 17.

A.1.14 Scanner Resetting Itself

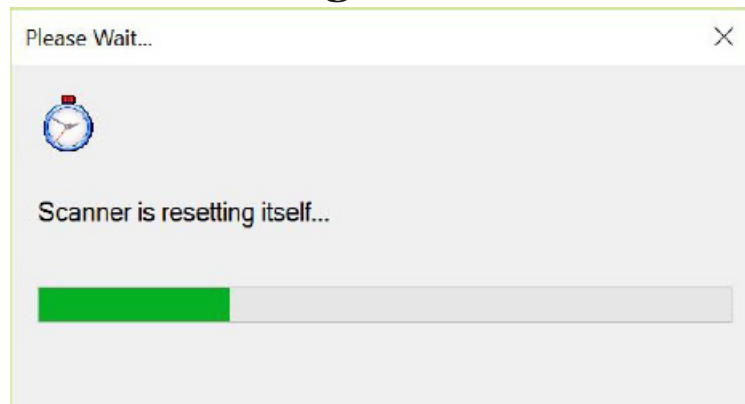


Figure A-14: Scanner Resetting Itself Message

This window appears after all ballots have been scanned or when the application encounters a stop flag.

A.2 Ballot Scanning Error Messages

NOTE: Ballots that cause any of the following scanning errors are saved as images in the project folder,

e.g. C:\dvs\project\NotCastImages for further examination or adjudication.

A.2.1 Ambiguous Ballot

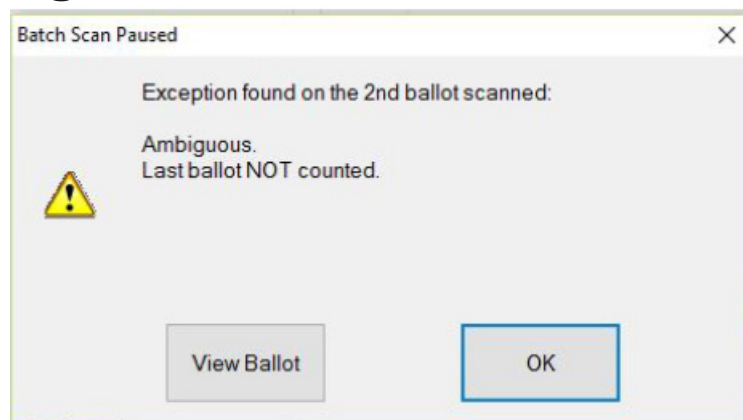


Figure A-15: Ambiguous Ballot Message

This message 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. Please refer to “Scanning and Accepting Ballots” on page 24 for more information and to “Scan Options” on page 7 for information on setting ballot exceptions.

A.2.2 Blank Ballot

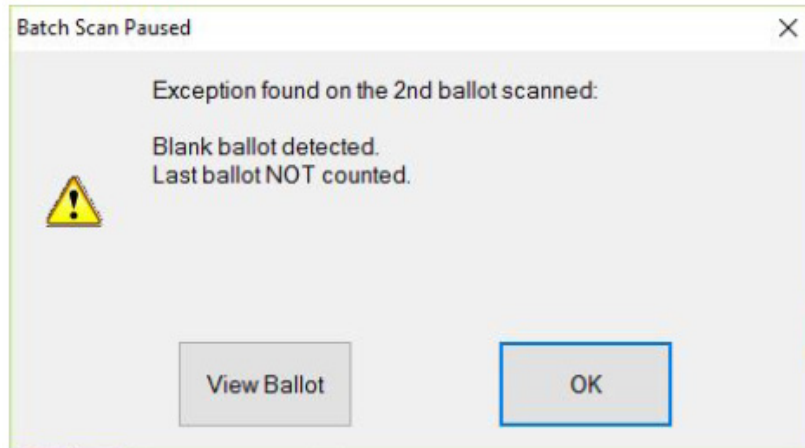


Figure A-16: Blank Ballot Message

This message may display during scanning. It informs the user that a blank ballot has been detected and the number of ballots that have not been counted as a result of the blank ballot. Please refer to “Scanning and Accepting Ballots” on page 24 for more information and to “Scan Options” on page 7 for information on setting ballot exceptions.

