CITY AND COUNTY OF SAN FRANCISCO
AMENDED PILOT PROGRAM PLAN
NOVEMBER 8, 2022 STATEWIDE GENERAL ELECTION

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A. Defining the election and creating ballots
   1. The Department of Elections (Department) will provide VotingWorks with the jurisdiction-specific information necessary to define the election and create ballots, including for ranked-choice voting contests. This information includes precinct, district, and ballot type relationships and content regarding candidates, contests, and ballot measures, and translations of content into Chinese, Filipino, and Spanish.
   2. VotingWorks will set up the election in its system, which includes its election databaseand ballot marking device (BMD).
   3. VotingWorks will create four versions of the audio ballots using the content provided by the Department.
      a. Cantonese
      b. Mandarin
      c. Filipino
      d. Spanish
   4. While the VotingWorks system will provide ranked-choice contests, the system will not tabulate ballots using an algorithm. The tabulation of votes from ranked-choice contests will occur using the ballots remade to Dominion ballots to which the algorithm developed by Dominion will be applied.

B. Set up the election and ballot marking device
   1. After defining the election and creating ballots, VotingWorks will program its election management system and BMDs to conduct the election.
   2. VotingWorks will proof all settings and content and indicate the system and components are ready for Department review.
   3. Department personnel will proof the ballot content on the BMDs, including audio, and determine if the BMDs provide all ballot content and audio as required.
   4. VotingWorks will generate ballots for logic and accuracy testing representative of all ballot types to test the BMD's ability to mark all possible contest selections.

C. Testing: Acceptance and Logic and Accuracy
   1. VotingWorks intends to conduct acceptance testing of its election management system and ballot marking devicesduring logic and accuracy testing.
   2. After VotingWorks completes acceptance testing, Department personnel will conduct logic and accuracy testing using the test cards generated from the system. Department personnel will

also review the ballot content that appears on the screens of the BMDs and which is available in audio formats.
3. Logic and accuracy testing will include ranked-choice voting contests.

D. Staging ballot marking devices in City Hall Voting Center
   1. The Department customarily places two BMDs in its front office which is adjacent to the ground-floor foyer in which the Department organizes the Voting Center.
   2. The space inside the office allows for a more private voting session in relation to the space in the foyer which hosts voters in line to receive ballots, voters interacting with Department personnel, voting booths, media, etc.
   3. Since Elections Code section 19209 stipulates the number of units of the experimental system cannot exceed 50% of all equipment at a location, the Department intends to place one or two BMDs from VotingWorks in the front office space, which will be in addition to the two Dominion BMDs staged at this location for each election.
   4. Department personnel will apply tamper evident seals to the VotingWorks' BMDs during the times when voting does not occur.

E. Placement of scanner in central tabulation area
   1. Each election, the Department stages 16 central tabulators from Dominion in a secure room.
F. Voting process involving VotingWorks ballot marking devices
   1. The voting experience for voters who use the VotingWorks BMD will be similar to the experience of voters using the Dominion BMD.
   2. The established practice to issuing ballots at the Voting Center is, after verifying voters' records or assisting people to register or update registration information, Department personnel will inform voters that they will be given a paper ballot unless the voters choose to use an accessible ballot marking device. This statement to voters aligns with the policy set by the San Francisco Elections Commission that all voters be provided with paper ballots unless they choose to use a ballot marking device.
   3. If voters decide to use a ballot-marking device, the Department's personnel will inform voters that they can use the device provided by Dominion, or the device provided by VotingWorks as part of a pilot program.
   4. For voters who choose to use the VotingWorks BMD, Department personnel will print a label stating the voters' registration information, attach the label to a return vote-by-mail envelope, and obtain a poll worker card and escort voters to the BMD.
   5. At the VotingWorks BMD, Department personnel will insert the poll worker card, then select the ballot type appropriate for the voters, and also select a language, if necessary.
   6. Voters will follow instructions provided on the screen or through headphones to navigate ballot content and vote.
   7. When voters complete their sessions, voters will print their selections using a printer connected to the BMD.
   8. Voters will place their printed ballots into the return envelopes, remove the tape covering the self-sealing adhesive, and insert the envelopes into a ballot box located near the BMDs.

G. Handling envelopes of ballots cast at the City Hall Voting Center.
   1. Department personnel will transfer ballot boxes from the Voting Center to the ballot processing area in the Department where envelopes are scanned and signatures are captured for verification.
   2. After signature verification, Department personnel will place envelopes into equipment that opens the envelopes to allow personnel to extract the ballots.
   3. When Department personnel see a ballot generated from a BMD, personnel will place both the envelope and ballot in a tray designated for ballots needing review.
   4. A manager or lead will review ballots placed into the trays and will separate the BMD printouts from other ballots.
   5. A manager or lead will move the printouts to the "remake" teams who will transfer voter intent from the VotingWorks ballots using a Dominion BMD to obtain a printed ballot.
   6. If VotingWorks BMD ballots are not separated from regular ballots during the extraction process, the personnel who prepare the regular ballot cards for scanning will observe the VotingWorks ballots and these personnel will place the VotingWorks printouts in a tray indicating items need review. Personnel will quickly notice the difference between the two ballots: the VotingWorks BMD printouts uses 8.5 X 11 inch office copy paper and regular ballots are 8.5 X 16 inches and printed on 90 pound card stock.
   7. If VotingWorks BMD ballots are also not separated by the personnel who prepare ballot cards for scanning, the personnel who conduct a quality control review of ballot cards prior to scanning will likely observe such instances and will remove the VotingWorks printouts and place them in a tray for further review.
   8. If any VotingWorks BMD ballots were not identified prior to the ballot scanning, the personnel who place ballots into the scanners would observe the VotingWorks ballots when handling cards prior to scanning. The BMD ballots would be separated and placed in tray indicating the need for review by a manager or lead.

H. Transferring voter intent from VotingWorks ballots using Dominion ballot marking devices
   1. The Department will incorporate the transfer of voter intent from the VotingWorks BMD ballots to Dominion BMD ballots into existing remake procedures.
   2. The Department assigns personnel to comprise the remake teams through an election cycle.
   3. The personnel assigned to the teams usually have worked with the Department during previous elections and understand not only the remake process, but understand and have been involved in most other processes regarding ballot handling and tabulation.
   4. For remaking VotingWorks BMD ballots, personnel will use Dominion BMDs to transfer voter intent onto ballots the Dominion system can tabulate and include in the official results reports.
   5. Managers or leads for the Ballot Distribution Division will bring the VotingWorks ballot printouts from the extraction area to the ballot remake area.
   6. The personnel who will transfer the intent from the VotingWorks ballots onto Dominion ballots will enter voters' selections into Dominion BMDs.
   7. After printing the Dominion BMD ballots, the remake personnel will write their initials, date, and a number that is sequential in relation to the remake at the bottom of both the Dominion printout and the VotingWorks printout.
   8. Each team maintains a sequential numbering of all ballot remakes during each day. This means the numbering at the bottom of the VotingWorks BMD printouts will be relative to the numbering sequences starting and ending with each day in the election cycle.

9. After transferring voter intent, and initialing and numbering each printout, Department personnel will organize the VotingWorks' printouts separately from all Dominion ballots.
10. The separated VotingWorks ballots will be organized in designated containers so that the ballots can be readily identified during the Official Canvass.
11. During the Official Canvass, Department personnel will manually tally the VotingWorks ballots.
12. The manual tally results of VotingWorks ballots will be used to verify that voter intent was appropriately transferred to Dominion ballots. The Department will also manually tally all votes transferred on ballots using the Dominion BMD and compare to the manual tally of all VotingWorks ballots.
13. The VotingWorks system will not provide official or unofficial results for the election and only votes tabulated using the Dominion system will be reported.

I. Personnel will scan Dominion ballots using scanners connected to the Dominion system
   1. Department personnel will scan the Dominion ballots to which voter intent was transferred from the ballots cast using the VotingWorks BMDs.
   2. Personnel will designate a container specifically for storing the Dominion ballots remade from VotingWorks ballots.
   3. The remade cards will be assigned batch numbers and included on the ballot manifest.

II. RISK-LIMITING AUDIT AND MANUAL TALLY

A. California Elections Code Section 19209(e) requires the Department to apply risk-limiting auditing reviews of each contest on the ballot and voted using the VotingWorks BMD.
B. The audit will follow the Secretary of State's regulation on risk-limiting audits, see Attachment 6.
C. The Department would conduct a partial risk-limiting audit with a 5% risk-limit using the ballots cast on the VotingWorks BMD.
D. The audit would be conducted as a single-phase review since the audit will include all ballots cast on the VotingWorks BMD.
E. The Department would utilize one ballot manifest for the risk-limiting auditing of the VotingWorks BMD ballots since all of this category of ballots will have been processed prior to the audit.
F. The Department would incorporate the VotingWorks BMD ballots into the Department's ballot custody procedures, see Attachment 7.
G. When using 10-sided dice to select precincts and batches for manual tallies during the Official Canvass, the Department would also randomly select the 20-digit seed number to input into the risk-limiting tool, see Attachment 8.
H. The Department would also manually tally all votes transferred on ballots using the Dominion BMD and compare to the manual tally of all VotingWorks ballots.

III. REQUEST TO ALTERNATIVELY CONDUCT MANUAL TALLIES OF ALL BALLOTS TO REPLACE RISK-LIMITING AUDITS

A. The Department and VotingWorks request the Secretary of State to consider allowing a full manual tally of all ballots cast and tabulated in place of conducting risk-limiting audits.
B. The number of ballots cast on the two VotingWorks BMDs in the City Hall Voting Center will be significantly fewer than the number of ballots customarily involved in risk-limiting audits in California.

C. According to City policy, all voters who visit the Voting Center, and polling places, receive paper ballots unless voters choose to use an accessible BMD, which likely reduces the number of voters who would cast ballots on the VotingWorks BMDs.
D. The Department will also provide Dominion BMDs at the City Hall Voting Center with which voters are already familiar and may choose to use even when informed of the pilot program involving the VotingWorks BMDs, possibly further reducing the number of ballots available to include in a risk-limiting audit.
E. During the Official Canvass, the Department would manually tally all votes cast using the VotingWorks BMDs.
F. Also, the Department will manually tally all Dominion ballots onto which voter intent was transferred from ballots cast using the VotingWorks BMDs.
G. The Department would compare the tallies from the ballots cast on the VotingWorks BMDs and then duplicated using the Dominion BMDs to ensure all votes were appropriately recorded and reported.The Department would seek to resolve any discrepancies between the manual tallies of the VotingWorks ballots and the Dominion ballots on which Department personnel transferred voter intent. If personnel did not fully transfer voter intent, the Department would again duplicate the votes from the VotingWorks ballot onto a new Dominion ballot and apply the votes from this second ballot to the official results.

IV. RETENTION OF BALLOTS VOTED IN THE PILOT PROGRAM

A. The Department will retain all ballots used in the pilot program for 22 months as required under California Elections Code Section 17301 since federal contests will appear on the ballot for the election.
B. The record retention list will specify which boxes and pallets contain the voted and remade ballots.

VotingWorks San Francisco Open-Source Pilot Use Procedures

1. Introduction

The City and County of San Francisco intends to pilot VotingWorks, an open-source voting system, for the November 8, 2022 Consolidated General Election by giving voters in the City Hall Voting Center the option of using an accessible ballot marking device (VxMark).

1.1. System description and components

San Francisco intends to utilize VotingWorks' two components:

1. **VxAdmin v1**: VxAdmin serves as a local election management system (EMS) used for programming Ballot Marking Devices (BMDs) (VxMark). The VxAdmin laptop (Lenovo Thinkpad L14) is installed with VotingWorks VxAdmin open-source software.
2. **VxMark v2**: VxMark is an accessible BMD with an attached printer that produces a voter-verifiable paper ballot. Specifically, it is a Lenovo Flex 14 laptop with VotingWorks VxMark open-source software installed on it, and the printer is a HP 404n printer. VxMark will be utilized as the in-person marking method for voters at the City Hall Voting Center.

Voters at City Hall Voting Center will use VxMark to mark, print, and verify their ballot. Ballots will be cast into a ballot box at City Hall Voting Center like other ballots cast using the Dominion voting system in San Francisco. VotingWorks marked ballots will be copied and logged to Dominion formatted ballots for central tabulation after close of polls.

VxAdmin

VxAdmin case

VxMark (BMD and Printer)

VxMark BMD and Printer Cases

1.2. Terms and Definitions

Components

VotingWorks system component terms and definitions (**VxAdmin** and **VxMark)** are provided in section 1.1.

Smart Cards

VotingWorks uses smart cards to enable administrators and poll workers to access equipment functionality. Both VxAdmin and VxMark utilize an included HID Omnikey **Card Reader** as the smart card reading interface.

There are three types of smart cards with specific terms:

1. **Admin Card**: these cards enable election administrators to access election administrator functionality.
2. **Poll Worker Card**: these cards enable poll workers to access poll worker functionality.
3. **Superadmin Card**: a card with all privileges, tied to a given VxAdmin device, that is used to program Admin & Poll Worker cards.

The smart card configuration process is explained in section 4.2 and the smart card authentication security model is explained in section 10.2.

Admin Card (left) and **Poll Worker Card** (right)

2. Ballot Definition

2.1. Overview

For the pilot, San Francisco will provide VotingWorks with the jurisdiction-specific information necessary to define and create ballots including for ranked-choice voting contests. This information includes precinct, district, and ballot type relationships and content regarding candidates, contests, and ballot measures, and translations of content into Chinese, Filipino, and Spanish.

VotingWorks staff will convert the ballot data provided by San Francisco into the VotingWorks election definition format, which will be loaded into VxAdmin and transferred to VxMark via an Admin Card. The configuration process is explained in more depth in section 4.

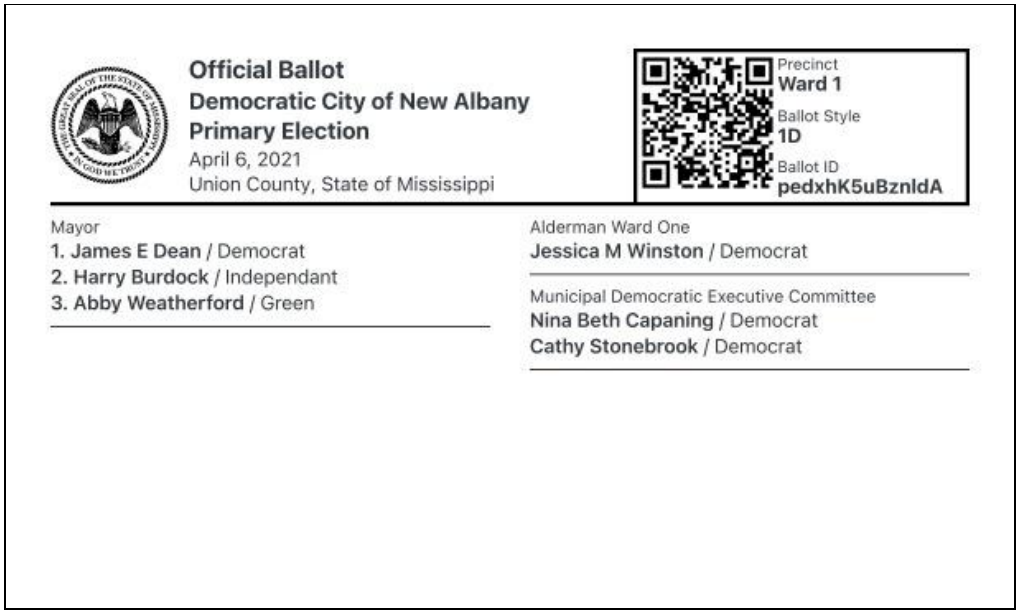
2.2. Paper and printing specifications

No pre-printed ballots or hand-marked paper ballots are included in the scope of this pilot.

