

4.5 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 the election project that is to be used in the real election and 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 & 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.

4.5.1 Pre-Conditions for Performance of Tests

Get the media and other artifacts ready (if not provided by Dominion Voting), same as was done in the readiness testing. See 4.2.1 “*Performing the Pre-Voting Phase Readiness Test*” for more details.

4.5.1.1 Restore Election Project

Prior to beginning an L&A testing, the administrator needs to restore the election project (see section 12.2.2 “*Restore of Election Project*”).

4.5.1.2 Opening an Election Project

1. In the EED navigation, click **Election Project**.
2. Click **Open Project**
3. On the Open Project dialog, select your election project and click **OK**.
4. On the Login dialog, enter the username and password.
The dialogs close and the project opens.

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

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 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 ICC tabulator for use as per the procedures outlined below.
 - a. On the Configuration menu, click the Scan Options button.
 - b. With the Scan Options dialog box displayed, select the option to "Stop Scan on" on ambiguous marks.
2. Return to the Scanning menu and start scanning ballots.
 - a. In order for the test to pass, there should not be stoppages due to ambiguous marks.
 - b. If the scanner is stopping due to the ambiguous marks, troubleshoot the scanner (see section F.3.1.1 “*Ambiguous Errors*”)

For detailed instructions, see section (see section 4.5.2.1 “*ImageCast® Central Logic & Accuracy Testing Procedure*”)

4.5.1.4 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 the 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 & 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 and VoteSims 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 and VoteSims 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.

4.5.1.5 Cleaning the USB Device

To clean a USB device:

1. On the Reformatting workstation, insert the USB device into the USB port.
2. On the Windows Explorer dialog, in the left-hand pane, navigate to the USB device, right-click and then select **Scan with Windows Defender**.

3. On the Windows Defender Security Center dialog, choose **Custom scan**, and then click **Scan now**.
4. Safely remove the USB device.
5. Close any open dialogs.

4.5.1.6 Backup of Election Project

Ensure that the EMS Administrator has backed up Election Project (see section 12.2.1 “*Backup of Election Project*”) prior to starting the logic & 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.

NOTE: Do not rename the project backup package.

4.5.2 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: The example of Logic & Accuracy testing is described in the subsections below. This procedure assumes that EMS Adjudication application is a part of the Democracy Suite® configuration and workflow.

- Logic & accuracy testing should include the same steps as if running a real election.
- 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 selected 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.
- The administrator must backup all results following the successful logic & accuracy test.
- 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.

- 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.

NOTE: The example of logic & accuracy testing is described in the subsections below. This procedure assumes that write-in adjudication is not allowed prior to the election day and that EMS Adjudication application is a part of the Democracy Suite[®] configuration and workflow. 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 RTR application.

4.5.2.1 ImageCast[®] Central Logic & Accuracy Testing Procedure

This section describes the logic & accuracy testing procedure for the ImageCast[®] Central 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 (see section 7.2 “*Setting up the ImageCast[®] Central Workstation and Scanner*”) to load election files. If the ICC workstation is already set up, continue with the next step.
2. The election administrator will need to copy sets of ICC election files from the EMS server to the ICC workstations (see section 12.4 “*Preparing ImageCast[®] Central Election Files for the ImageCast[®] Central Workstation*”) and prepare each set of election files to be loaded on ICC workstations.

NOTE: If the election project has been prepared by the Dominion Voting Systems, 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 labeled iButton (see section D.2.7.2 “*Programming of iButton Security Key*”) that corresponds to the election project.

4. The election administrator will need to deploy election files to be tested, by copying the contents of the prepared files in section 12.4 “*Preparing ImageCast® Central Election Files for the ImageCast® Central Workstation*” to "C:\DVS" (if you are installing multiple projects on one ICC workstation, then subfolders, named by project, should be created within the DVS folder to differentiate between the projects, and election files copied into corresponding project folders).
5. Open ICC application (see section 7.4 “*Opening ImageCast® Central Application*”)
6. Generate the Zero report (see section 7.12.2 “*Producing Reports from the ImageCast® Central System*”) selecting Show Results under the Status icon.
7. Configure the server path (see section 7.5 “*Configuring the Local and Remote Path for Saving Results*”) the ICC tabulator to enable the automatic loading of results into RTR. Set the secondary path to the appropriate EMS NAS location (EMSSERVER\NAS\PROJECT_NAME) and enable automatic loading of results in the RTR (see section 8.2.2 “*Enable Automatic Results Loading to RTR*”) application. Once the ICC starts scanning ballots, it will automatically create the Results folder within that location to store the results. Within this Results folder, there will be separate folders for tabulators and then batches.
However, if setting the secondary path for an ICC tabulator that will be set to skip adjudication on Election Day, then set the path to a local folder (see section 7.5 “*Configuring the Local and Remote Path for Saving Results*”) marked as write-in tabulator folder.
8. In the ICC application, access Supervisor mode (see section 7.6 “*Accessing Supervisor Mode*”).
9. Set Scanner Properties (see section 7.6.1 “*Setting Supervisor Options*”) and ICC Scan Options (see section 7.6.3 “*Configuring Scan Options*”).
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 undergoing testing. For more information, please see *Democracy Suite® ImageCast® Central Installation and Configuration Procedure*, section 12.3 Running the ImageCast® Central Application.
11. Tabulate the pre-marked test Deck of ballots onto the ICC (see section 7.8 “*Scanning Mode*”).
12. To switch between ICC tabulators deployed on a single ICC workstation, use the Project Management utility (see section 7.13 “*Loading Election Files for a New Tabulator*”) within the ICC Application.
13. Close the tabulator (see section 7.12.1 “*Closing the ICC Tabulator*”).