A.2.3 Overvoted Ballot

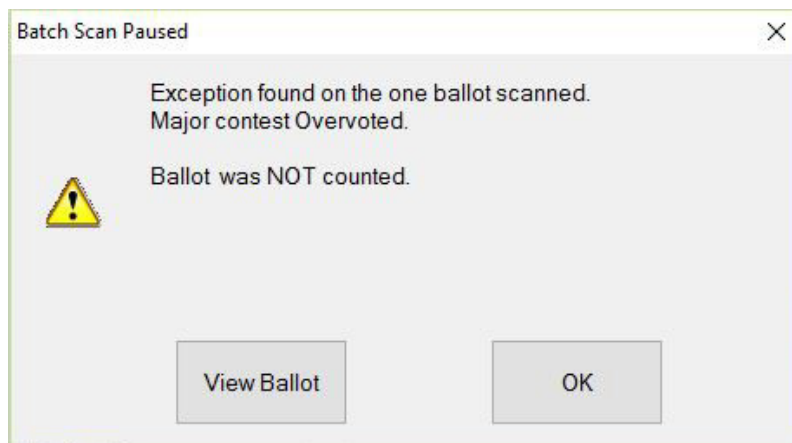


Figure A-17: Overvoted Ballot Message

This message may display during scanning. It informs the user that an over-voted ballot has been detected and the number of ballots that have not been counted as a result of the overvoted ballot. Please refer to “Scanning and Accepting Ballots” on page 24 for more information and to “Scan Options” on page 7 for information on setting ballot exceptions.

A.2.4 Undervoted Ballot

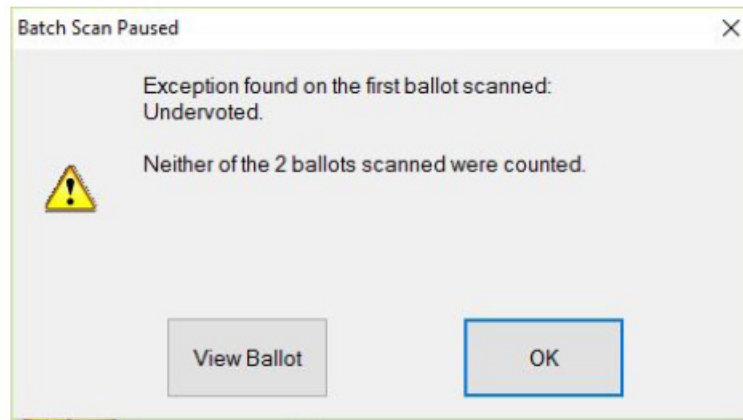


Figure A-18: Undervoted Ballot Message

This message may display during scanning. It informs the user that an undervoted ballot has been detected and the number of ballots that have not been counted as a result of the under-voted ballot. Please refer to “Scanning and Accepting Ballots” on page 24 for more information and to “Scan Options” on page 7 for information on setting ballot exceptions.

A.2.5 Write-in Ballot

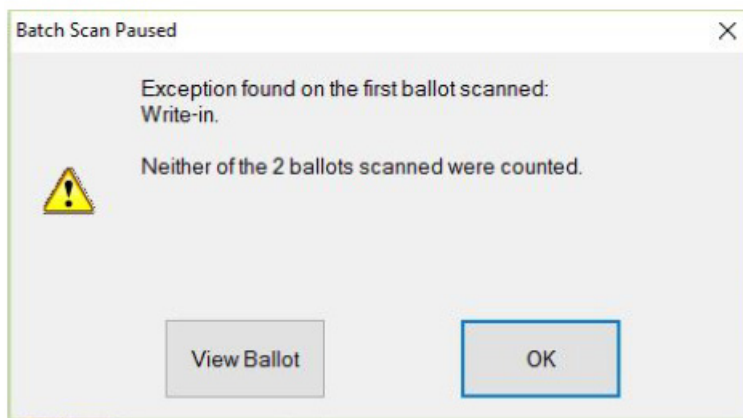


Figure A-19: Write-in Ballot Message

This message may display during scanning. It informs the user that a write-in has been detected and the number of ballots that have not been counted as a result of the write-in. Please refer to “Scanning and Accepting Ballots” on page 24 for more information and to “Scan Options” on page 7 for information on setting ballot exceptions.

A.2.6 Invalid Ballot

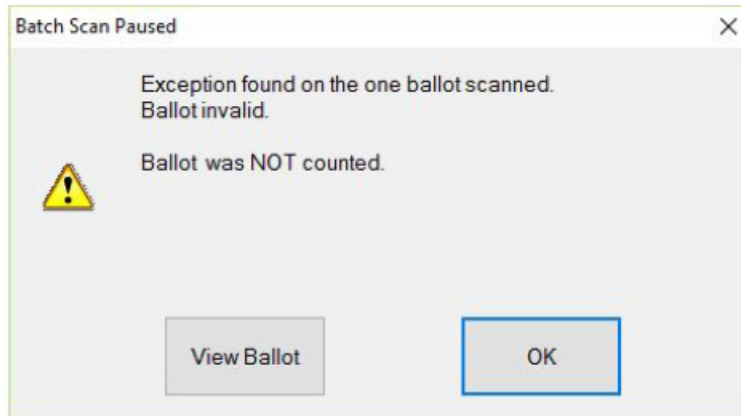


Figure A-20: Invalid Ballot Message

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.