The only printing that will take place is printing of machine-marked ballots on-demand using VxMark. The VxMark attached HP 404n printer accepts any letter sized paper between 60-200 g/m^2. VotingWorks will provide HP Premium 28lb letter sized paper with equipment.

2.3. Layout requirements and specifications

All ballot layout is automatically generated by the VotingWorks system and no specifications need to be met by the election administrator. An example VxMark ballot format is shown below:



Official Ballot
Democratic City of New Albany
Primary Election
April 6, 2021
Union County, State of Mississippi

Precinct
Ward 1
Ballot Style
1D
Ballot ID
pedxhK5uBznldA

Mayor
1. **James E Dean** / Democrat
2. **Harry Burdock** / Independant
3. **Abby Weatherford** / Green

Alderman Ward One
Jessica M Winston / Democrat

Municipal Democratic Executive Committee
Nina Beth Capaning / Democrat
Cathy Stonebrook / Democrat

This VxMark ballot includes multiple contest types:

- Rank choice contest (Mayor)
- Single candidate selection (Alderman Ward One)
- Multiple candidate selection (Municipal Democratic Executive Committee)

3. System Installation and Configuration

3.1. Hardware requirements and specifications

VotingWorks system currently requires the use of specific hardware that is installed with VotingWorks software. This hardware is:

1. VxAdmin:
    a. Lenovo Thinkpad L14
    b. HID Omnikey Card Reader - Large
    c. Apache 4800 case
2. VxMark:
    a. Lenovo Flex 14 laptop
    b. HP404n printer
    c. VxMark printer case
    d. HID Omnikey Card Reader - Large
    e. Storm Interface AudioNav Accessibility Controller
    f. Sony MDR-ZX110 headphones
    g. Apache 4800 case

3.2. Hardware and network set-up and configuration

All VotingWorks voting system components are built on COTS (Commercial Off The Shelf) computers that are configured by way of a complete software installation – operating system, application software, and all settings, all in one pass. Thus, there is no independent hardware and network set-up to perform. The step-by-step software installation process is defined in the subsequent section 3.3.

This process ensures that voting system components never run any software other than the authorized VotingWorks software. This also ensures that no component ever connects to the Internet, as the VotingWorks software, including the operating system, is configured with networking turned off and without the ability to ever turn it back on.

3.3. Software installation and configuration

As described in section 3.2, all VotingWorks components are configured with a complete VotingWorks software stack, including the operating system, permission configuration, and application software. Thus, software installation involves completely overwriting the internal hard drive of the computer. This is done as follows:

1. Insert the VotingWorks USB installer into the relevant computer (Thinkpad L14 for VxAdmin, Lenovo Flex 14 for VxMark).
2. Use the standard BIOS boot menu option to boot from USB.
3. Follow the on-screen instructions for installing the VotingWorks system. These instructions consist of:
    a. Selecting the component to install (VxAdmin or VxMark)
    b. Confirming that installation is desired
4. Allow the installer to fully overwrite the hard drive with the VotingWorks software stack, no intervention needed. This takes approximately 10 minutes.
5. On completion, select the “reboot” option provided by the installer.
6. Remove the USB installer and let the machine reboot.

At this point, the machine can be shut down for later configuration, if desired.

On next startup, right after installation, the machine enters its automatic configuration wizard, which prompts the user to:

1. Set the clock and timezone
2. Set the machine ID
3. Generate the machine keypair and export the machine public key for later authentication of exported data.

This process takes 2-3 minutes. Upon completion, the component, VxAdmin or VxMark, is installed, configured and ready for use.

3.4. Acceptance Testing

Acceptance testing confirms that the equipment received is in working order and all required equipment is included. Neither VxAdmin nor VxAdmin requires configuration for acceptance testing.

VxAdmin

Acceptance testing for VxAdmin consists of the following steps:

1. Confirming that the following items are included in the VxAdmin case:
    a. VxAdmin laptop
    b. Laptop power cable
    c. Card reader
2. Powering on the VxAdmin laptop
    a. The screen should boot into a **Card Reader Not Detected** screen by default
3. Confirming VxAdmin can receive power by connecting the power cable to the laptop.
    a. An amber or white light should illuminate next to the power cable port on the laptop.
4. Connecting the card reader to one of the laptop USB ports.
    a. A green light should illuminate on the card reader.
    b. VxAdmin should display a **Configure VxAdmin** screen.

VxMark

Acceptance testing for VxMark consists of the following steps:

1. Opening the VxMark case, plugging in the power cable, and powering on the laptop.
    a. The screen should show **No Printer Detected**.
    b. A green light should illuminate on the card reader.
    c. The accessible controller should illuminate in green.
2. Confirming that the headphones and privacy shield are included in the VxMark case.
3. Opening the printer case, removing the printer, and powering on the printer.
    a. The printer screen should illuminate and say **Ready**.
4. Connect VxMark USB cable to the printer.
    a. VxMark should display **Device Not Configured**.

3.5. Software and firmware upgrades

Software or firmware updates are not applicable as this is a one-time pilot.

Hypothetically, if updates needed to be performed, because VotingWorks software is installed holistically as one complete software stack, the process would follow the same installation process described in section 3.3. Updates would only be performed after approval from the California Secretary of State.

4. Election Set-up and Definition

4.1. Programming and configuration of election management system/software, including audit records to be generated and retained

Election Definition Creation

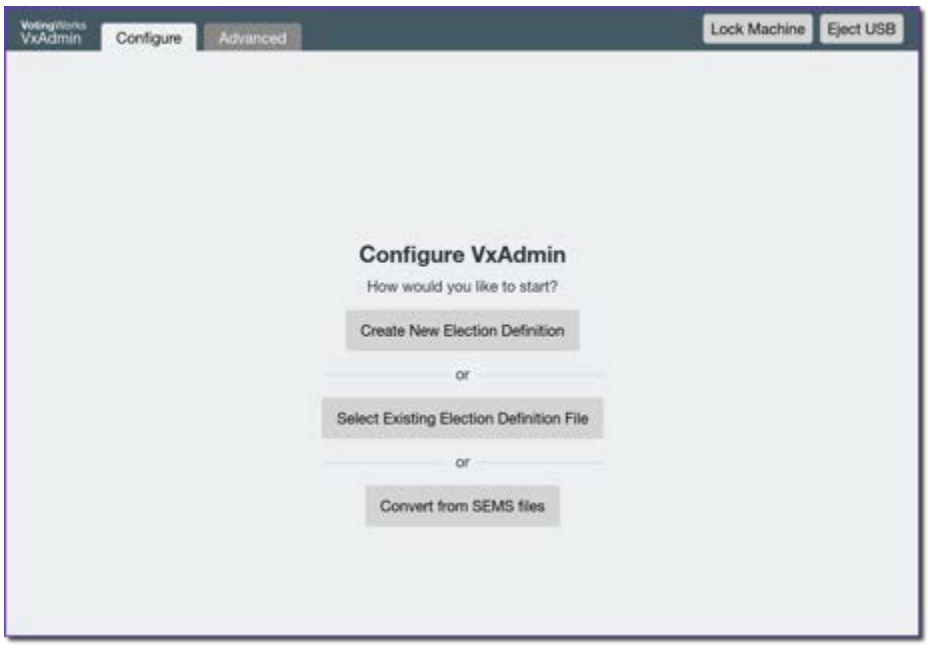
San Francisco will provide VotingWorks with the data required to produce an election definition in the VotingWorks format. The required ballot data necessary to create an election definition is as follows:

- Election metadata (title, jurisdiction, date, jurisdiction logo, etc.)
- District/precinct metadata (district names, precinct names, etc.)
- Party metadata (party names, ballot abbreviations, etc.)
- Candidate metadata (name, party affiliation, etc.)
- Contest metadata (contest name, contest type, ballot rotation rules, etc.)
- Contest and candidate mapping
- Contest and ballot style mapping
- Ballot style and precinct/district mapping
- Translated content for relevant metadata mapped to list of supported languages

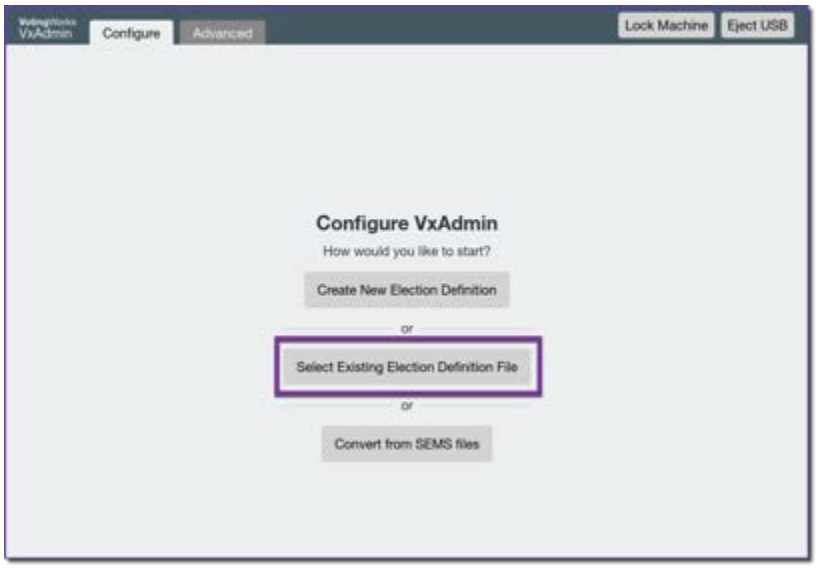
VotingWorks will convert this data provided by San Francisco into the VotingWorks election definition format (.json file). San Francisco will save this file on a USB drive before configuring VxAdmin.

Configuring VxAdmin

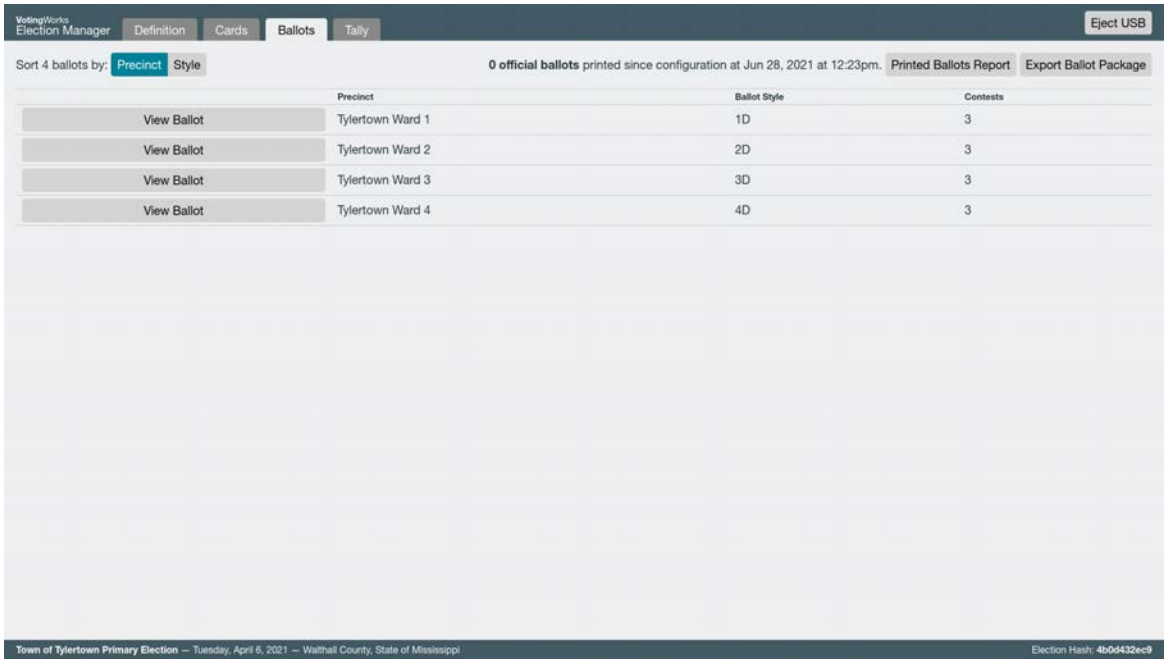
When VxAdmin is not configured, the screen will display **Configure VxAdmin** as shown below:



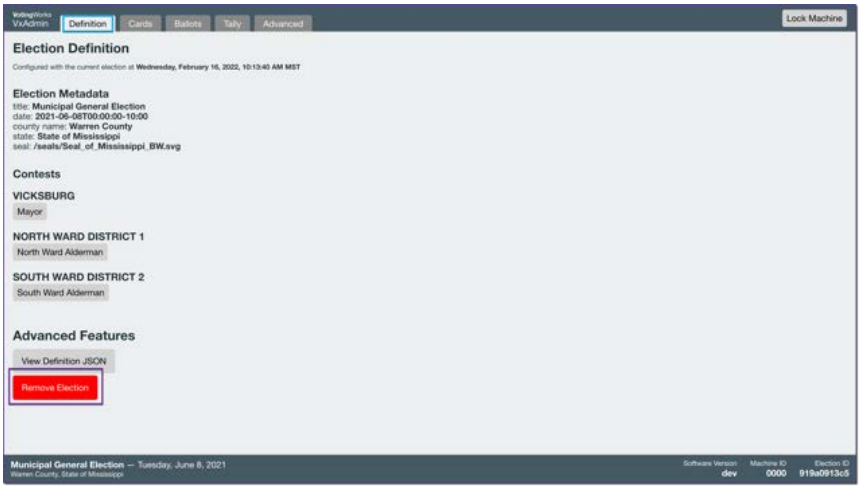
To load the election definition file, select `Select Existing Election Definition File.` Select the file from the USB drive and select `Open.`



After configuration, all ballot styles are automatically listed confirming that the election definition has been loaded properly.



If VxAdmin needs to be re-configured at any point in time, visit the Definition tab and scroll to the bottom. Select the red `Remove Election` button.