14. Generate results report (see section 7.12.2 “*Producing Reports from the ImageCast[®] Central System*”).
15. Exit the ICC application by clicking the EXIT button. The confirmation dialog will appear. Click YES to exit the application.
16. Have the administrator back up the entire DVS directory (see section 12.5 “*Managing ImageCast[®] Central Tabulator Folders*”).
17. Complete the test for each ICC tabulator defined in the election project.
18. For each tabulator tested confirm that the tabulator-level result reports match the expected results from the pre-marked test deck.
19. Open the RTR application.
20. Open the appropriate Election Project (see section 8.2.1 “*Open Project*”) and enter your login credentials.
21. Load the results files (see section 8.2.3 “*Loading Results from Card Management*”), audit log files and result images (if enabled and required) from the ICC tabulators into the RTR application.

The results for tabulators that have the secondary path set to the EMS server, and automatic loading of results enabled in the RTR application, will automatically be loaded into RTR. However, for tabulators that have only an alternative secondary/ server path set, which may be the case for ICC tabulators set to skip adjudication on Election day, then the results will need to be loaded manually. When loading these results, ensure that the Skip Adjudication check box is selected. Once all result files are uploaded, return here and continue with the next step.

22. Validate and publish results (see section 8.2.5 “*Validate and Publish Results*”) files in the RTR application.
23. Create the Election Summary Report (see section 8.2.6 “*Election Night Summary Report - Election Day Report*”).
24. Confirm that the results from the election summary report from RTR match the tabulator summary reports and the expected test deck results.

25. 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. After completing the logic & accuracy test for ICE, ICP2 and ICC (explained in the following section), results will be adjudicated and verified.

4.5.2.2 ImageCast[®] Evolution Logic and Accuracy Test Procedures

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).

This section describes the logic & accuracy testing procedure for the ImageCast[®] Evolution 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: Initially, the results will be loaded into RTR with Skipped Adjudication option selected and the election summary report will be run (simulating election night reporting). Then, if using adjudication, the originally imported results for such tabulators will be reset in RTR. The ballots will then be adjudicated and canvass reports will be produced. After testing is complete, the CF cards used will be re-zeroed and stored for later use in official ballot processing.

1. In EED, create the CF cards (see section D.2.7.1 “*Programming of CF/SD Cards*”) and corresponding iButton (see section D.2.7.2 “*Programming of iButton Security Key*”) for ICE to be tested.
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 3.4.2 “*ImageCast[®] Evolution Acceptance Testing*”.
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 3.4.2 “*ImageCast[®] Evolution Acceptance Testing*”.
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 3.4.2 “*ImageCast[®] Evolution Acceptance Testing*”.
5. Confirm that the date and time are displayed correctly on the lower left section of the ICE LCD screen.
6. Open the polls (see section 6.3 “*Opening the Polls*”).
7. 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 jurisdiction's procedures.

8. Start an accessible voting session (see section 6.6.1.1 “*Provisional Voting Using the Accessible Voting Features of the ImageCast[®] Evolution*”) 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.
9. After all ballots have been tabulated and an accessible voting session has been completed, insert the iButton security key and close the polls.
10. Allow the two result tapes to print and confirm that you do not need another copy.
11. Power down the unit by pressing the Shut Down icon at the top-right corner of the screen.
12. 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 RTR.
13. For each tabulator tested, confirm that the tabulator-level result reports match the expected results from the pre-marked test deck.
14. Open the RTR application.
15. Open the appropriate election project (see section 8.2.1 “*Open Project*”) and enter your login credentials.
16. Load the results files (see section 8.2.3 “*Loading Results from Card Management*”), audit log files and result images (if enabled and required) from ICE tabulators, ensuring that adjudication is skipped. Once all result files are uploaded, return here and continue with the next step.
17. Validate and publish (see section 8.2.5 “*Validate and Publish Results*”) results files in the RTR application.
18. Create the Election Summary Report (see section 8.2.6 “*Election Night Summary Report - Election Day Report*”).
19. Confirm that the results from the election summary report from RTR matches the tabulator summary reports and the expected test deck results.
20. 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.

4.5.2.3 ImageCast[®] Precinct 2 Logic and Accuracy Test Procedures

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).

This section describes the logic & accuracy testing procedure for the ImageCast® Precinct 2 tabulators. The procedure consists of loading election files to an ICP2 tabulator and testing of these election files by scanning ballots and verifying the reports in RTR. This procedure is repeated for each ICP2 tabulator programmed in the election project.

NOTE: Initially, the results will be loaded into RTR with Skipped Adjudication option selected and the election summary report will be run (simulating election night reporting). Then, if using adjudication, the originally imported results for such tabulators will be reset in RTR. The ballots will then be adjudicated and canvass reports will be produced. After testing is complete, the SD cards used will be re-zeroed and stored for later use in official ballot processing.