A.3 General Error Messages

A.3.1 Local Configuration Path Error

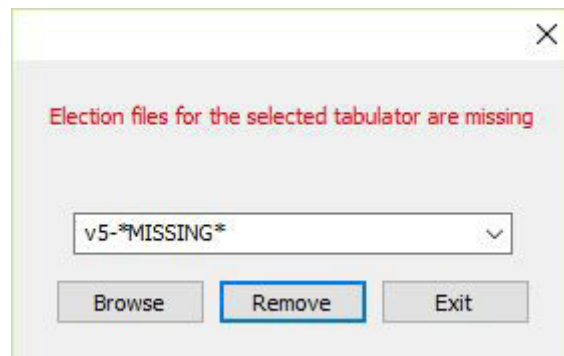


Figure A-21: Local Configuration Path Error Message

If this prompt appears when opening the application, the Project Paths have been misconfigured. Ensure sure the project is physically residing at the location where it was first imported.

A.3.2 Incorrect Passcode

If one of the following messages appear, you may have entered an incorrect passcode and should check with an election official to ensure you have received the correct passcode.

If the error persists after checking the passcode, the incorrect iButton security key may have been inserted. Please ensure 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.

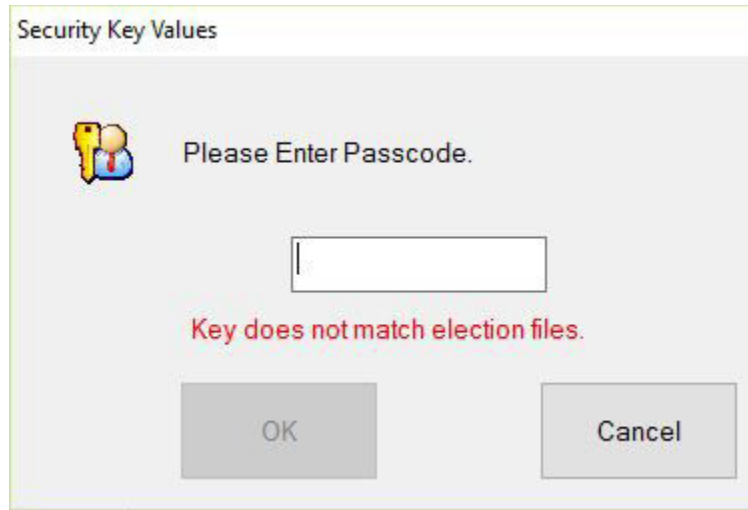


Figure A-22: Key does not match election files

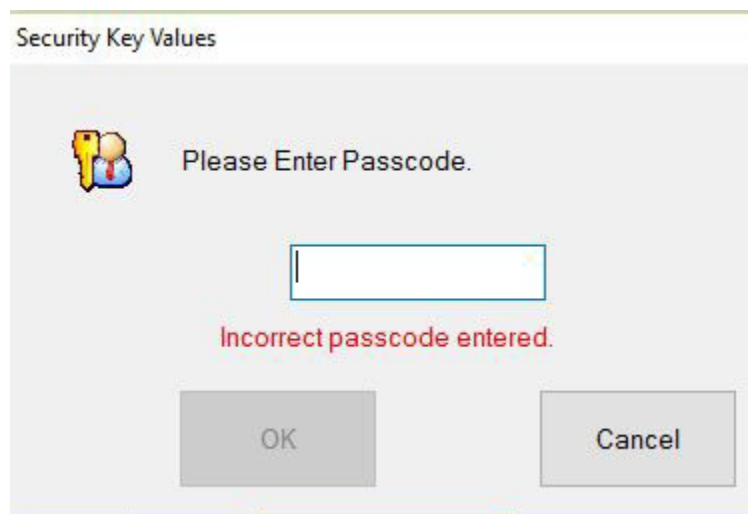


Figure A-23: Incorrect passcode entered

A.3.3 Reports by Precinct Unavailable

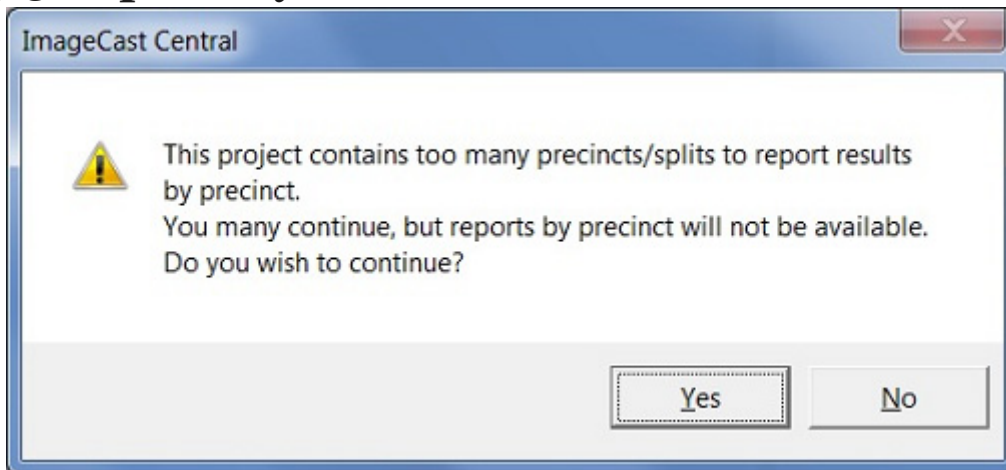


Figure A-24: Reports by Precinct Unavailable Message

This prompt appears when opening the application if the election files contain too many precinct for the results to be reported on a precinct-by-precinct basis. Reporting by precinct is mandatory in some jurisdictions. Consult your local procedures before continuing.