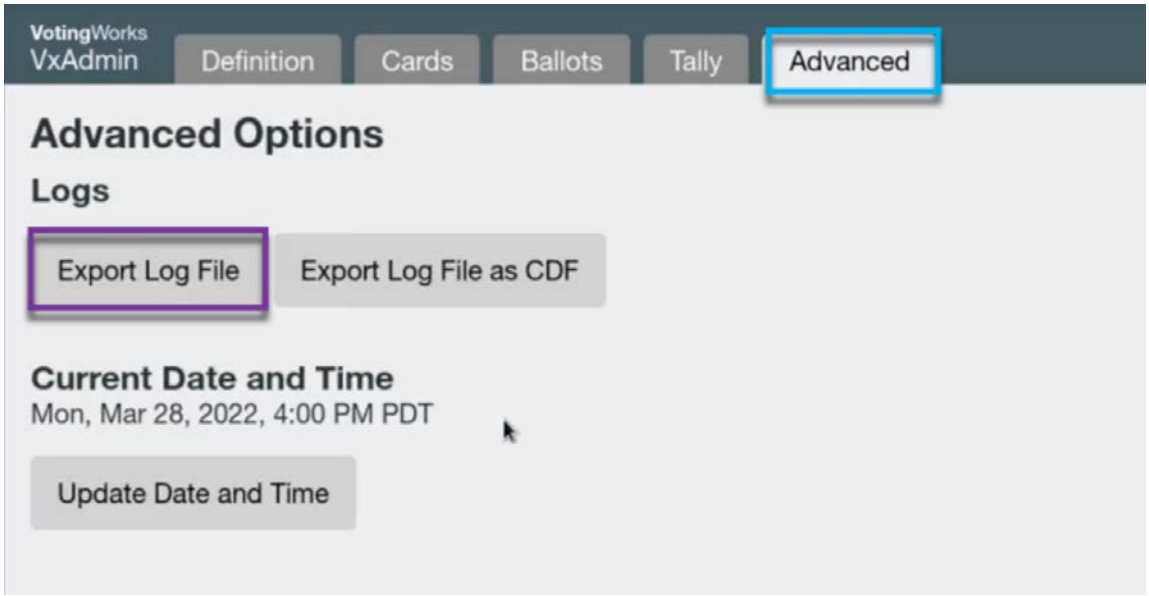


A different election definition file can be loaded by following the aforementioned instructions.

VxAdmin Audit Logs

VxAdmin automatically generates an audit log of election programming activities that an election administrator can export to USB for further analysis as necessary based on audit log retention requirements. Further audit log detail is provided in section 10.5.

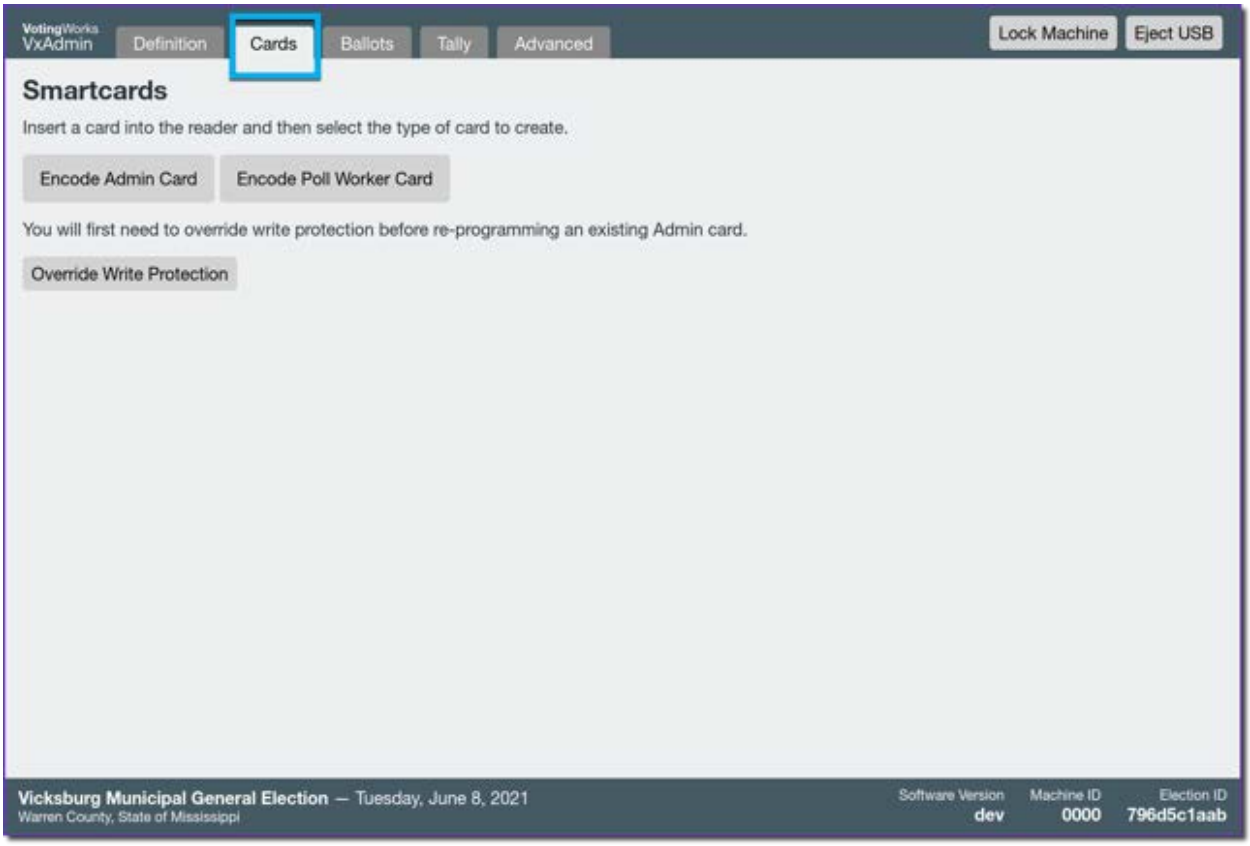
To export a log file, visit the Advanced tab and click `Export Log File.` You can then select the desired location on a USB drive to save the file to.



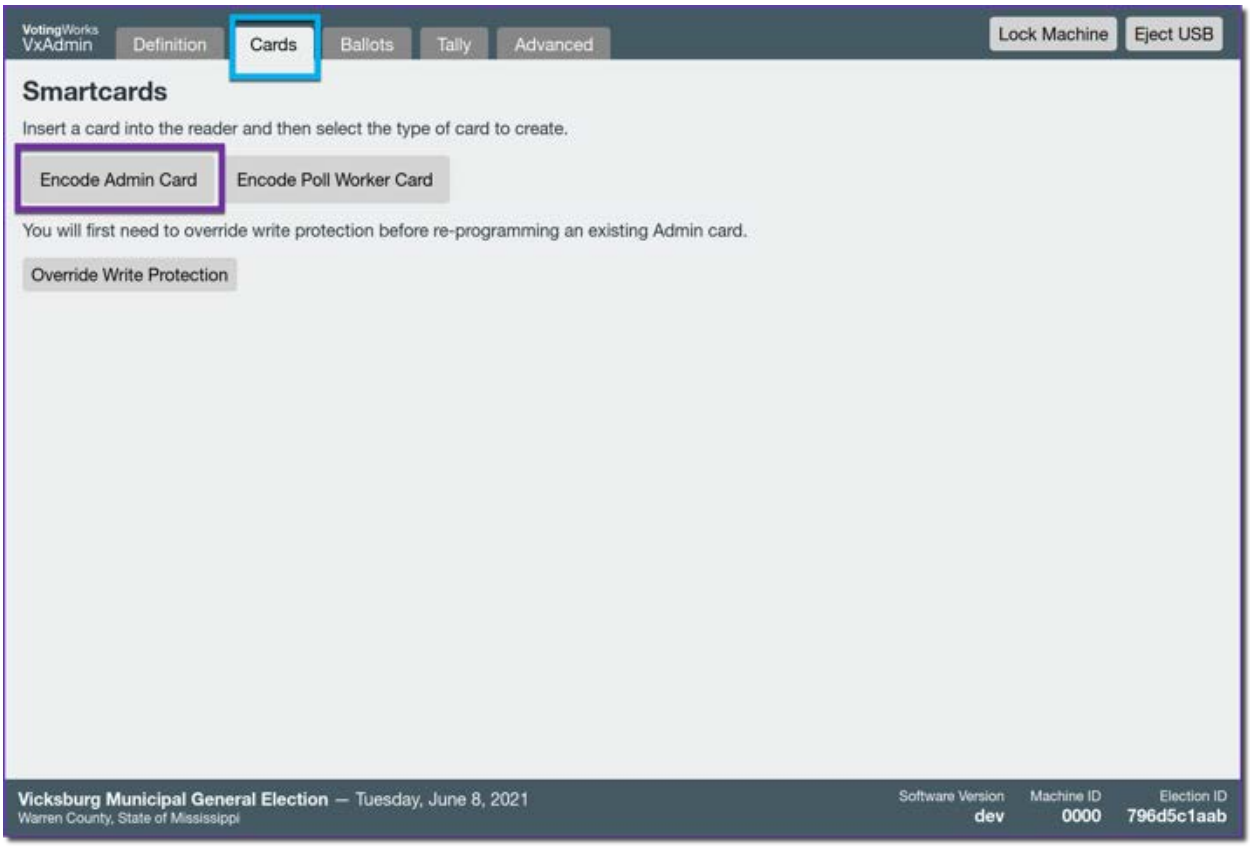
4.2. Programming and configuration of vote recording/tabulation devices, including audit records to be generated and retained

Program Admin Card

To configure VxMark, an Admin Card first needs to be programmed with the election definition. To program any smart card, first navigate to the Cards tab.



Insert a smart card labeled Admin Card into the card reader. In the Cards tab in VxAdmin, select `Encode Admin Card.`

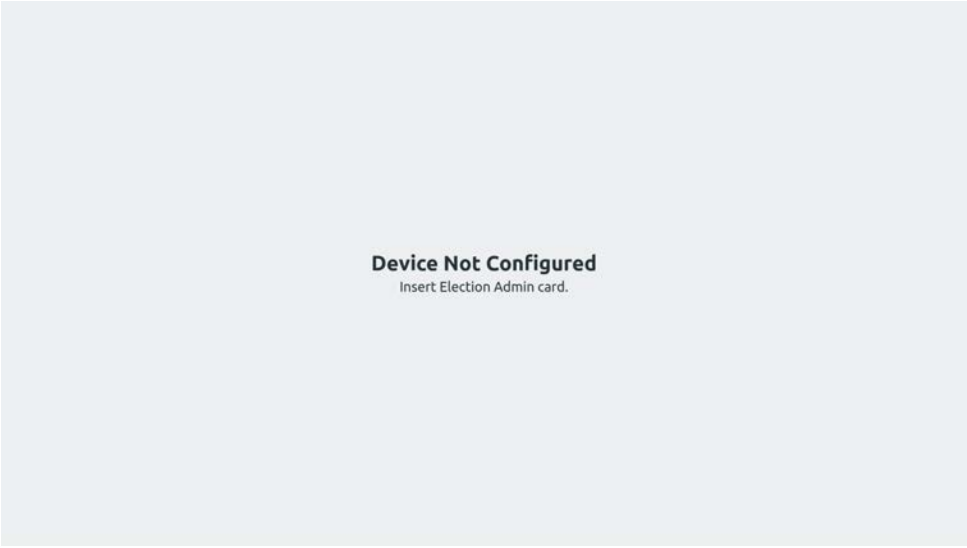


You will be prompted to program a security code for the Admin Card. Enter a 6-digit security code and click `Create Card`.

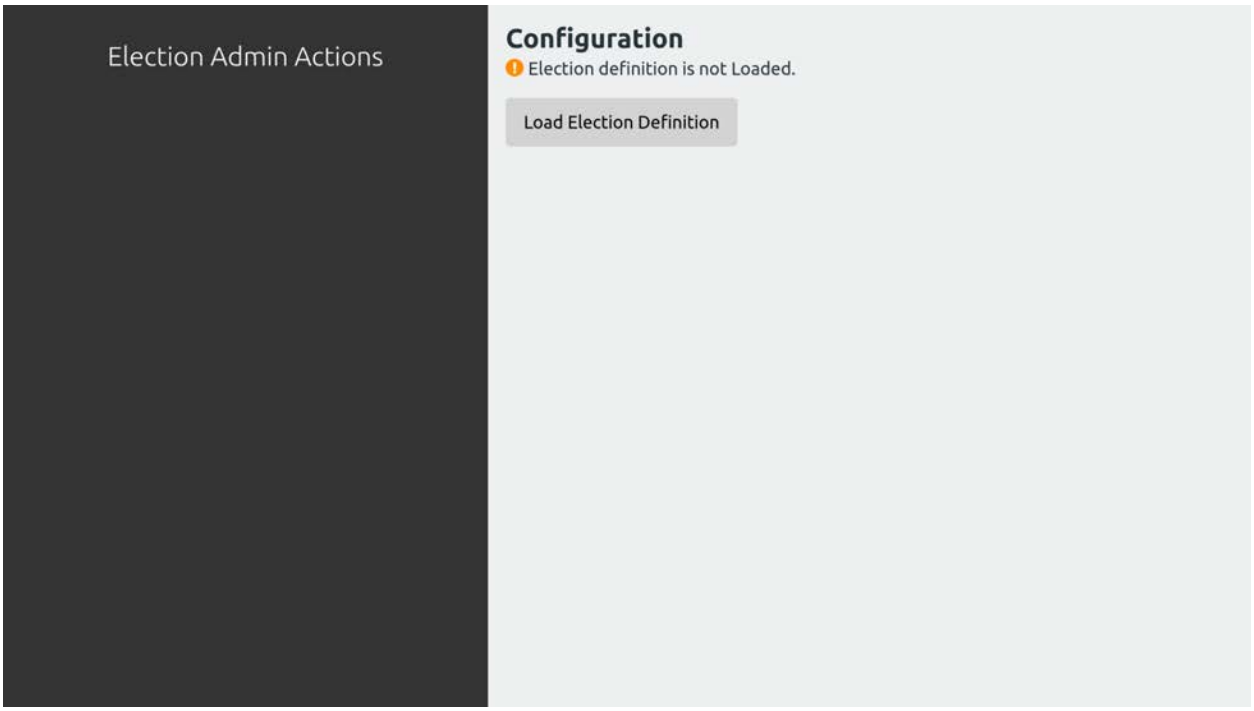
A Poll Worker card is programmed in the same manner by selecting `Encode Poll Worker Card`. Poll Worker cards are not necessary for programming or configuration, but are necessary for opening/closing polls as well as activating voting sessions on VxMark.