1. In EED, create the SD cards (see section D.2.7.1 “*Programming of CF/SD Cards*”) and corresponding iButton (see section D.2.7.2 “*Programming of iButton Security Key*”) for ICP2 to be tested.
2. Insert the memory card containing the election project into the SD1 card slot of the ICP2 tabulator, and the initialized backup memory card into the SD2 card slot on the tabulator.
3. Power up the ICP2 tabulator. (see section 6.2.2.4 “*Powering Up the Tabulator*”)
4. When prompted by the LCD screen, insert the iButton Security Key and enter the appropriate password. Confirm that the date and time are displayed correctly on the lower left section of the ICP2 LCD screen.
5. Open the polls. (see section 6.2.2.9 “*Ballot Review*”)
6. Prepare the ICP2 for scanning by activating the Standard Voting session
7. Tabulate the pre-marked test deck of logic & accuracy testing ballots into the ICP2 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 DSD/MBS that were set according to jurisdiction's procedures.

8. After all ballots have been tabulated, apply the iButton security key and close the polls (see section 6.9.1 “*Operating the ImageCast® Precinct 2 on Battery*”).
9. Allow the two result tapes to print and confirm that you do not need another copy.
10. Power down the unit. (see section 6.7.2.1 “*Powering Down the Tabulator*”)
11. Open the SD1 and the SD2 card slot doors, and remove both cards from the tabulator. Set the cards aside, noting which tabulator they were retrieved from. These cards will be used for tally in RTR.

12. For each tabulator tested, confirm that the tabulator-level result reports match the expected results from the pre-marked test deck.
13. Open the RTR application.
14. Open the appropriate election project (see section 8.2.1 “*Open Project*”) and enter your login credentials.
15. Load the results files (see section 8.2.3 “*Loading Results from Card Management*”), audit log files and result images (if enabled and required) from ICP2 tabulators, ensuring that adjudication is skipped. Once all result files are uploaded, return here and continue with the next step.
16. Validate and publish (see section 8.2.5 “*Validate and Publish Results*”) results files in the RTR application.
17. Create the Election Summary Report (see section 8.2.6 “*Election Night Summary Report - Election Day Report*”).
18. Confirm that the results from the election summary report from RTR matches the tabulator summary reports and the expected test deck results.
19. 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.

4.5.2.4 ImageCast® X Logic and Accuracy Test Procedures

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

This section describes the logic and accuracy testing procedure for the ICX tabulators. The procedure consists of loading election files to an ICX tabulator and testing by scanning the printed ballots in ICC, ICE or ICP2 and verifying the reports in RTR. This procedure is repeated for each ICX tabulator programmed in the election project under Tabulators

1. Program the USB drives and corresponding Smart Cards for the ICX to be tested.
2. Burn the technician Smart Card for accessing the technician menus.
3. Burn the poll worker Smart Card (see section D.2.7.4 “*Program USB flash drive for Election File programming group*”) for logging into ICVA application and accessing the poll worker menus in the ICX.
4. Power up the ICX by pressing the power button. For more details on how to do this, please see step 5 and 6 in section 3.4.5 “*ImageCast® X Acceptance Testing*”.
5. Insert the technician smart card and log in. For more details on how to do this, please see step 8 and 9 in section 3.4.5 “*ImageCast® X Acceptance Testing*”.
6. Confirm or modify the date and time. For more details on how to do this, please see step 10 in section 3.4.5 “*ImageCast® X Acceptance Testing*”.
7. Insert the USB stick containing the election project into the available USB slot card slot of the ICX tabulator and load election files. For more details on how to do this, please see steps 11 and 12 in section 3.4.5 “*ImageCast® X Acceptance Testing*”.
8. Open the polls (see section 6.4.3 “*Standard Voting on ICX*”)
9. Log into the ImageCast® Voter Activation (ICVA) application on the ICVA workstation and import activation codes (see section D.4 “*Importing Activation Codes to the ImageCast® Voter Activation Application*”) (if not done already).
10. Program a voter activation Smart Card (see section D.5 “*Programming of Voter Activation Smart Card*”) for activating the voting session for the tabulator tested.
11. Use the voter activation Smart Card to produce marked ballots according to the predefined pattern for logic & accuracy testing. Repeat the process as many times as there are ballots to be marked.

NOTE: Please note and confirm the tabulators' handling of any exception ballots per MCF that were set according to jurisdiction's procedures.

12. Program a voter activation Smart Card (see section D.5 “*Programming of Voter Activation Smart Card*”) with Accessible Voting Session enabled 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.
13. Close the poll (7.12.1 “*Closing the ICC Tabulator*”) and power down the unit by selecting "Power Off" option at the bottom right of the poll worker or Technician menus.
14. Feed all of the printed Electronic Mobile Ballots to either ImageCast[®] Evolution, ImageCast[®] Precinct 2 (4.2.2.1 “*Voting Phase Readiness Testing ImageCast[®] Evolution*”) or ImageCast[®] Central (4.2.2.2 “*Voting Phase Readiness Testing ImageCast[®] Central*”) scanners/tabulators.
15. Continue the procedure for the appropriate scanning/tabulation device. (

4.5.2.5 ImageCast X Vote Simulator

The Vote Simulator is a Logic and Accuracy test created with the purpose of verifying that the pre-defined patterns are read and tabulated correctly.