If reporting by precinct is not required in your jurisdiction, click Yes. Otherwise, click No and consult with a local election official.

A.3.4 Canon Scanner Paper Jam

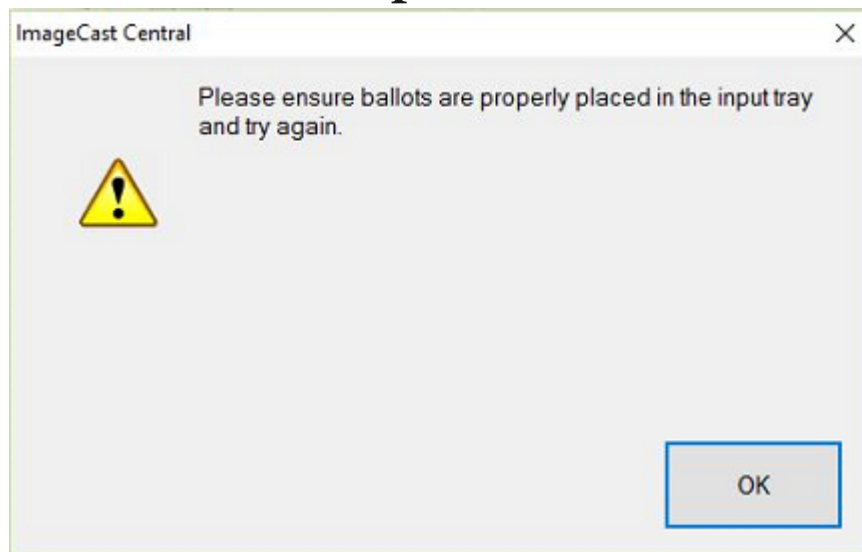


Figure A-25: Canon Scanner Paper Jam Warning

This warning appears when a paper jam occurs at the Canon scanner. Clear the scanner path and reattempt to scan the batch.

A.3.5 InterScan Scanner Paper Jam

The following warning appears when a paper jam occurs when using the InterScan scanner.

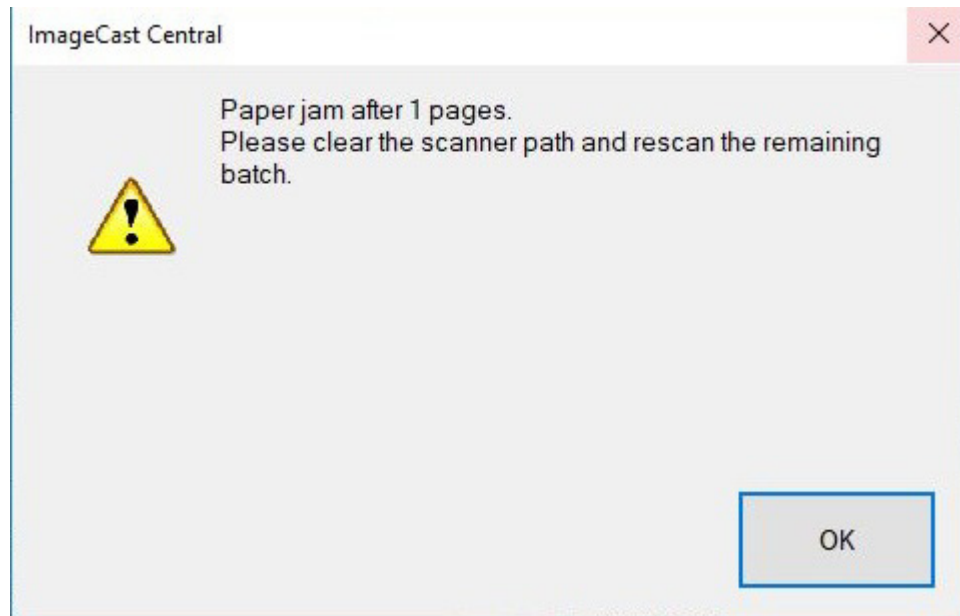


Figure A-26: InterScan Scanner Paper Jam Warning

To resolve the issue:

1. Click **OK**.
2. Clear the scanner path.
3. Continue scanning the batch.

A.3.6 Canon Scanner Double Feed

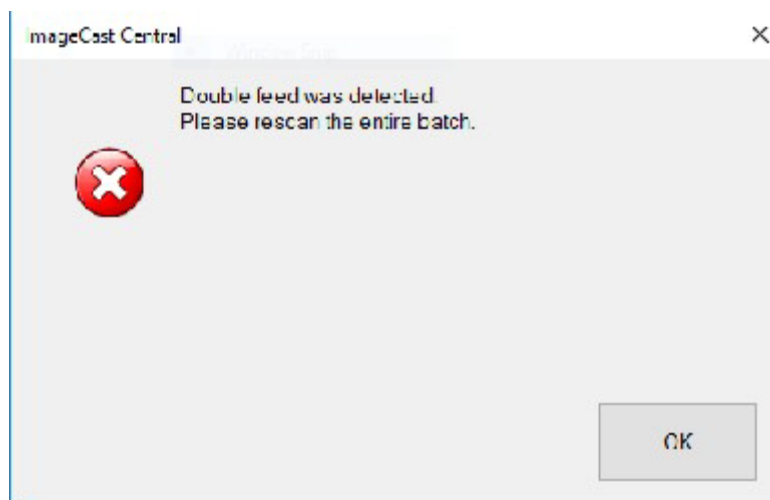


Figure A-27: Canon Scanner Double Feed Error

This error appears when the scanner detects a double feed during scanning. Rescan the entire batch.

A.3.7 InterScan Scanner Double Feed when Accepting a Batch

The following warning appears when attempting to accept a batch after a double feed occurred on a InterScan scanner.

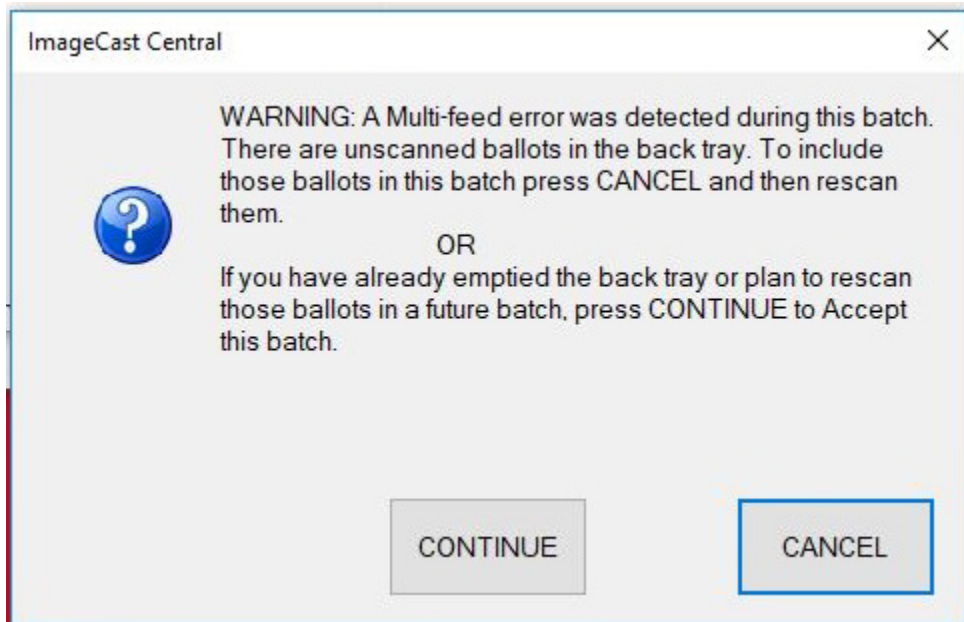


Figure A-28: InterScan Double Feed Warning when Accepting a Batch

To resolve the issue by not accepting the batch:

1. Click Cancel.
2. Scan the ballots in the back tray.
3. Accept the batch again.

To resolve issue by accepting the batch:

1. Click **Continue**.
A confirmation message appears.

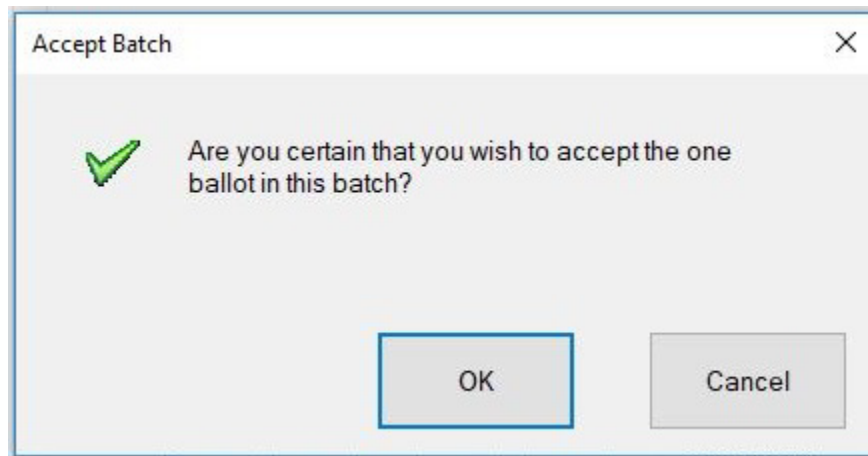


Figure A-29: Confirmation Message

2. Click **OK**.

A.3.8 InterScan Scanner Double Feed when Discarding a Batch

The following warning appears when attempting to discard a batch after a double feed occurred on a InterScan scanner.