Program VxMark

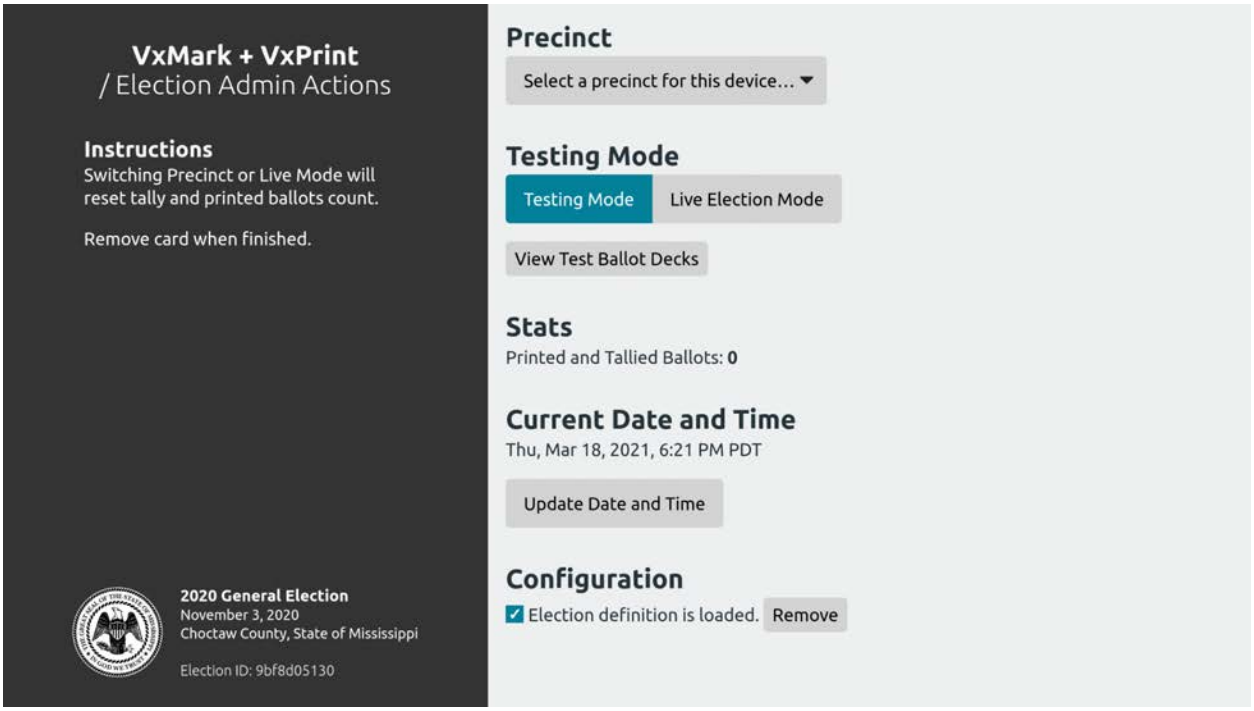
First, turn on the VxMark. The following screen is shown:



Insert an Admin Card into the card reader and the following screen will appear:



Tap *Load Election Definition* and the following screen is shown:



The VxMark should be configured for All Precincts as this will be used for any ballot style in a Voting Center. Select `Testing Mode` for L&A or select `Live Election Mode` for election operation.

Remove the Admin Card and the machine will be configured ready for use.

VxMark automatically generates an audit log of election programming activities that an election administrator can export to USB for further analysis as necessary based on audit log retention requirements.

Authenticity of Data Transfers

Each VotingWorks component, VxMark and VxAdmin, is capable of signing data with a secret key stored only on the machine. The public key for each machine is made available at configuration time, as described in section 3.3.

Then, every data file exported from any VotingWorks component, e.g. logs from VxMark, or tally results from VxAdmin, comes with a digital signature on that file, which can be verified against the public key of the component that created it. Thus, any attempt to tamper with those files is detectable.

All digital signatures are created and verified using Signify[1], a standard open-source tool that has been broadly tested and validated in verifying software distributions.

4.3. System diagnostic testing procedures, including audit records to be generated and retained

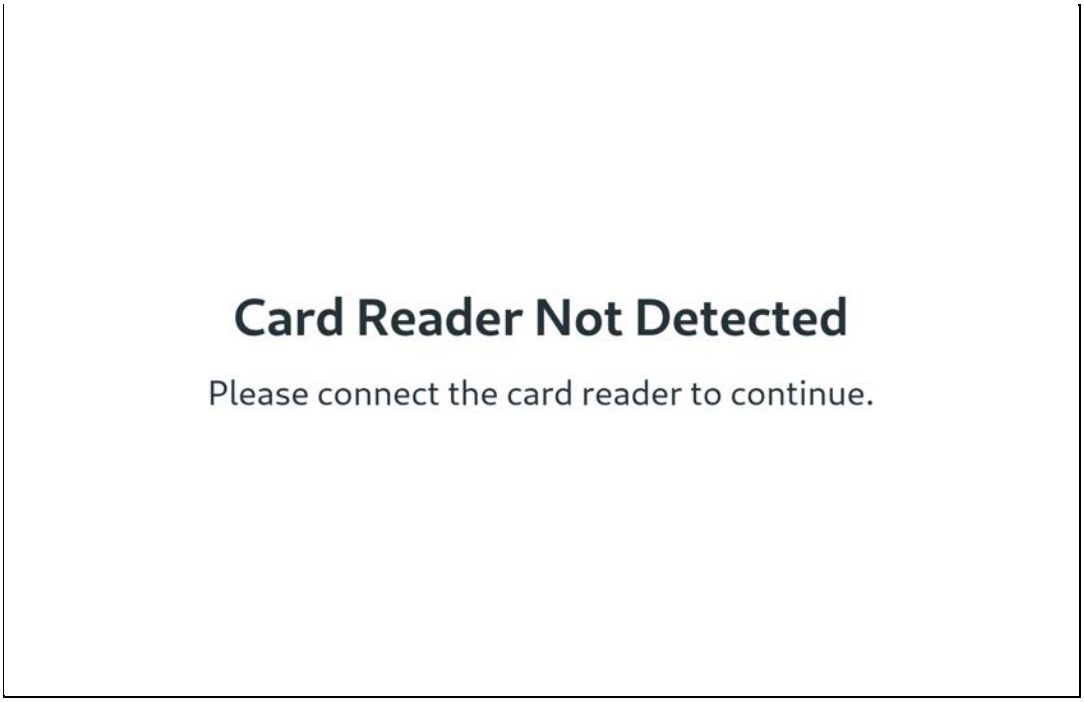
VotingWorks includes built-in system diagnostic testing to confirm hardware and software status such as testing the connection of physical peripherals and access to power. Components automatically produce an audit log of the diagnostic tests performed that can be exported to USB for further analysis.

VxAdmin

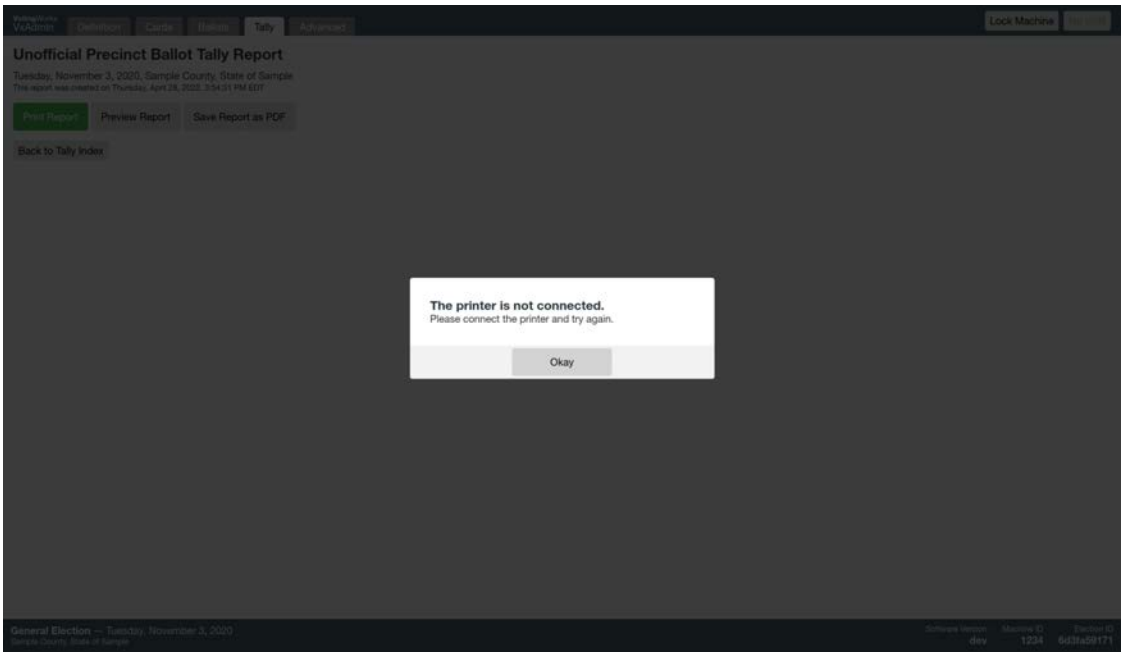
On VxAdmin, two external hardware components are used and thus included in hardware diagnostics: the card reader, and the printer.

The card reader is required for all operations. If it isn’t connected, VxAdmin immediately and automatically shows this blocking screen:

[1] https://man.openbsd.org/signify

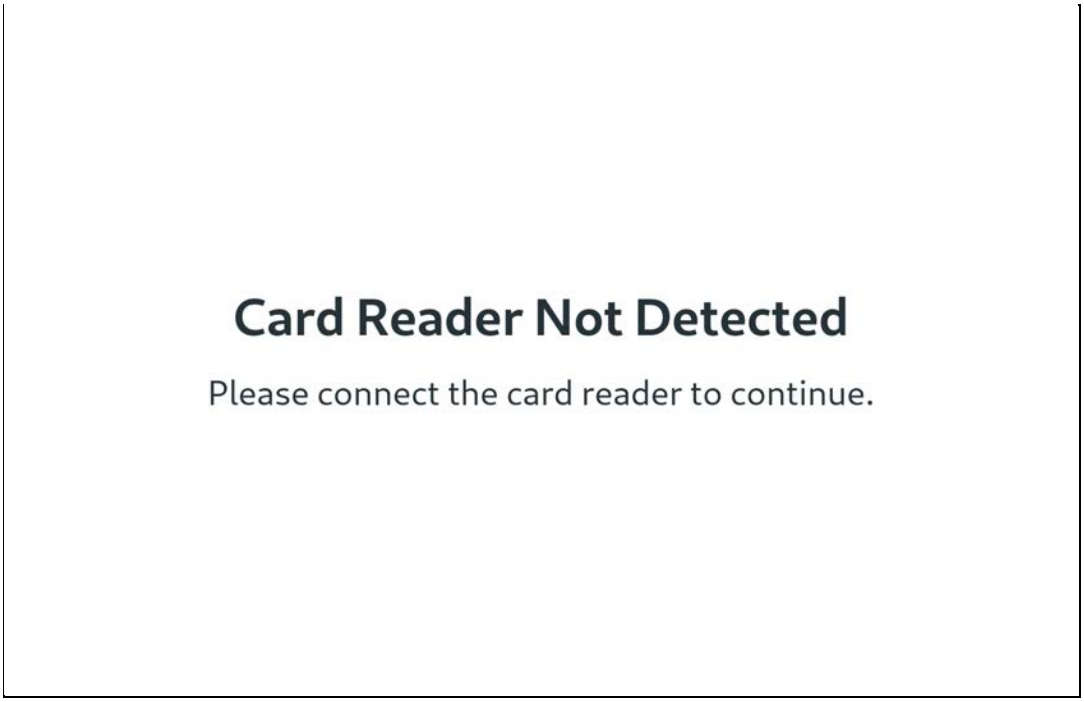


VxAdmin can perform many of its functions without a printer, so a connected printer is not a requirement for operation. Once it comes time to print, if the printer is not reachable for any reason, VxAdmin clearly notifies the user:



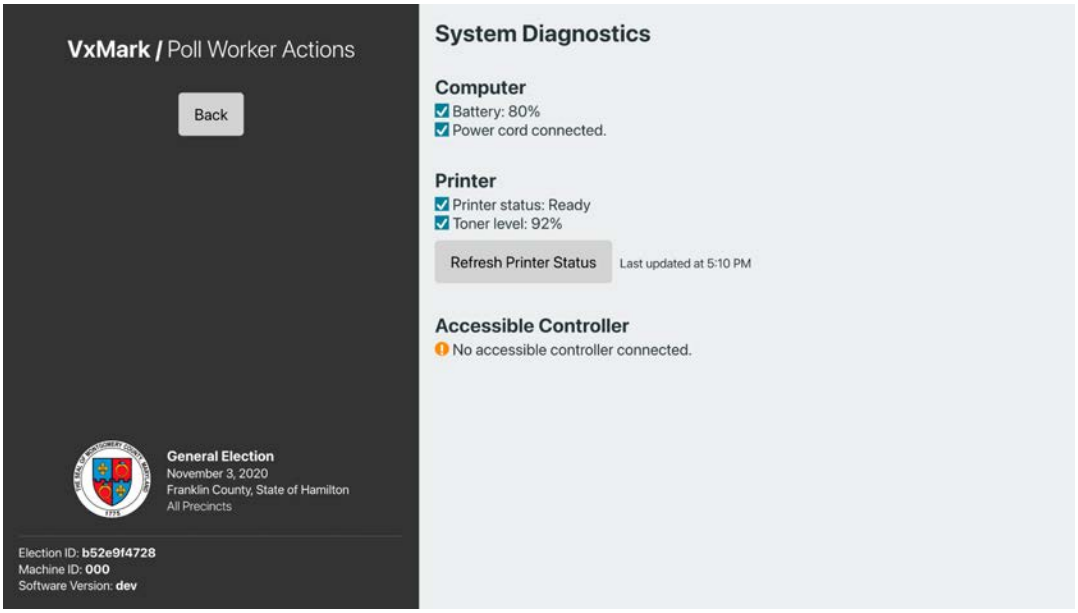
VxMark

On VxMark, the card reader is required for any operation, so the same error screen appears if a card reader is not connected:

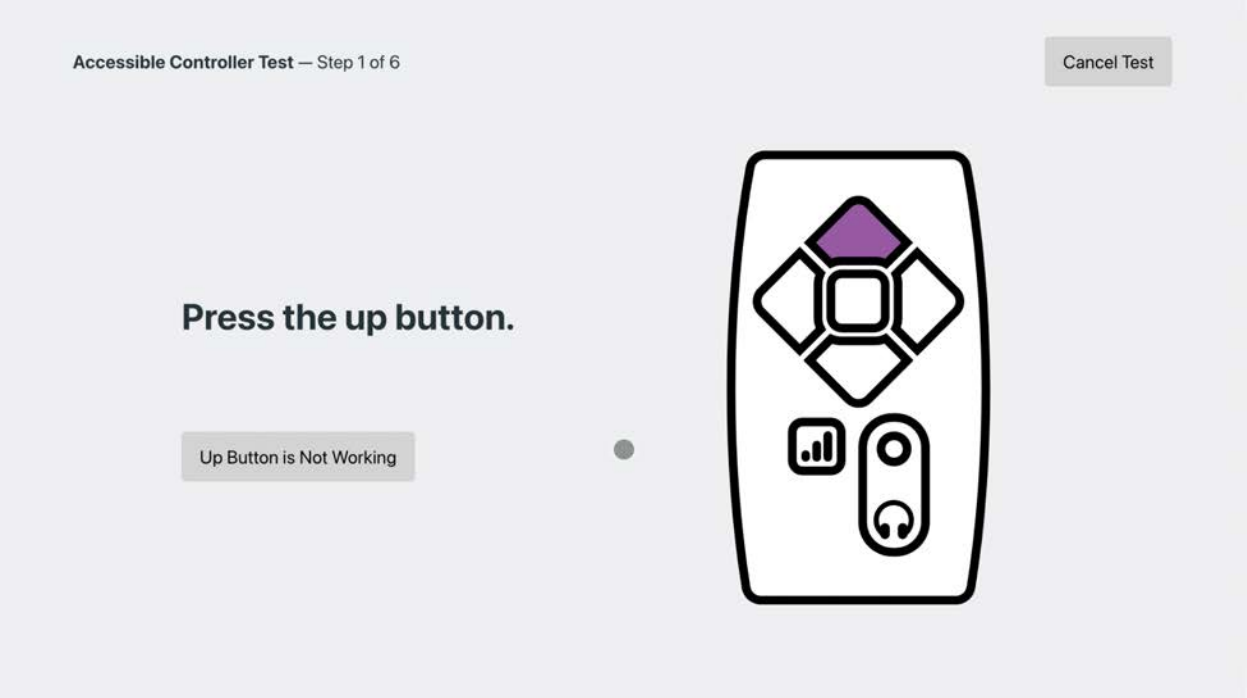


Once configured, a printer is required for all operations. An error screen comes up immediately if VxMark cannot detect a working printer:

In addition, VxMark offers a comprehensive hardware diagnostic process for battery/power and printer status, as shown here:



VxMark offers an interactive diagnostic function to ensure the accessible controller is working – so that the chance of failure during voter use is greatly minimized:

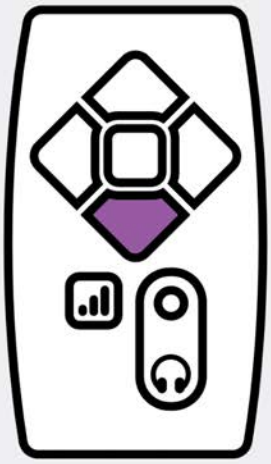


Accessible Controller Test — Step 2 of 6

Cancel Test

Press the down button.