In order to run the Vote Simulator a valid test pattern file is required.

The Vote Simulator is to be run before the ImageCast[®] X machine is put in production on the day of the election.

The simulation is performed by loading an XML file and ImageCast[®] X election files provided by Dominion Voting. Should there be a requirement for personalized data, the XML file can be edited manually.

The following steps need to be taken in order for the Vote Simulator to perform a valid test:

1. Turn on the ImageCast[®] X.
2. Insert the USB stick provided by Dominion Voting.
3. To copy the necessary files from the USB stick, Log in as a Technician by inserting the Technician card.
The **Administrator Login** screen displays allowing the technician to enter their PIN.
4. In **The election configuration files on USB drive** dialog the Technician chooses the needed file and copies the data to the ImageCast[®] X device.

a. Press **Select**.

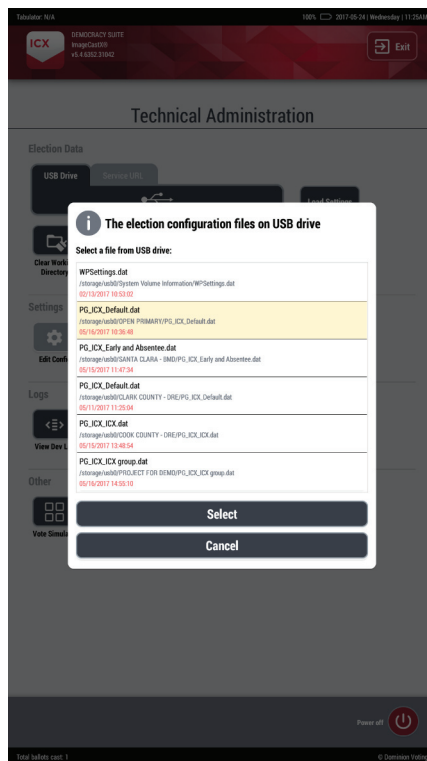


Figure 4-1: USB Drive containing Election Files and the Copy/Cancel Election Files Dialog

b. On the **Confirm** dialog, press **Copy**.

Having completed this portion, decrypt the election files.

To decrypt the election files:

1. Enter the Poll Worker card and enter the PIN.
The election file decryption begins and, when completed, the Poll Administration panel is accessible to the Poll worker.
2. Select the appropriate Tabulator.
Only one Tabulator should be chosen.
3. Once the Tabulator validation is completed, press **Open Poll**.
4. To confirm the selection, on the **Info** dialog, press **Yes**.

Once the Poll is Open, the Poll worker will be prompted to **Print the Zero** report in order to confirm that the ImageCast[®] X device is prepared for the Vote Simulation, and that no redundant files remain on the device.

To print the zero report:

1. On the Poll Administration screen, press **Print zero report**.
The **Print zero report** dialog appears.
2. Remove the Poll worker card and insert the Technician card and PIN.
After the Technician Administration screen is presented, a Warning dialog displays advising the user that the Administrative menu is unavailable while the Poll is open.
NOTE: In order to proceed the Poll MUST remain OPEN.

All options except Hardware Details, Brightness, the Hardware Test and the Vote Simulator are grayed out and cannot be selected.

3. Press **Vote Simulator**.
The **Voting Test** screen displays.

On the **Voting Test** screen, the user has the following options to choose from:

- Print votes on the VVPAT - ON/OFF - default OFF
- Animations enabled - ON/OFF - default OFF
- View ballots being marked - ON/OFF - default OFF

NOTE: The available options are enabled depending on the Automated Test Deck file provided for the testing.

If the **View ballots being marked** box is checked, the ballots will be marked on-screen, if the Test Deck file supports it.

If the **View ballots being marked** box is unchecked, a Progress bar displays.

NOTE: Be advised that the settings available on the Vote Simulator start screen are independent from the MCF, so any settings for the Vote Simulator can be manipulated from the Vote Simulator start screen exclusively.

To start the Vote Simulator Test:

1. Press the **Load Test Pattern**.
2. In **The test configuration files in USB drive** dialog, navigate to the XML file needed.
The XML files are copied over to the ImageCast[®] X.
The XML files are then validated, and the Technician can proceed to set the Test parameters as needed.

NOTE: "Number of repetitions" refers to the whole pattern.

3. Remove the Technician card and insert the Voter card.

The Vote Simulation Test can commence.

NOTE: The Voter card has to remain inserted through the duration of the entire test. If you decide to end the test, prior to completion, simply remove the Voter card. The Vote Simulator Superman is available for both the DRE and BMD modes of operation.

Should an issue occur while printing the BMD Paper Ballot, the User will receive the following error: "Check the printer. If the ballot has been printed, please discard it, otherwise, press Cancel on the printer control panel."

If the ballot does not exit the printer once this error message is shown, the user is advised to check for potential paper jams, and to resolve the issue accordingly.