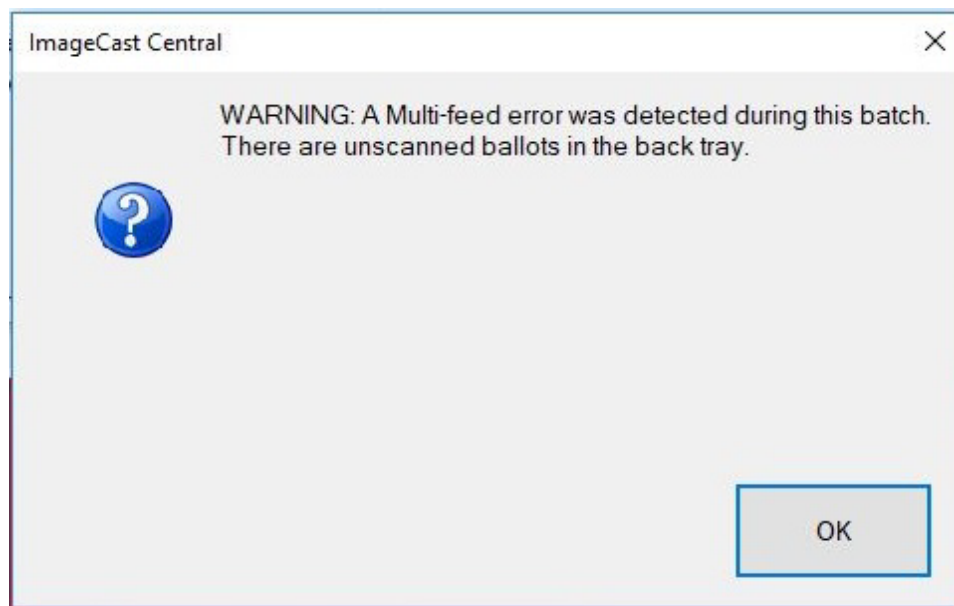


Figure A-30: InterScan Double Feed Warning when Discarding a Batch

To resolve the issue:

1. Click **OK**.

A confirmation message appears,

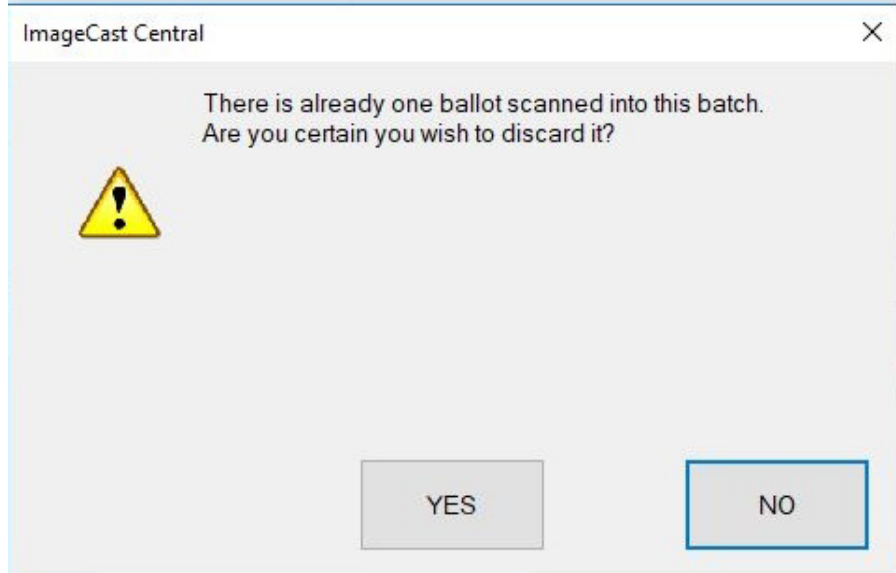


Figure A-31: Confirmation Message

2. Click **Yes**.

A.3.9 Insert Ballots

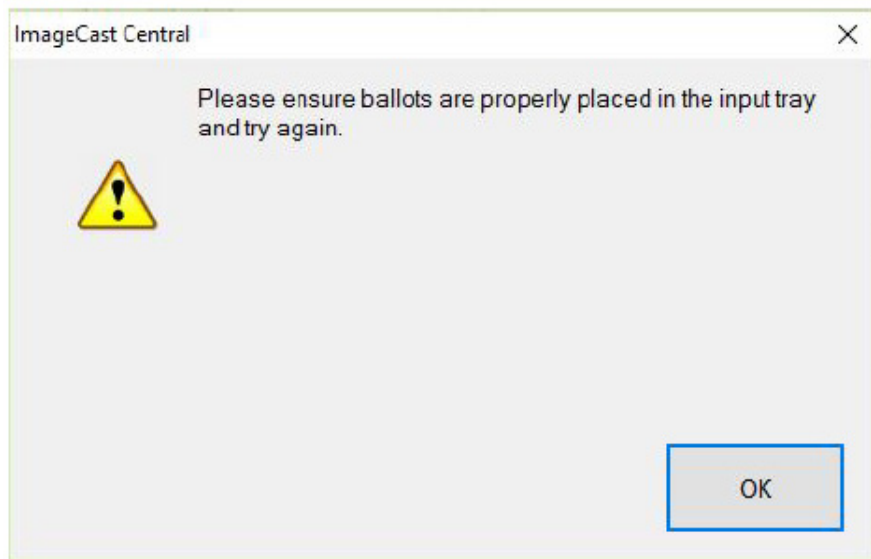


Figure A-32: Insert Ballots Message

This message appears when you attempt to scan ballots before they have been loaded into the scanner.

Click OK, load the ballots into the tray, and click Scan.

A.3.10 Reinitialize Poll State

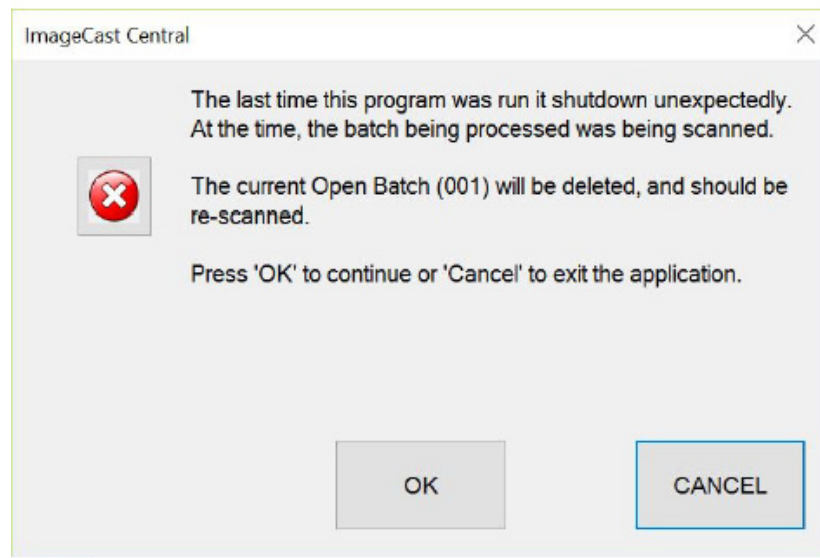


Figure A-33: Reinitialize Poll State Message

This message appears when the User attempts to re-start the ImageCast Central application after an unexpected ICC shutdown. The message indicates that there is an inconsistency due to an unexpected shutdown of previous a session and it will provide information as to what needs to be done to proceed. Consult with a technician before proceeding. Click OK only after consulting a technician to avoid the loss of previously scanned results.

A.3.11 ICC Unable to Save Images Due to Lack of Physical Memory

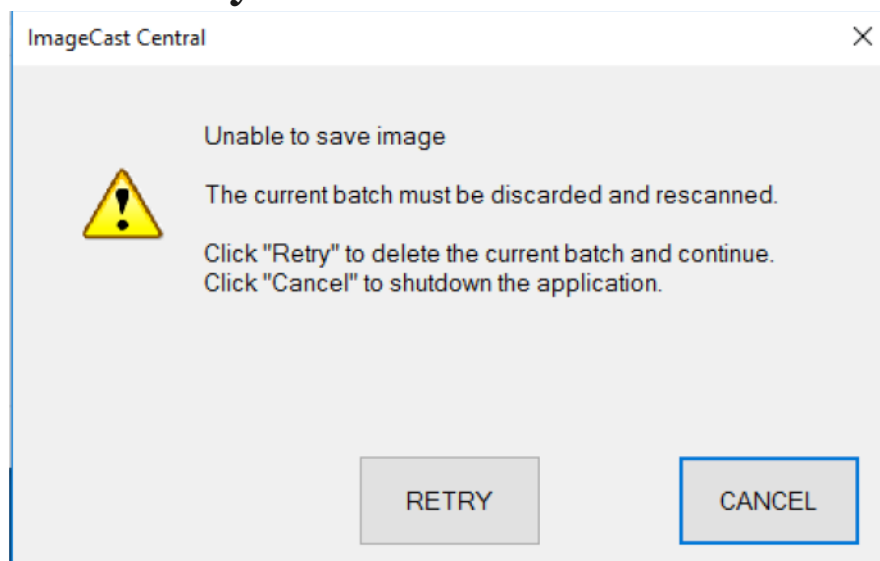


Figure A-34: Unable to Save Images

This message appears when images are being scanned and the ICC's physical memory is full. New images cannot be saved. Click Retry to delete the current batch.

A.4 ISIS Error Recovery

During scanning, the message "Unknown ISIS error" may appear. This message indicates there is an error that the scanner interface could not interpret. Typically, it indicates a communication issue with the scanner itself.