Down Button is Not Working

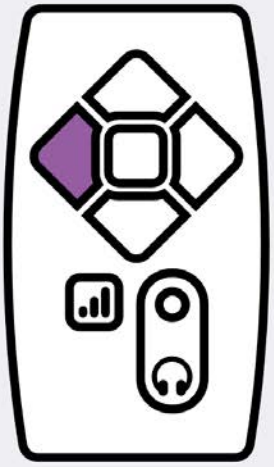


Accessible Controller Test — Step 3 of 6

Cancel Test

Press the left button.

Left Button is Not Working

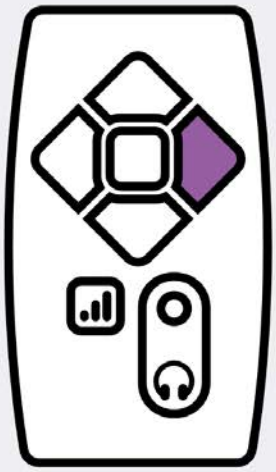


Accessible Controller Test — Step 4 of 6

Cancel Test

Press the right button.

Right Button is Not Working

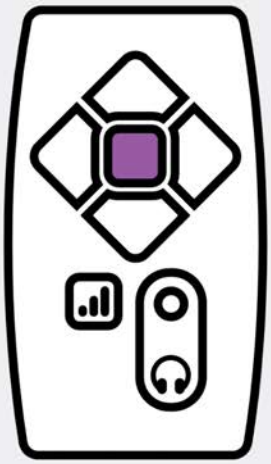


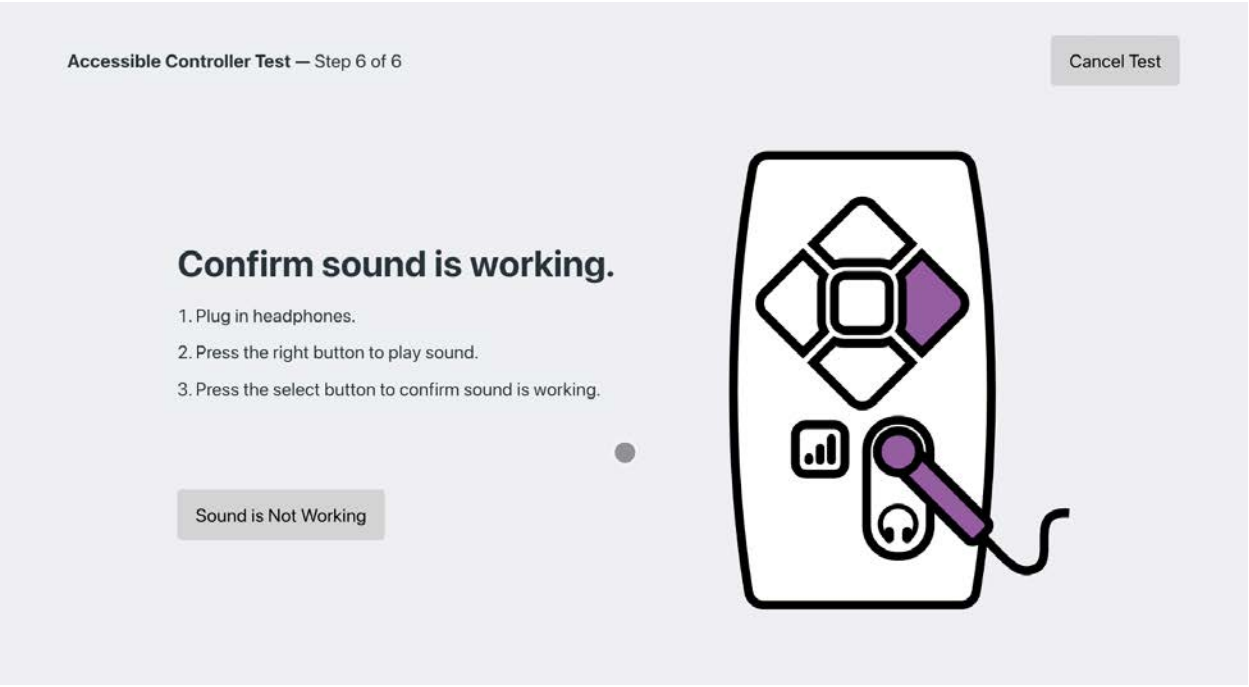
Accessible Controller Test — Step 5 of 6

Cancel Test

Press the select button.

Select Button is Not Working

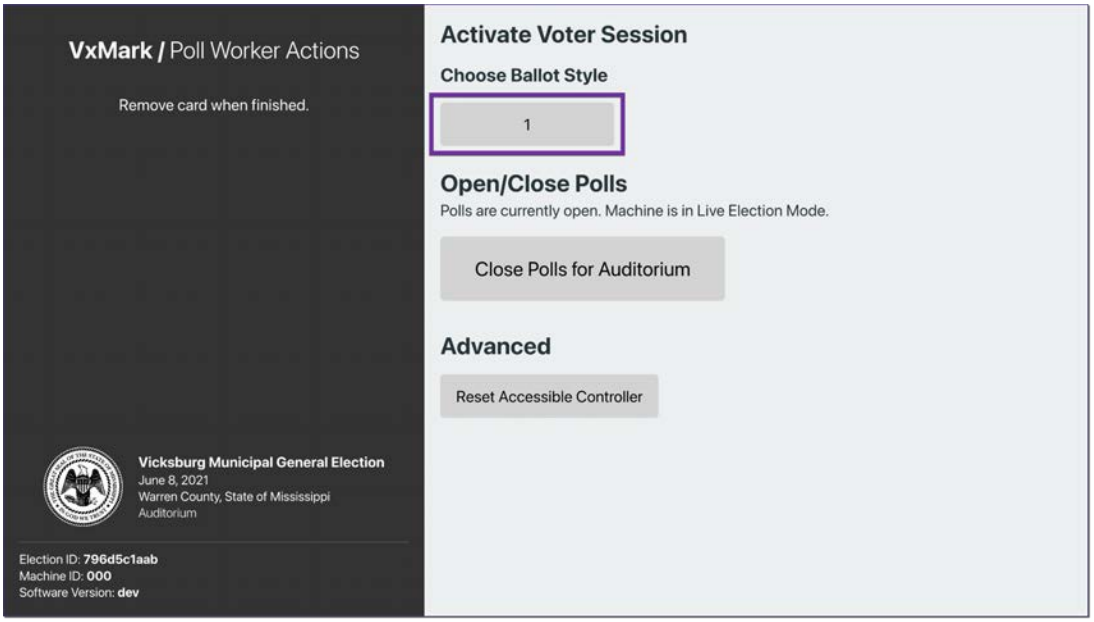




4.4. System proofing

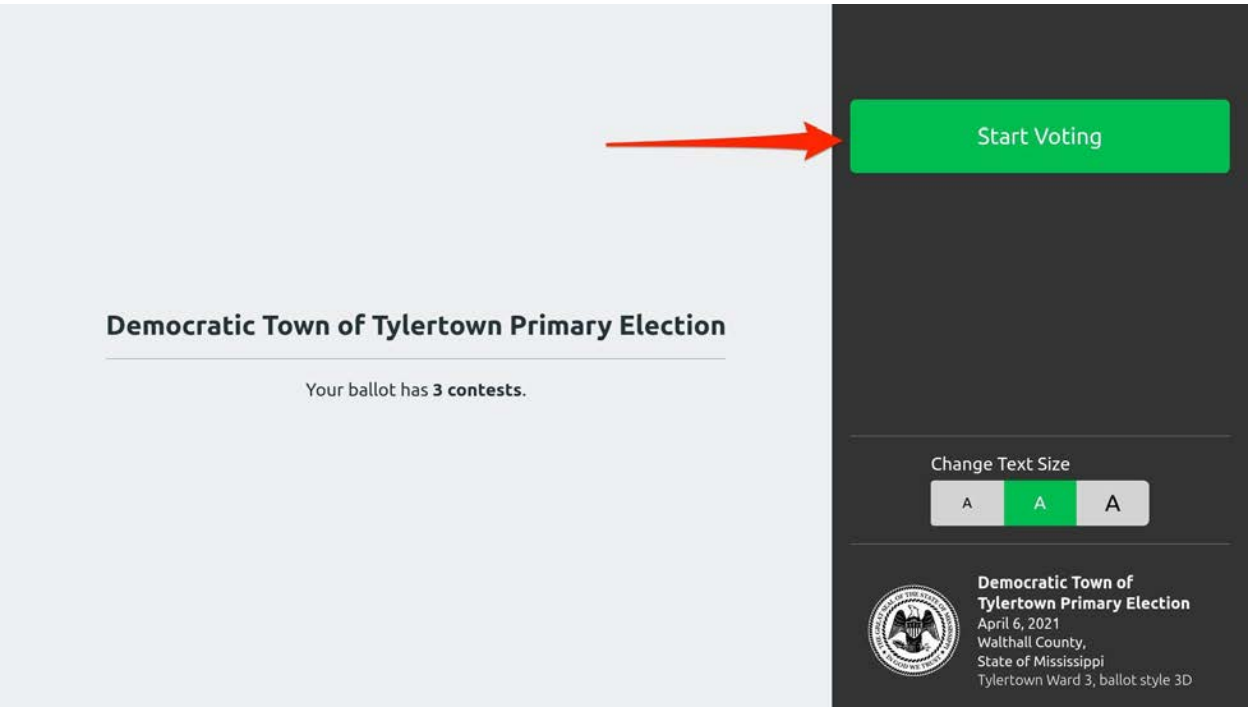
For this pilot, the only proofing required is the proofing of the ballot content on VxMark. To proof a VxMark ballot, follow the following process to activate and vote on a VxMark itself.

First, insert a Poll Worker card to activate the appropriate ballot. A Poll Worker card is programmed by following the instructions defined in section 4.2. After inserting a Poll Worker card, the Poll Worker Actions screen will show all available ballot styles under Choose Ballot Style.

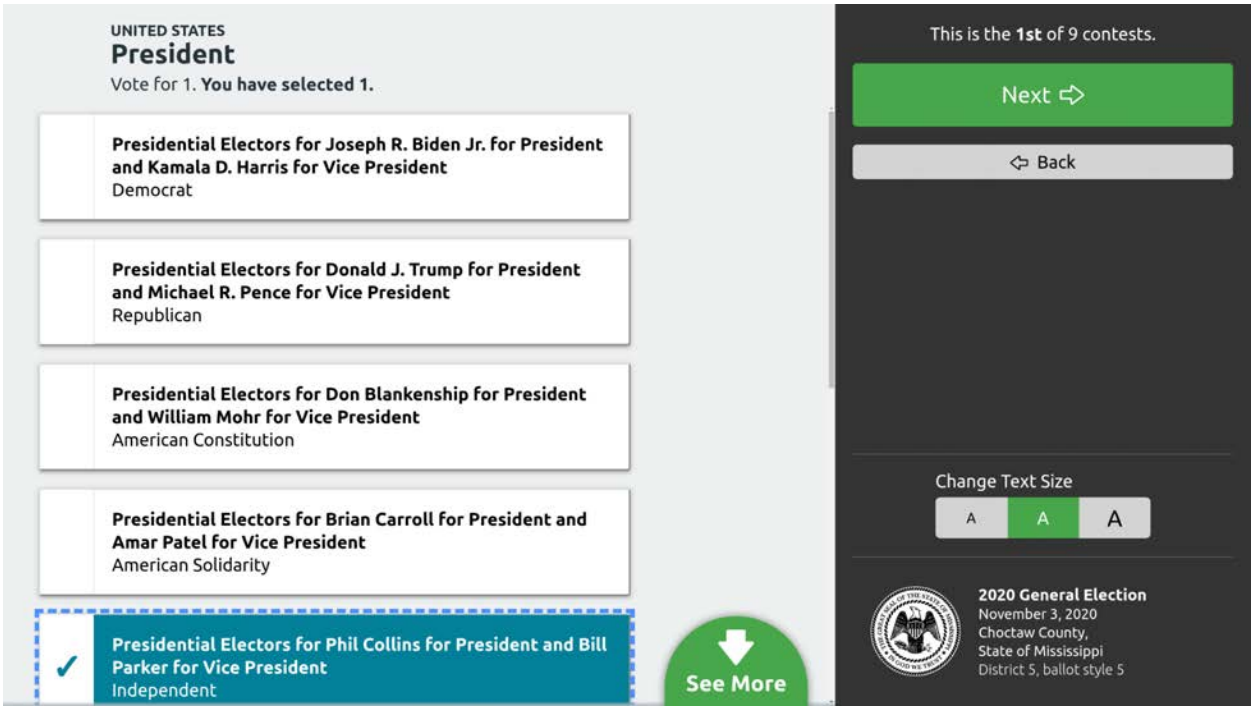


Tap the desired ballot style, and the screen changes to indicate that the VxMark has been activated with that ballot style:

Remove the Poll Worker card and you can begin “voting” to proof the ballot:



You may proof the ballot one contest at a time and proof the audio experience by listening to the audio ballot using the attached headphones.