4.5.2.6 Mobile Ballot Production Logic and Accuracy Test Procedures

Loading Election Files

The ballot definition data will be exported from Election Event Designer to a USB device and then transferred to a Mobile Ballot Production (MBP) workstation.

To export a project data file:

1. Insert a clean USB device into a USB port.
2. On the Printing Configuration dialog, complete the following:
 - Specify the number of copies to print for the selected ballot.
3. Expand the Election Project menu on the top toolbar, click **Export**, and then select **Mobile Ballot Production Project**.
The Export MBP Data dialog opens.

NOTE: If an External ID warning dialog opens, click **OK**.

4. On the Export MBP Data dialog, complete the following:
 - Ensure the Include ballots in the archive and Include ballots with stubs checkboxes are selected
 - Select the **Protect the archive with a password** checkbox
 - Enter a password and re-enter the same password
 - Click **Continue**.
 - On the MBP Export Completed dialog, click OK.
5. Open Windows Explorer and complete the following:
 - Navigate to \\emsserver\NAS\ - Copy the folder
This folder contains a .zip and .checksum file.

- Paste the folder into the USB location.
6. Safely remove the USB device from the EMS Client Workstation.

To copy the project data file:

1. On the MBP Client Workstation, insert the USB device (from EMS Client Workstation) into a USB port.
2. Open the MBP application.
3. From the Main Menu screen, click **File** and then select **Import**.
4. If prompted for a password, enter the password and click **OK**.
5. On the Set up a new project dialog, complete the following:
 - In the Ballots info archive field, click **Browse**, navigate to the USB folder location and select the .zip file (exported from EED), and then click **Open**.
 - In the Archive password field, enter the password (created in the Export MBP Data dialog)
 - In the Project destination path, click **Browse** and select an empty folder, and then click **OK**.
 - In the Create new election project with name field, enter a name for your election project, and then click **Load**.
This could be the same project name as saved in EED.
6. On the Import Result dialog, click **OK**.
The election files are loaded and the project opens.

Configuring the Printer

This section will specify the location to store Ballot artwork, select the default printer and configure the printer settings.

To specify the ballot artwork location:

1. From the Open project screen, click **File**, and then **BallotSource**.
2. On the Ballot Source Location dialog, navigate to the file location and click **OK**.

To specify the default printer:

1. From the main menu, click File and then select **Default Printer**.
2. On the Default Printer dialog, select the printer from the drop-down and click **OK**.
3. If the default printer is changed, click **OK**.

To configure the printer settings:

1. On the main menu, click **File** and then select **Printing Configuration**.
2. On the Printing Configuration dialog, complete the following:
 - If you want to include a sample ballot watermark on the print-out, select the **Sample Ballot** checkbox.
 - Specify the number of copies to print for the selected ballot.
3. On the Printing Configuration dialog.
Click **Save** to save printing settings.

Printing Ballots

When the project is created and configured, the application is ready to print ballots. The main screen will list all ballots that are available for printing. The list contains a column which indicates the number of times a particular ballot has been printed.

To print ballots:

1. From the main menu, select a ballot from the list, and then click **Print**.
2. On the Print Settings dialog, complete the following:
 - Verify that the Document Height value is black.
 - Click **Preferences** and complete the following on the Printer Preferences dialog:
 - If the Document Height value is red, select the correct ballot paper size from the size drop-down.
If the correct paper size is not available, refer to the Printer User Manual for detailed instructions on creating a custom size.
 - Set double-sided printing to **Long Edge**.
 - Click **OK**
 - On Print Settings dialog, click **Print**.
If multi-card ballots are being printed, you must click Print on each open Print Settings dialog.

Generating Reports

The Print report, Audit report and Invalid Files report can be stored in various formats or printed using the controls shown immediately above the report itself.

To view Print Report:

1. From the main menu, click **Print Report**.
2. On the Print Report dialog, select Precinct information and click **View Report**.

3. To save the report, click the **Export** icon, and select the file type, select the location where the report is saved, and then click **OK**.

To view the Audit Report:

1. From the main menu, click **Audit Report**.
2. On the Audit Report dialog, select the date range, Action information, and then click **View Report**.
3. To save the report, click the **Export** icon, and select the file type, select the location where the report is saved, and then click **OK**.

4.5.2.7 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 and Early Vote, Election Day ImageCast[®] Evolution and ImageCast[®] Precinct 2 ballots takes place.

1. Open the RTR application.
2. Open the appropriate Election Project (8.2.1 “*Open Project*”) and enter your login credentials.
3. From the left navigation pane, select Results Files.
4. Click the Search button (without applying any search criteria) to see all result files loaded into the election.
5. Use the Sort functionality to identify result files that are in status “Skipped Adjudication”.
6. Select/highlight all result files and click Reject.
7. Click Reset.
8. Click Allow Adjudication, which will enable adjudication to be performed on those result files.
This step require that images are already loaded
9. The Adjudication Administrator should log into the EMS Server, open and configure the Adjudication application (see Adjudication Administration (12.6 “*Adjudication Administration*”) section for more details) and then start adjudication.
10. The General Adjudication User(s) should log into the remote client workstation(s) and adjudicate ballots (see sections Adjudication Process (9.1 “*Adjudication Process*”) and/or Adjudication Process - Digital Ballots (9.2 “*Adjudication Process - ICX Marked Ballots*”). This step in the procedure can be done in parallel with the next step or they can be executed sequentially as listed.