This message is typically resolved with a power cycle. Perform the following steps:

1. Delete the batch, so it can be rescanned again afterwards.
2. Shut down the ICC application. This will also close the scanner interface.
3. Power down the ICC workstation.
4. Power down the scanner, wait 10 seconds, and power the scanner back on again.
5. Once the scanner is powered back on, power on the workstation, and open the ICC application.
6. Rescan the aforementioned batch.

If the ISIS error persists, a re installation of the scanner driver may be necessary:

1. Delete the batch, so it can be rescanned again afterwards.
2. Shut down the ICC application. This will also close the scanner interface.
3. Right-click the Windows icon in the bottom left corner of the screen, and click Control Panel.
4. Click Devices and Printers.
5. Right-click the scanner entry corresponding to the currently connected scanner, and click Remove Device.
6. Follow the prompts to complete the device removal.
7. Disconnect the scanner's USB cable from the ICC workstation, wait 10 seconds, and then reconnect it.
8. Wait until the scanner has been reinstalled (may take as much as 30 seconds), then open the ICC application.
9. Rescan the aforementioned batch.

If this error occurs repeatedly, contact Dominion Voting Systems for technical support. Such errors may indicate that the scanner requires servicing.

APPENDIX B: SCANNER IMAGES

B.1 Canon DR-G1130

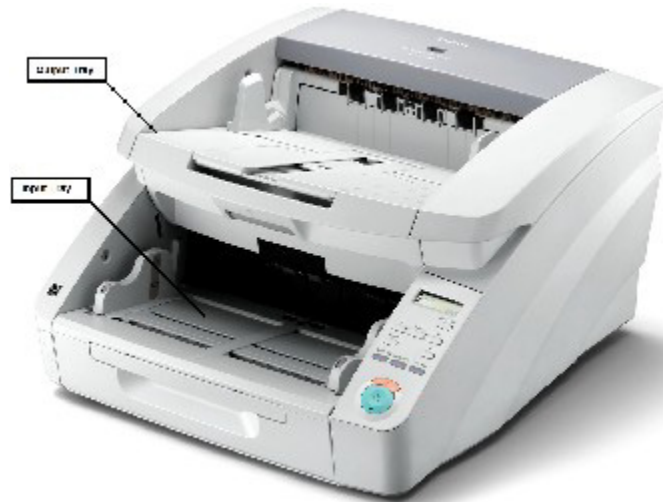


Figure B-1: Canon DR-G1130 scanner

Ballots are inserted into the input tray at the bottom of the scanner and exit into the output tray at the top of the Canon DR-G1130.

B.2 Canon DR-G2140



Figure B-2: Canon DR-G2140 scanner

B.3 Canon DR-M160II



Figure B-3: Canon DR-M160II scanner

Ballots are inserted into the input tray at the top of the scanner and exit into the output tray at the bottom of the Canon DR-M160II.

B.4 Canon DR-M260



Figure B-4: Canon DR-M260 scanner

B.5 Canon DR-X10C



Figure B-5: Canon DR-X10C scanner

Ballots are inserted into the input tray at the bottom of the scanner and exit into the output tray at the top of the Canon DR-X10C.

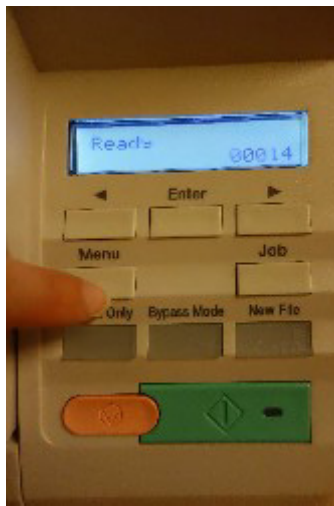


Figure B-6: Canon DR-X10C user interface

B.6 InterScan HiPro

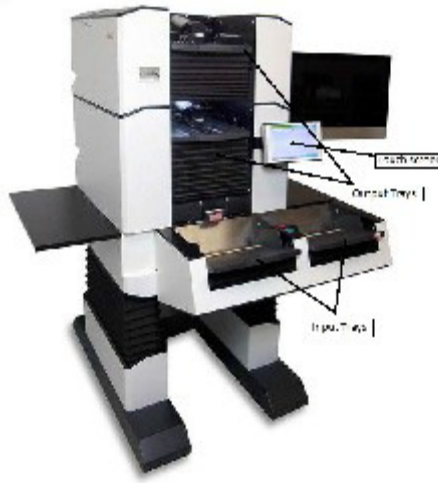


Figure B-7: InterScan HiPro scanner

Ballots are inserted into one of the the input trays at the bottom of the scanner and exit into one of the output trays at the top of the interScan HiPro.

REVISION HISTORY

Rev	Date	Author	Summary
3	05-28-2019	brian.fitzsimmons	Content revised throughout document to address TDP discrepancies
2	04-17-2019	brian.fitzsimmons	Content revised throughout document to address TDP discrepancies
1	03-07-2019	blair.beauchesne	Branched to 5.11

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