This process can be performed for each ballot style to confirm ballot definition accuracy.

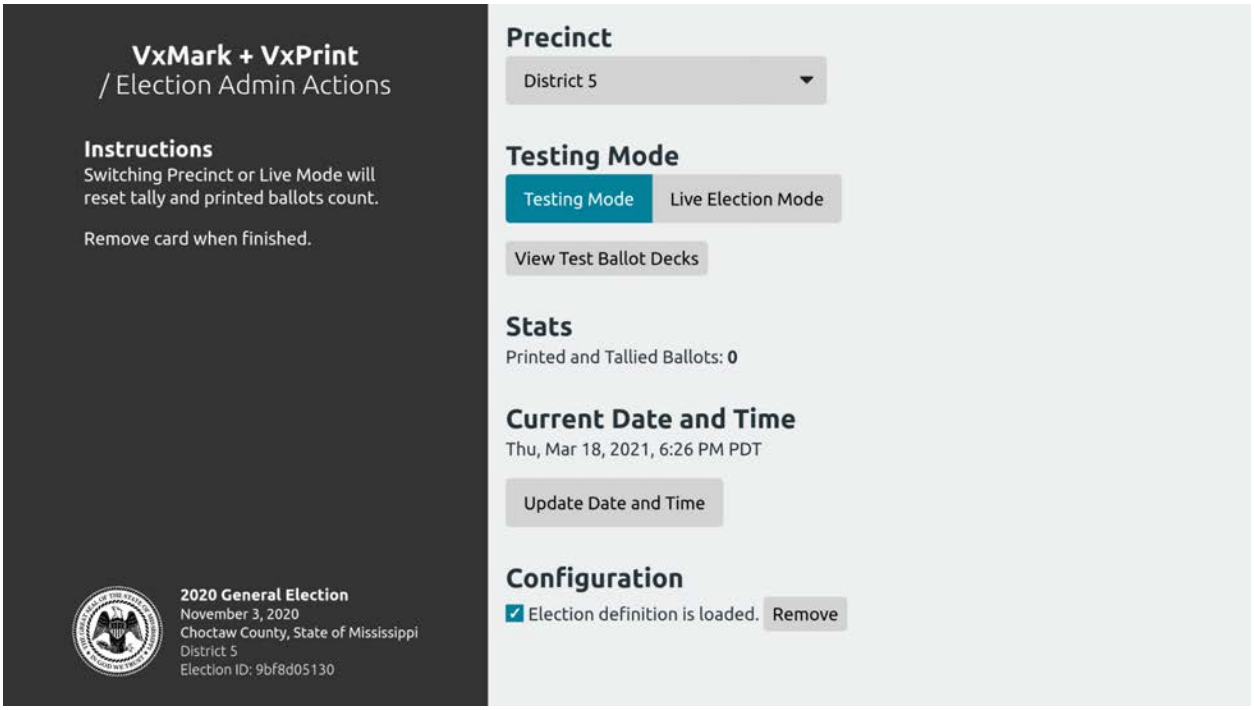
4.5. Logic and accuracy testing of system and components

As this pilot will only be used to mark ballots, the purpose of Logic and Accuracy testing is to confirm that all possible VxMark ballot selections can be printed and that a given manual ballot selection prints a user's ballot selections accurately.

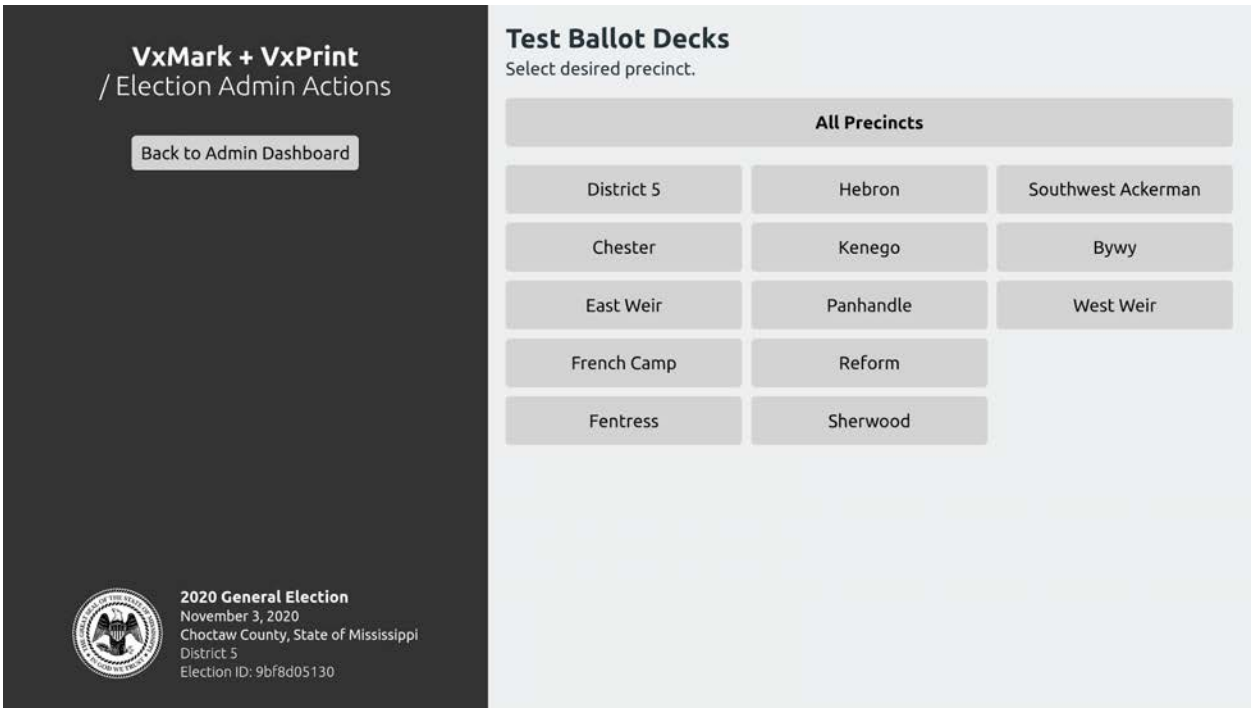
4.5.1. Pre-conditions for performance of tests, including test decks

Before performing logic and accuracy testing, the VxMark test deck must first be printed using a configured VxMark unit as configured per the steps in section 4.2.

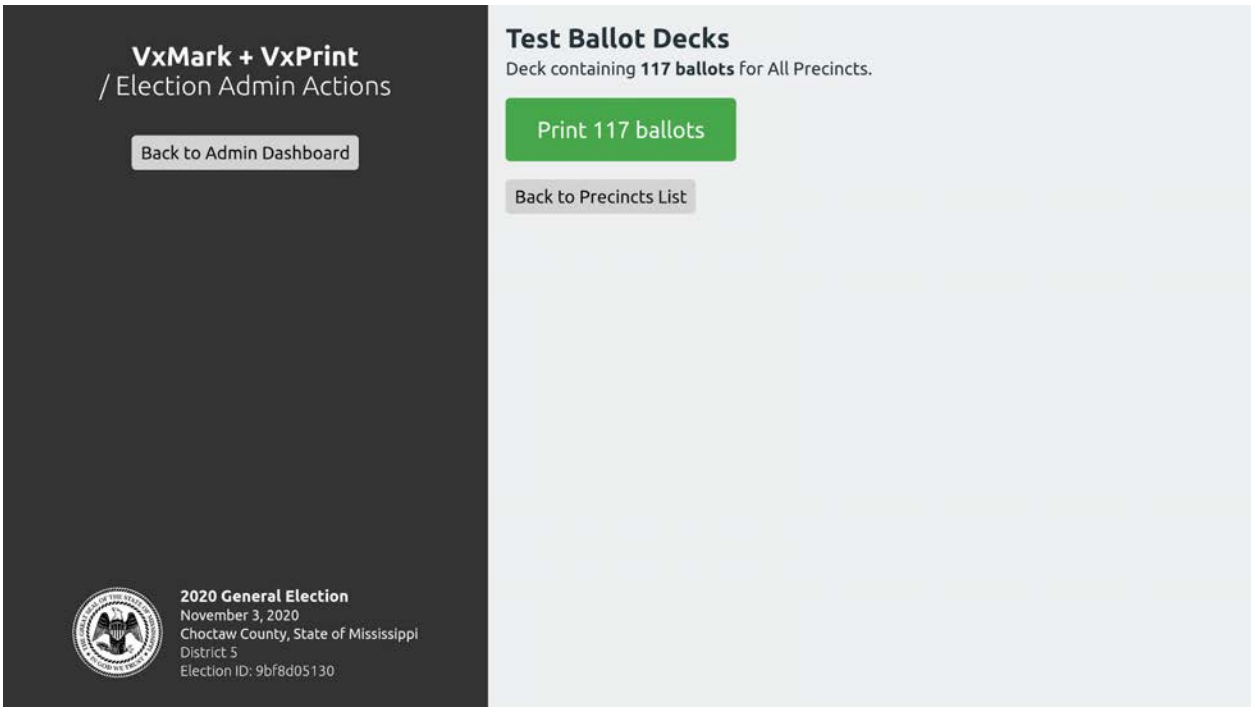
Turn on the VxMark and insert the Admin Card. The Admin screen will be presented.



Tap View Test Ballot Decks, which then shows you a list of Test Ballot Decks.



You can select All Precincts or choose a precinct, which then leads to the following screen.



The number of ballots depends on your number of precincts and ballot styles. Select `Print N ballots` and the test deck will then print. Depending on your number of ballots, this may take a few minutes.

You now have a test deck of BMD ballots ready to review to confirm all possible selections can be printed. The only difference between an official ballot and test ballot are the words “Test Ballot” in the ballot header and that this ballot can only be scanned by VotingWorks scanners in test mode.

4.5.2-3. Logic & Accuracy Test procedures

VxMark Logic & Accuracy Checklist:

- ☐ Setup VxMark per the equipment set-up procedure described in Section 5.2
- ☐ Confirm Election, Election ID, Date, Time, and Precinct (Admin Card)
- ☐ Confirm VxMark printer is loaded with paper
- ☐ Confirm VxMark is in "Testing Mode" (Admin Card)
- ☐ Open Polls on VxMark (Poll Worker Card)
- ☐ Confirm that all expected ballot styles show up as options at top of screen
- ☐ Run the Ballot Style Sub-Checklist (below) for *each* ballot style
- ☐ For one of the ballot styles selected at random, confirm that the entire ballot can be filled out and printed using only the audio track over headphones and the accessible controller
- ☐ Confirm the previously printed VxMark test deck includes all possible ballot selection for every ballot style

Ballot Style Sub-Checklist:

- ☐ Confirm all expected contests appear in the correct order
- ☐ Confirm all candidate names appear and are spelled correctly
- ☐ Confirm each candidate / choice can be selected and deselected

- ☐ Confirm the review screen lists all contests
- ☐ At the review screen, for each contest
  - ☐ select `Change`, leave blank, tap `Review`, confirming the contest is left blank
  - ☐ select `Change`, choose a write-in (if appropriate), select `Review`, confirm the write-in appears
  - ☐ select `Change`, attempt to select more than the max number of choices, confirm you cannot
  - ☐ select `Change`, make a selection, select `Review`
- ☐ Select `I'm Ready to Print My Ballot`, and confirm the ballot prints.
- ☐ Confirm the printed ballot includes the selections made on screen (write down the selections from your review screen on this checklist to make this easier)

4.5.4. Retention of test materials

The jurisdiction should retain all test materials as long after the election as required by law.

4.5.5. Logic and Accuracy Board and certification of testing

Logic and Accuracy tests shall be performed prior to Logic and Accuracy Certification to the Secretary of State and prior to Election Day.

4.6. Ballot tally programs

Ballot tally programs will not be placed in escrow for this pilot as the VotingWorks system will not be tabulating and reporting results for the semi-official or official results (see sections 7 & 8).

4.7. Election Observer Panel

San Francisco will not modify its election observer panel procedures for this pilot and will implement the current procedures in use for their Dominion voting system.

4.8. Hardware maintenance and preparation for use

Hardware maintenance is unnecessary for the implementation of the one-time pilot as VotingWorks personnel will ensure hardware is prepared before first use. However, if hardware maintenance and preparation were needed, we describe here the simple steps required.

VxAdmin and VxMark consist of standard off-the-shelf electronics. Maintenance required is thus standard electronics maintenance:

- Screens should be cleaned before use with an appropriate laptop screen cleanser, for example using a Belkin screen cleaning kit[2] available on Amazon.
- Printer toner levels should be checked and toner replaced as needed. Paper trays should be filled with the requisite paper.

[2] https://www.amazon.com/Belkin-F5L034-Screen-Cleaning-Kit/dp/B001NIEK3Q

Beyond these maintenance tasks, if a component malfunctions as reported in Hardware Diagnostics (see section 4.3), then VotingWorks will assist in either replacing the complete unit, or replacing the standard COTS component (card reader, accessible controller).

5. Polling Place Procedures

5.1. Precinct supplies, delivery and inspection

Upon equipment delivery, inspection will include the acceptance testing procedures defined in section 3.4 and the System Diagnostic Testing defined in section 4.3.

The only required components are the VxMark ballot marking device and attached printer. The only additional supplies are paper stock (per section 2.2), HP 404n toner, and tamper-evident seals, which will all be provided by VotingWorks for this pilot.

5.2. Polling place set-up (including equipment setup)

VxMark can be set up in just a couple of minutes. Before you start, confirm that you have the black VxMark case, its associated printer case, and enough table space to comfortably fit both.