11. The Adjudication Administrator performs administrative tasks, such as managing batches, running reports and submitting batches to RTR for tallying (see Adjudication Administration (12.6 “*Adjudication Administration*”) for more information).
12. Adjudicate all ballots according to preset out-stacking condition and adjudicate write-ins (see Adjudicate Write-ins (see section 9.1.6.1 “*Adjudicate Write-ins*”) and/or Resolving a Write-in (see section 9.2.2 “*Resolving a Write-in*”).
13. Validate and publish (see section 8.2.5 “*Validate and Publish Results*”) all adjudicated results.
14. Run the Statement of Votes Cast report in RTR.
15. Compare and verify that the Statement of Votes Cast report matches the expected results.

4.5.3 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:

- the tabulator-level result reports match the expected results from the pre-marked test decks.
- exception ballots are properly handled by the tabulator per the DCF/MBS settings.
- the individual tabulator reports from RTR match the tabulator level result reports.
- the summary report for each counting group defined in the Election Project matches the sum of all individual tabulator level reports for that group.
- the Statement of Votes Cast report after adjudication of ballots matches the expected results.
- • the ballot image files are clear and readable from the ImageCast[®] Central, ImageCast[®] Evolution, and ImageCast[®] Precinct 2.
- the tabulator “Counting Groups” are configured correctly and according to jurisdiction's preference with regards to separating the ImageCast[®] Central count results from Precinct results.

Verifying items above is imperative for obtaining the correct X of Y values in percentage of precincts reported.

4.5.4 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 (see section 12.2.1 “*Backup of Election Project*”) containing the results from the executed L&A System Test. 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 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 to their respective ICE units during the preparation for Election Day.
3. A backup of all ICC election files (see section 12.5.2 “*Restore ImageCast[®] Central Tabulator Folders*”) containing results from the L&A test by moving the entire C:\ICC Election Files folder to a safe place. 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.

4.5.4.1 Stopping Adjudication After Logic and Accuracy Testing

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

4.5.4.2 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 access restricted 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 Permanent Printed Reports (refer to I “*Permanent Printed Reports*”). A description of available reports on ImageCast® Central is available in Section Producing Reports from the ImageCast® Central System (see section 7.12.2 “*Producing Reports from the ImageCast® Central System*”).

4.5.5 Clearing Logic and Accuracy Test Results

Once Logic and Accuracy testing is complete, each tabulator is re-zeroed and the results database is purged to delete the logic and accuracy results from the system prior to the actual election

4.5.6 Re-zeroing the ICC

Re-zeroing the tabulator clears the scanned ballots' results and the tabulator's history. This process cannot be undone.

To re-zero the tabulator:

1. Click Configuration in the ICC application screen.
The Configuration pane appears.
2. In the Configuration pane, click **Rezero**. and do one of the following:
 - If there are no un-cast ballots, the message “This action will remove all processed batches!” appears. Click **OK**.
 - If there are un-cast ballots, you are given the option to delete the un-cast ballot images. If applicable, select the Also delete un-cast ballot images check box, then click **OK**.
The Security Passcode window appears.
 - Type the Supervisor passcode and click **OK**.
The message “Tabulator State Reset” appears.
 - Click **OK**.

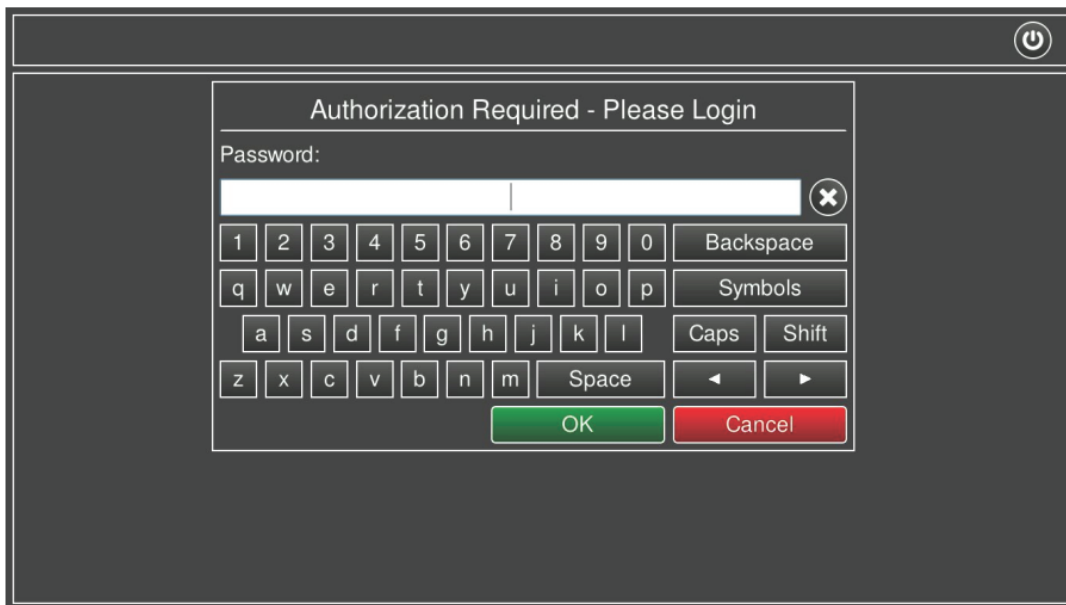
4.5.7 Re-zeroing the ICE

If the election cards have been used for testing prior to the election day (during Logic and Accuracy testing procedure) then all the recorded results need to be set to zero.

1. On the poll worker Menu screen, press the **Advanced Admin** option.

Depending on the configuration set in the MBS file, you may be asked to provide a username and password, or password only when entering the Advanced Admin menu. In addition, the MBS gives an option to omit the authentication.

- When prompted, enter the credentials (the poll worker's credentials are set in EMS EED client application).



- Press **OK**.
2. On the Advanced Admin screen, press the **Re-zero** button.
 3. On the right-hand pane, press **Re-zero**.

4. On the Confirmation required screen, press **OK** to proceed.

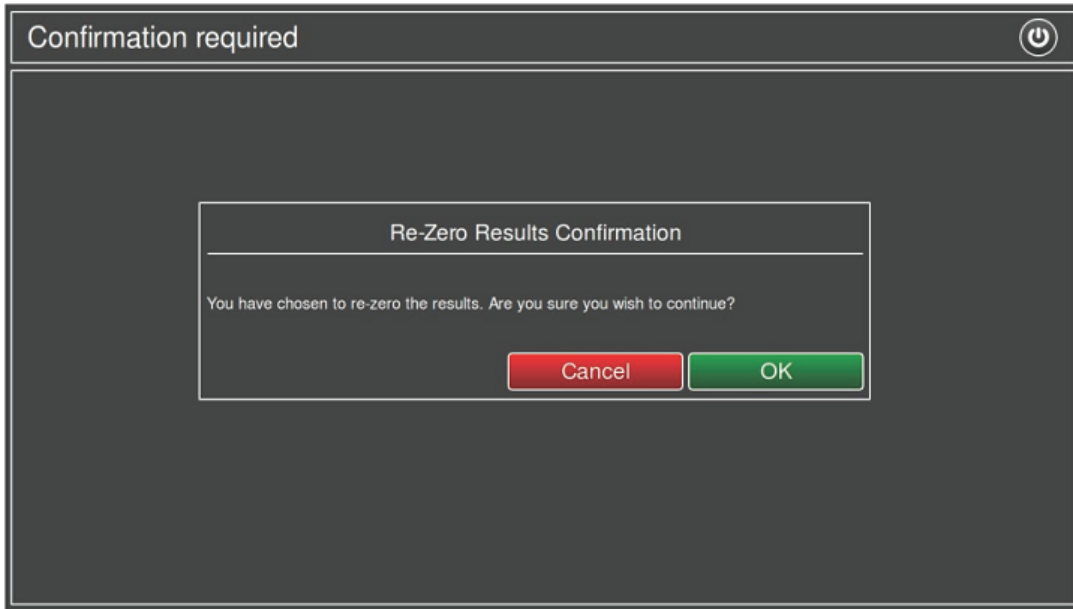


Figure 4-2: Re-zero Results Confirmation

4.5.8 Re-zeroing the ICP2

Re-zeroing the tabulator resets the ballot counter to zero.

When instructed to do so, re-zero the tabulator:

1. From the Main Menu screen, tap Poll Management.

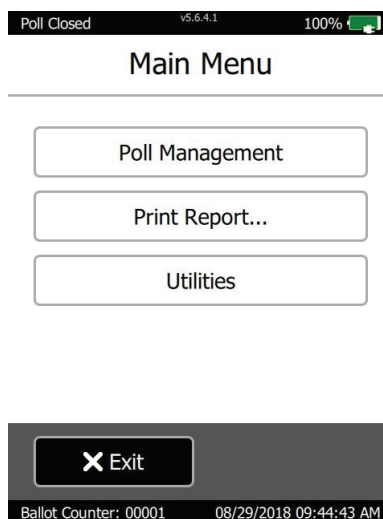


Figure 4-3: Main Menu screen

The Please Enter Password screen appears.

2. Enter your password and tap Enter.
The Poll Management screen appears.

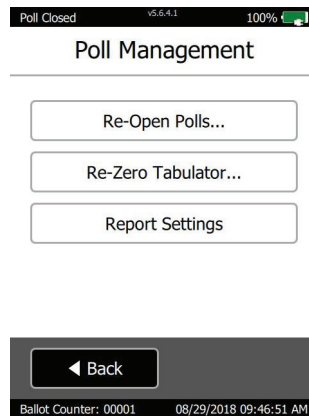


Figure 4-4: Poll Management screen

3. From the Poll Management screen, tap Re-Zero Tabulator.
The Please Enter Password screen appears.
4. Enter your password and tap Enter
The Re-Zero Results Confirmation screen appears.