Setup Printer

1. Remove the printer and power cord from the case, and place both on the table
2. Plug the power cord into the back of the printer
3. Plug the power cord into an outlet
4. Press the power button to turn on the printer
5. Load paper into the paper tray

Remove printer and power cord

Plug the power cord into the back of the printer and into an outlet

Press the power button to turn on

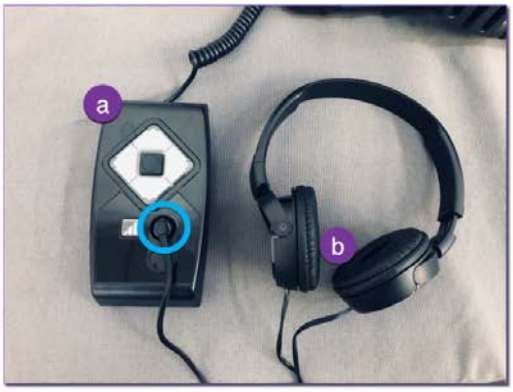
Setup VxMark

First, place the VxMark case and open the case by lifting the four latches on the sides and front as shown below:

Next, prepare the VxMark sub-components:

1. Pull the **accessible controller** (a) out from the front-left compartment and set it to the left of the case
2. Remove the **headphones** (b) from the travel pouch on top of the screen and plug them into the accessible controller (a)
3. Pull the **power cord** (c) out from the back-left compartment and plug it into an outlet
4. pull the **printer cable** (d) from the mid-right compartment and connect it to the back of the printer
5. Do **not** remove the **card reader** (e) from the front-right compartment, no action is required

Prepare components



Plug headphones into accessible controller

To complete VxMark setup:

1. Turn the VxMark on: the power button is located to the middle-right of the screen, next to the printer cord. Run your finger along the side of the screen and press the power button firmly for 1 second and then release. The card reader and accessible controller will light up within 3-5 seconds.
2. Remove the privacy screen from the case top (behind the foam)
3. Set up the privacy screen
4. Store the empty headphone pouch behind the privacy screen

Turn the VxMark on with the power button

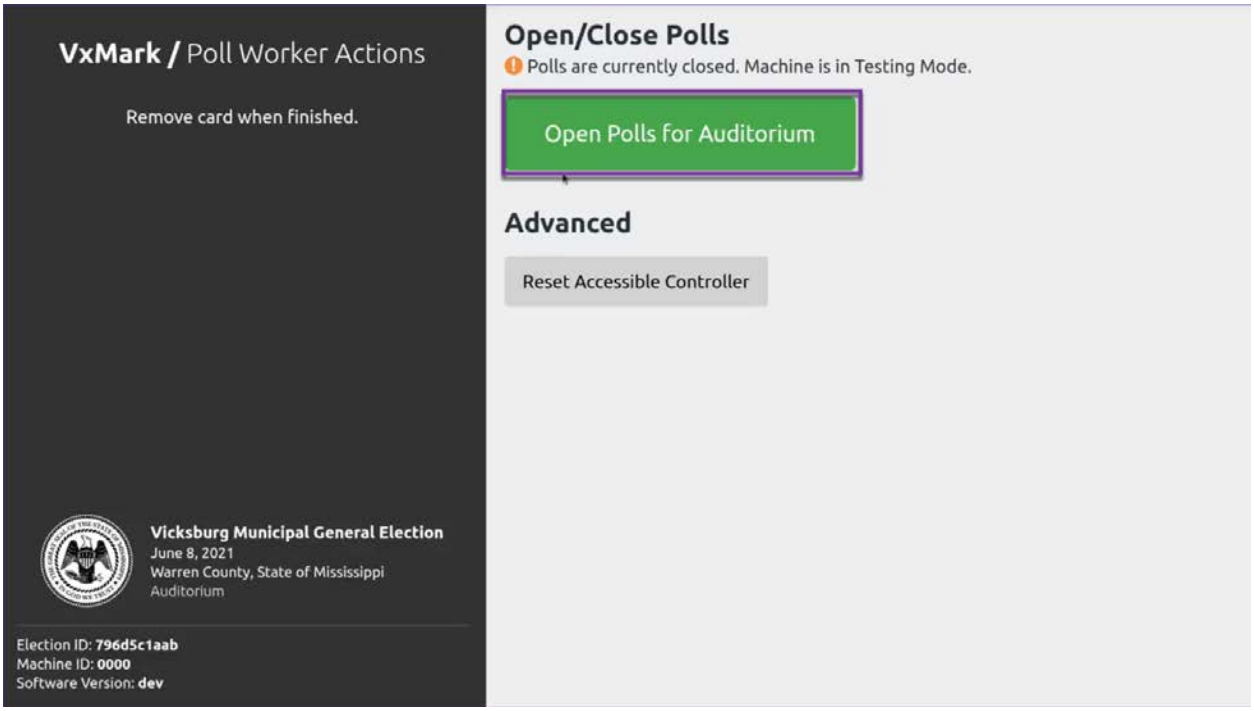
Remove the privacy screen

Set up the privacy screen

You are done setting up the VxMark and are ready, when necessary, to open the polls and print the polls opened report.

5.3. Opening the polls

To open the polls on VxMark, insert a Poll Worker Card, and select `Open Polls for [Polling Place Name]`.



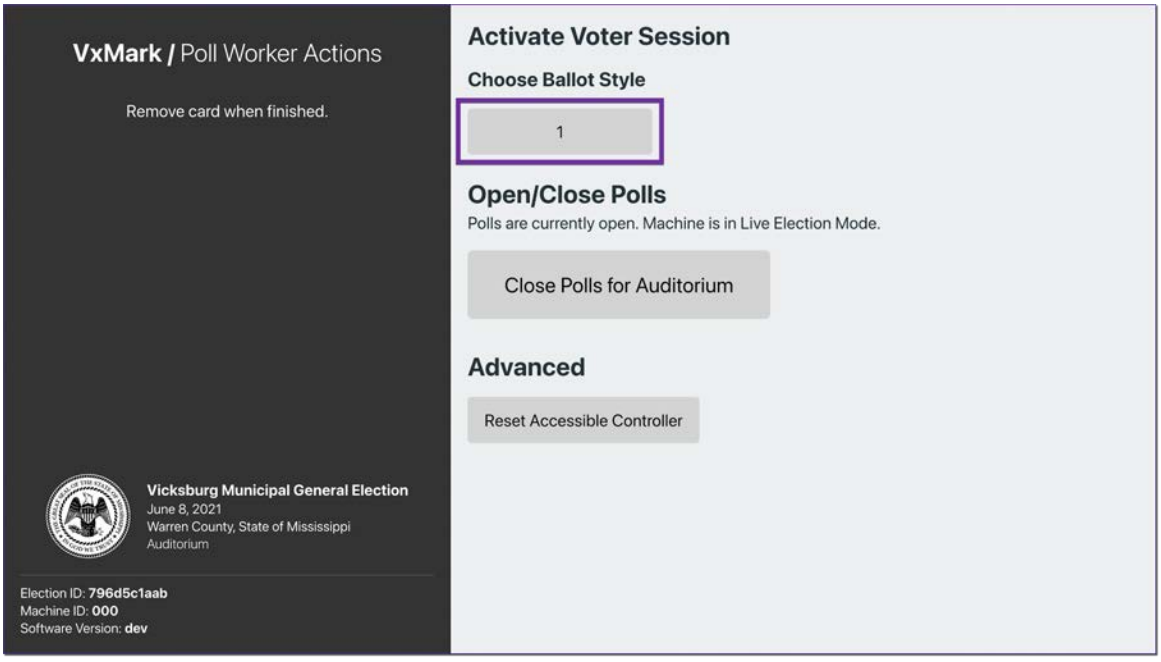
Remove the card when finished and polls are open.

5.4. Polling place procedures

Activating a Ballot Style

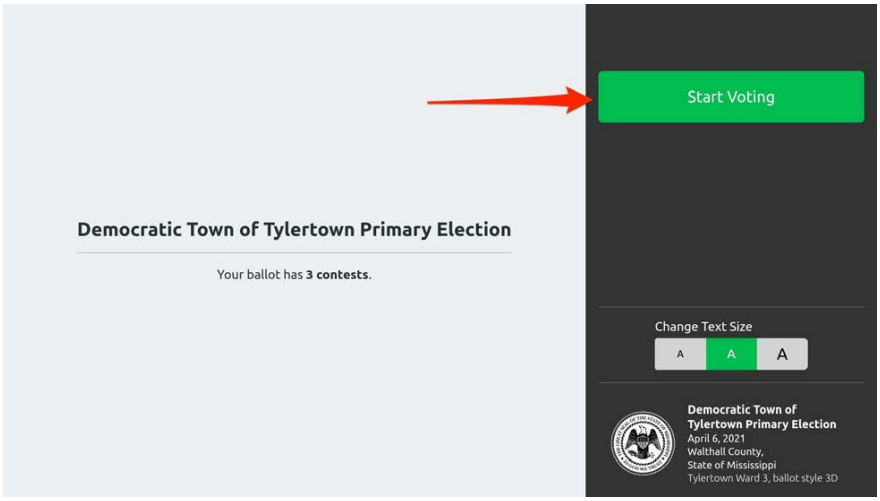
If a voter chooses to use the VxMark, you'll need to use your Poll Worker Card to select their ballot. Insert the Poll Worker Card as instructed on the screen.

Then select the ballot style under the Choose Ballot Style heading.



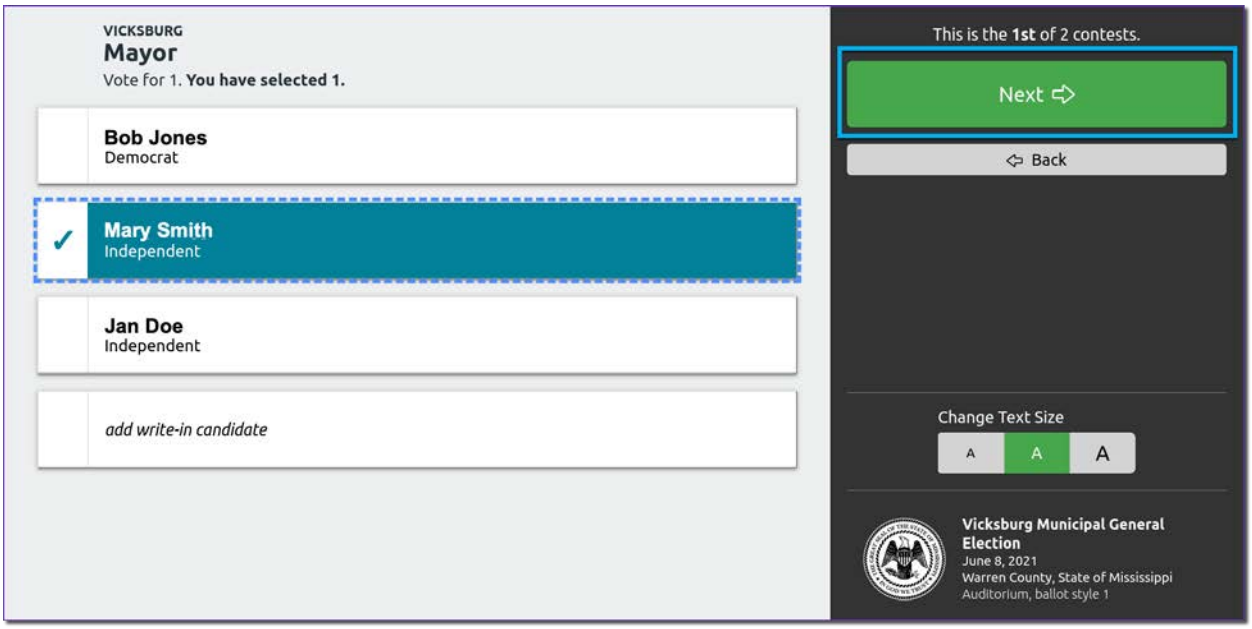
Select the desired ballot style, and the screen changes to indicate that the VxMark has been activated with that ballot style.

Remove the Poll Worker card and let the voter know they can begin voting by selecting `Start Voting`:

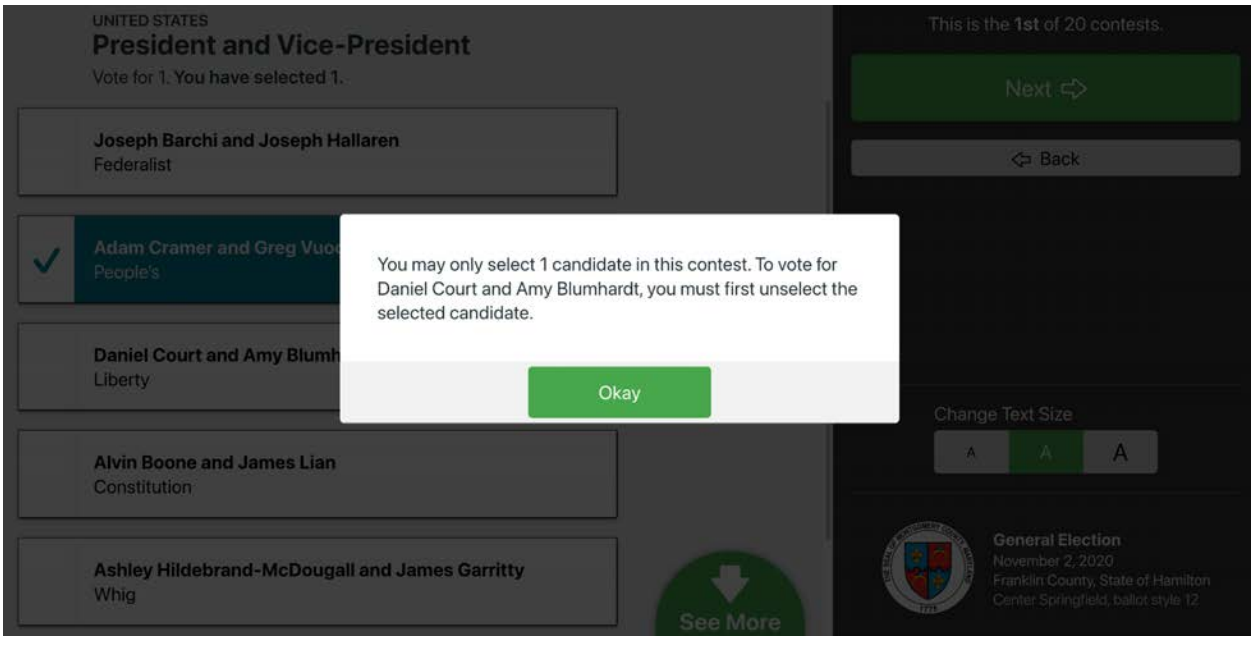


Voting Instructions

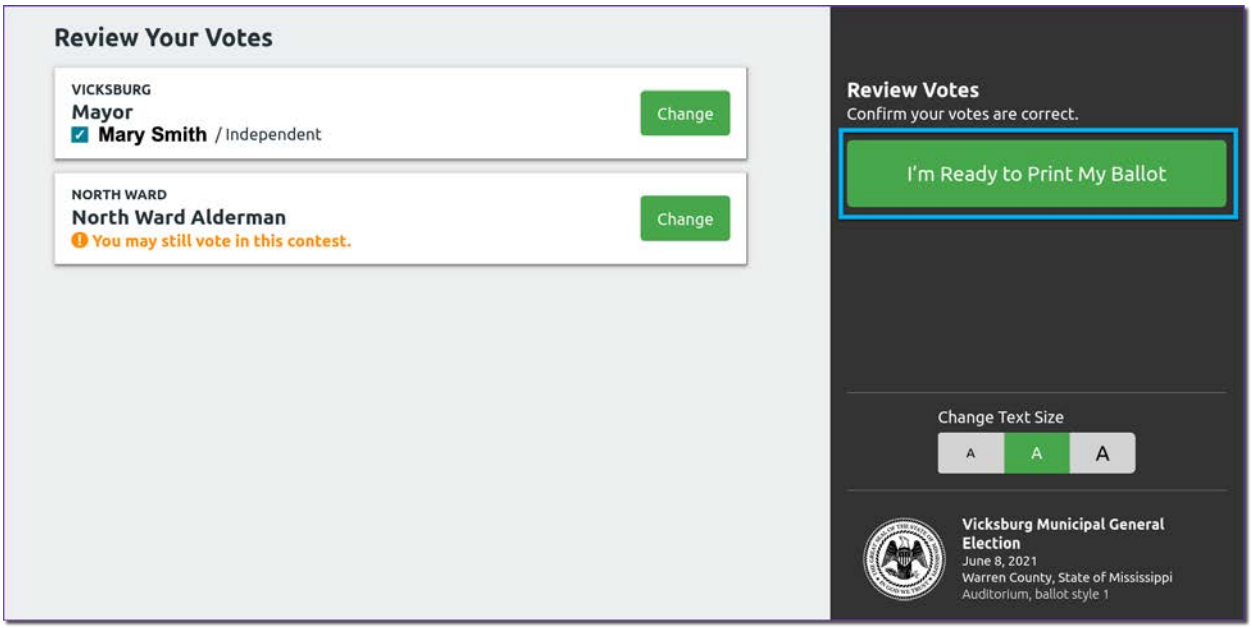
The voter will be presented with one contest at a time. They will make a selection by selecting the candidate of their choice.