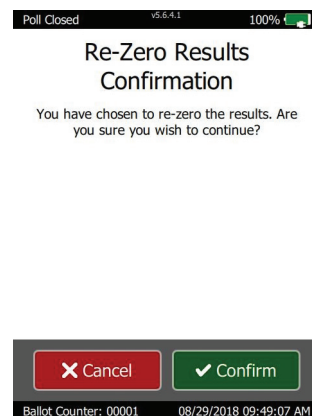


Figure 4-5: Re-zero Confirmation screen

From the Re-Zero Results Confirmation screen, tap Confirm. The Ballot Counter field at the bottom left resets to zero and you are returned to the Main Menu screen.

4.5.9 Re-zeroing the ICX

1. Ensure the device is on.
2. Log in Using a poll worker Smart Card.
3. Ensure the poll is closed.
If the poll is not closed, select **Close Poll**.

4. Next to Public Counter, select **ReZero**.

4.6 Election Observer Panel

During the various phases of the election setup process, ranging from:

- Central Count equipment programming and configuration
- Central Count equipment logic and accuracy testing
- Tabulation and ballot marking device programming and configuration
- Tabulation and ballot marking device logic and accuracy testing

An Election observer panel may be present for activities. This panel may include:

- Representatives from qualified political parties
- Representatives from legitimate citizens or media organizations

The county elections officials may limit the number of observers, as needed.

4.7 Hardware Maintenance and Preparation for Use

After successful completion of a Logic and Accuracy test, election equipment must be properly prepared for an election day. After the preparation, the equipment is then securely stored, as per jurisdictional procedures. This chapter provides instructions on how to prepare the Democracy Suite[®] equipment for an election.

4.7.1 ImageCast[®] Evolution Preparation

Load the CF cards into the tabulator and store the tabulator.

4.7.1.1 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.

4.7.2 ImageCast[®] Central Maintenance and Preparation

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

4.7.3 ImageCast[®] Precinct 2 Preparation

Load the cards into the tabulator and store the tabulator.

4.7.3.1 Internal Battery Recharging

All lithium-ion rechargeable batteries have a limited life and gradually lose their capacity to hold a charge over time, whether used or unused. In order to obtain maximum battery life, periodic maintenance of the ImageCast[®] Precinct 2 's internal backup battery is highly recommended. If the battery is not periodically charged as recommended, the battery cells will fully discharge over time, possibly causing irreparable damage to the battery and its capacity to hold a full charge.

To obtain maximum battery life from the ImageCast[®] Precinct 2 internal lithium-ion battery, it is recommended that:

- The batteries are charged for at least 6 hours, to full capacity, before placing the units in storage.
- The batteries are charged for at least 6 hours, to full capacity, every four (4) months while the unit is in power-off mode or storage. The units may remain connected to AC power at all times, if desired. This should not damage the battery or reduce its lifespan.
- The storage and operating temperature is as cool as possible. Lithium-ion batteries degrade faster if stored or used at higher temperatures. Maintaining a storage temperature below 68 F/20 C will maximize the recoverable capacity of the battery. The operating temperature of the ICP2 should not exceed 104 F/40 C.
- For tracking and to maintain a recharging schedule, please note on the unit the date charged.

To charge the battery, plug the tabulator into a standard 3-prong 115/120 VAC 50/60Hz wall outlet via the supplied 20VAC Power Adapter. The unit can be charged while powered down. Battery levels can be checked by pressing and quickly

releasing (less than a second) the Power ON/OFF pushbutton at the rear of the tabulator. The Power Status LEDs at the front of the tabulator will flicker/blink in one of the following patterns:

System power, combination of green and amber:	
Running from external power, battery present	Solid green
Running from the battery	Solid amber
Running from external power, NO battery present	Flashing green / amber

Table 4-2: System Power

Battery status, orange:	
Fully charged (tickle charge mode)	Lit all the time
Charge state <25%	One flash and a pause
Charge state 25% to <50%	Two flashes and a pause
Charge state 50% to <75%	Three flashes and a pause
Charge state 75% to <100%	Four flashes and a pause
Power alarm	Fast flashing

Table 4-3: Battery status

4.7.4 ImageCast[®] X Maintenance and Preparation

The ImageCast[®] X 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:

- BMD printer cartridge removal/replacement/storage (refer to 4.7.4.1 “*BMD printer cartridge removal/replacement/storage*”)

- ICX Internal Battery Recharging (refer to 4.7.4.2 “*ICX Internal Battery Recharging*”)

For more details, please refer to the *SID-21V-Z37-A1R User Guide*.

4.7.4.1 BMD printer cartridge removal/replacement/storage

For proper printer cartridge removal, replacement and storage, please consult the manufacturer user guide for the corresponding printer.

- HP LaserJet Pro M402dne - <http://h10032.www1.hp.com/ctg/Manual/c04639074>

4.7.4.2 ICX 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 is charged for 4 hours every 6 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 once the ICX is powered up.

To charge the battery, connect the unit to a standard 120V, 60Hz AC Power Supply and wait for the device to power up. Insert Technician Smart Card and enter the corresponding PIN. Once the Technician menu is available, select “Power off” and wait for the device to power down.

4.8 Physical Security of Equipment

Once the system has been purged of L&A results and the ImageCast[®] Evolution, ImageCast[®] Precinct 2 and ImageCast[®] X maintenance and preparation has been completed, all equipment needs to be physically secured in final preparation for the Election Day, (refer to H.2 “*Physical Security*”) for these procedures.