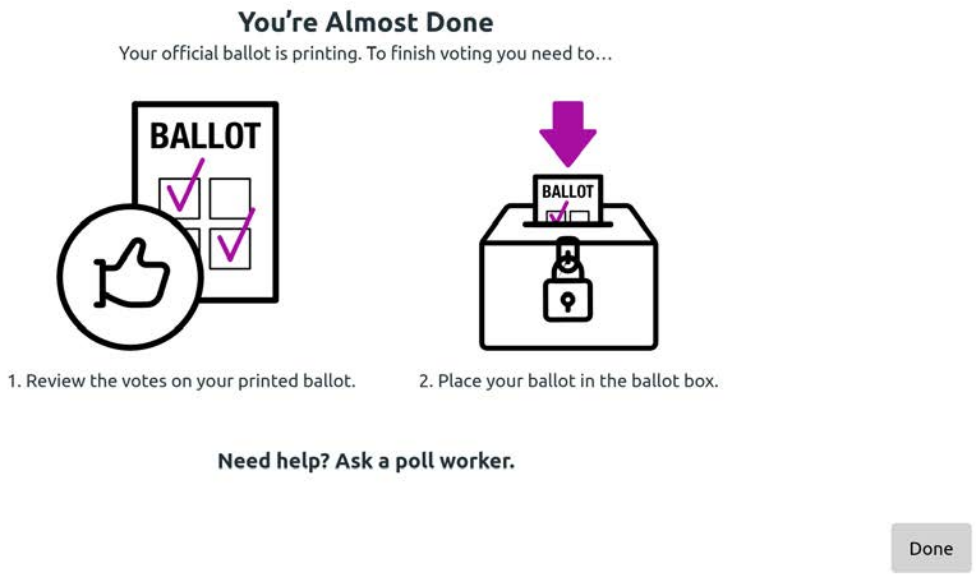
If a voter overvotes a given contest, VxMark will notify the voter they have exceeded the number of possible selections:



The voter moves to the next contest by selecting Next.The voter can skip a contest by selecting *Next* without making a selection. To return to a previous contest, they should select Back.
After working through all contests, a Review Your Votes screen appears that allows the voter to change any vote by selecting Change.



When done reviewing, the voter taps `I'm Ready to Print My Ballot`. The ballot should then begin printing. Once it's done printing, the screen will display instructions for the voter to cast their ballot:



The voter may press the Done button if they wish, but it's not required. The screen will automatically refresh to the starting point after a few seconds.

The voter should take their printed ballot and review it one final time. They should then take it to the ballot box to cast the ballot.

5.5. Special needs voters

Poll workers should communicate to voters with special needs the availability of the attached accessibility controller, headphones, and display settings that can be used during the marking experience.

A voter using the accessible controller has the same on-screen voting experience as any other voter – the only change is that the navigation and selection is made through the attached accessible controller. Voters can navigate through the ballot using up, down, left, and right tactile buttons as well as a center select button.

A voter can also mark their ballot by audio-only by using the headphones attached to the accessible controller. Input is made using the up, down, left, right, and center/select buttons. The ballot instructions, content, and selections are read to the voter verbally through the attached headphones.

A voter with limited-sight can also modify the on-screen text size at any time using the `Change Text Size` setting in the bottom right of every activated voting session screen on VxMark.

Voters with language access needs can be assisted during the ballot activation process where alternative language ballots will be presented as distinct ballot styles. The marking experience does not change.

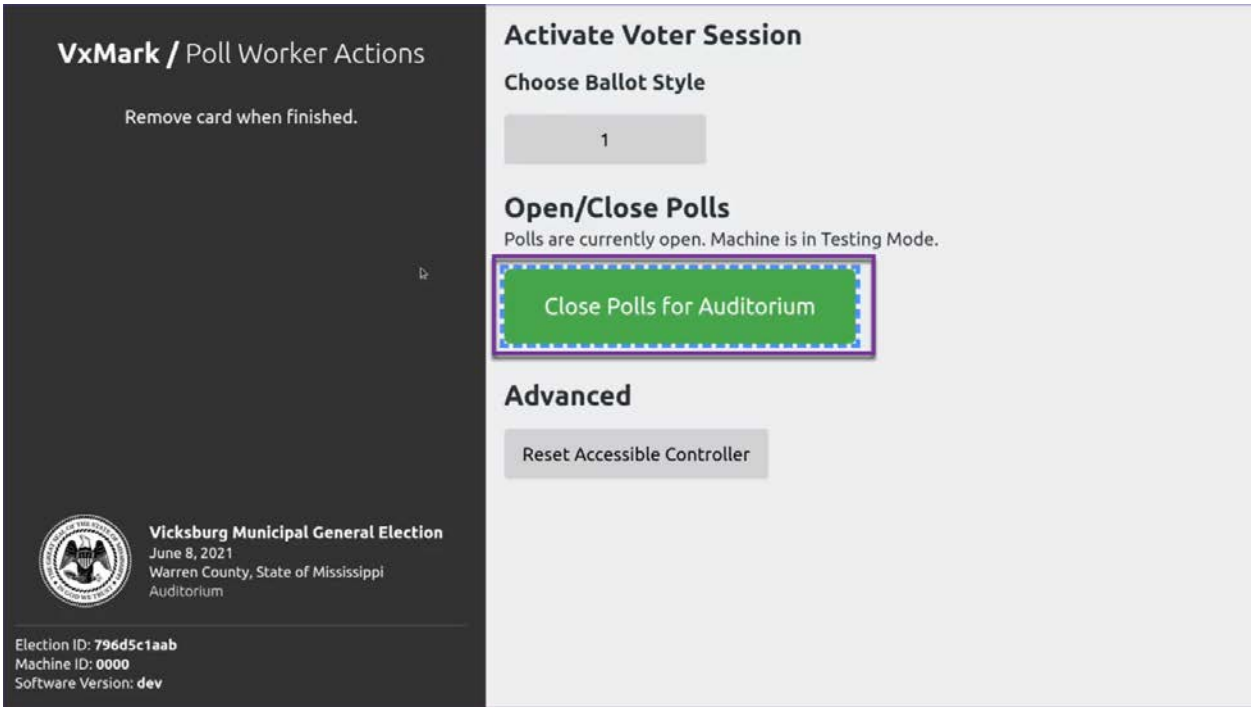
5.6. Provisional voters

Provisional voting will not take place on the VotingWorks system and provisional voters will use San Francisco's Dominion voting system for provisional voting.

5.7. Closing the polls and vote reporting

Close Polls on VxMark

To close the polls on VxMark, insert the Poll Worker Card and select `Close Polls for [precinct name]`.



Remove the Poll Worker card and polls will be closed.

Pack Up VxMark

Unplug and store printer:

1. Press the power button to turn the printer off
2. Unplug the power cord from the outlet
3. Unplug the power cord from the back of the printer
4. Unplug the printer cable
5. Place the printer in the case
6. Place the power cord on top of the printer
7. Zip the top closed
8. Apply a tamper-evident seal to the printer bag zipper seal location

9. Record the seal number

Press the power button to turn off

Unplug cords

Place printer and cable in case

Store the components:

1. Remove the **privacy screen** and place behind the foam
2. Remove the **headphones** (b) from the accessible controller (a), place them in the travel pouch, and place them on to of the screen
3. Put the **accessible controller** (a) in the front-left compartment
4. Unplug the the **power cord** (c) from the outlet and put in the back-left compartment
5. Put the **printer cable** (d) in the mid-right compartment
6. Press and hold for 1 second the power button to turn the VxMark off (button on the mid-right side of the screen)

Remove privacy screen

Store components

Turn VxMark off

Close the case and seal:

1. Secure all four latches
2. Seal at least one of the two locations with a tamper-evident seal highlighted with a square in the picture below
3. Record the seal number

BMD Ballot Remake Procedures

After polls are closed, VotingWorks ballots will be duplicated onto Dominion formatted ballots for central tabulation. This procedure is also documented in the San Francisco's Department of Elections BMD Ballot Remake Procedures document, which is included in the appendix.

Remake Process Overview

Teams of two people, a Ballot Marker and a Ballot Caller, will follow these steps to remake a VotingWorks ballots on the Ballot Marking Device (BMD) from Dominion Voting Systems:

1. The Remake teams obtain VotingWorks ballots from a supervisor or lead.
2. The Ballot Marker will enter the precinct number listed on the VotingWorks ballot into the BMD.
3. The Ballot Caller will announce the contest name and voter's selection on the VotingWorks ballot.
4. The Ballot Marker will enter the corresponding selections onto the BMD.
5. Upon completing the entry of voter intent, both the Marker and the Caller will verify the selection on the review screen and make corrections as necessary.
6. The Marker will click on "Print Ballot", then "Cast Your Ballot", to generate a printout of the BMD ballot selections.
7. The Team will verify the precinct number on the printout matches the original VotingWorks ballot.

8. If the precinct numbers do not match, the Team will spoil the printed Dominion BMD ballot by writing “spoiled” across front and back, place it in the “Spoiled” box, and begin the remake process a second time.
9. After the Team reviews the remade ballots, the Caller will serialize the original VotingWorks ballot and the Dominion ballot so both ballots can be later referenced together.

Every remake team will consist of a “Ballot Marker” and a “Ballot Caller” working together. After a lead assigns a batch of original ballot to a team, the Ballot Marker will begin marking and printing out each ballot in the batch using a BMD device. The Ballot Caller reads from the ballot the contest names and the corresponding votes, while the Ballot Marker visually verifies this information and marks these votes on the ICX machine.

All valid votes on each remade ballot must match the original ballot exactly, including undervotes and write-ins. The Ballot Marker will also confirm that all overvoted contests have been remade as blank contests (an overvoted contest must be remade as a blank contest because the BMD does not permit a user to overvote a contest and the end result, no valid vote, is the same.)

Once the ballot has been correctly remade, the Ballot Caller will write matching alphanumeric serial numbers on the original ballot and the remake printout in green ink. Such information includes type of ballot, precinct number, initials of the team members, date, and number of remake ballot in incremental order.
If the Ballot Marker made a mistake, the Ballot Marker will write the word “Spoil” across the printout and redo the remake.

For quality control, the supervisor will randomly select remade ballots for review, checking in with teams and reviewing any errors as necessary.

Once a batch of ballots has been successfully remarked, printed, and successfully reviewed, the original ballots will be separated from the remake printouts, the printouts transferred to the tabulation team for processing on ICC scanners, and both originals and remake printouts will be stored in secure rooms in the Department of Elections until certification. After certification the ballots are transferred to the Department’s warehouse for record retention.

Preparing BMD Device for Remake

To prepare BMD device for remake, the Ballot Marker will:

1. Ask the supervisor for a poll worker key card.
2. Insert the key card into the bottom of a BMD device.
3. Enter the full ballot activation code (precinct number).
4. Tap the “Activate” button.
5. Remove the poll worker key card.
6. Select “English” in the language menu.

Remaking a Ballot on the BMD Device

To remake a ballot, the Ballot Marker will:

1. Review all votemarks(s) for the first contest on the original ballot.

2. Referring to the Adjudication Guide, note the applicable rule(s).
3. Copy all valid votes for the first contest onto the BMD ballot.
4. Repeat this process (1-3) for all contests on the original ballot.
5. Tap “Review” and double check all contests and all votes.
6. Tap “Print Ballot” and “Cast Your Ballot,” then get the printout.
7. Verify the precinct number on the printout matches the one on the original. (If not, write the word “Spoil’ across the printout, place it in the “Spoiled” tray, and ask your lead for assistance.)
8. Write your first and last name initials neatly on the bottom of the remake printout.
9. Paperclip the original ballot to the printout and place the pair in the tray labeled “For Review.”

Remaking a VotingWorks Ballot

During vote-by-mail processing, ballot processors are instructed to place all non-standard ballots in a review bin. Lead staff will sort through the review bin and gather all VotingWorks ballots for remake. Lead staffs will also record the number of VotingWorks ballots collected each day in a record retention log.

Ballot Marker and Ballot Caller will follow these steps to remake a VotingWorks ballots on the BMD:

1. Obtain VotingWorks ballots from your supervisor.
2. Enter the precinct number listed on the VotingWorks ballot on the BMD.
3. Read each contest name and voter selection on the VotingWorks ballot.
4. Mark the corresponding selections onto the BMD device
5. Verify the selection on the review screen and make corrections as necessary.
6. Tab “Print Ballot”, then “Cast Your Ballot”, then get the printout.
7. Verify the precinct number on the printout matches the original VotingWorks ballot.
    a. If not, spoil the printed BMD ballot by writing “spoiled” across front and back, place it in the “Spoiled” box, and start again.
8. Serialize the original VotingWorks ballot and ballot printout.

Reviewing a Remade Ballot

To review a remade ballot for accuracy, the Ballot Marker will:

1. Review all votemarks(s) for the first contest on the original ballot.
2. Referring to the Adjudication Guide, note the applicable rule(s).
3. Confirm all valid votes for the first contest are on the remade ballot printout.
4. Repeat this process (1-3) for all contests on the original ballot.
5.
    a. If there are NO mistakes in ANY of the contests:
        i. Write the serial number on the original and the printout
        ii. Paper clip the original back to the printout, with the printout on top.
        iii. Place the successfully reviewed ballot in the tray labeled “Completed”.
    b. If there are ANY mistakes in ANY of the contests:
        i. a) Use a marker to highlight the inaccurate votemark(s).
        ii. In large print, write the word “Spoil” across the printout.
        iii. Paperclip the spoiled and original ballots back together.
        iv. Place the ballot in the Ballot Marker’s “For Remake” tray.

Creating Serial Numbers

The Caller marks each pair of successfully reviewed original and remake ballot printouts with a serial number composed of:

1. “VBM” or “PV WBT” or “VW” (vote-by-mail or provisional wrong ballot type or VotingWorks);
2. Ballot precinct number;
3. Initials of the Ballot Verifier;
4. Today’s date in dd/mm format; and
5. Daily remake number (i.e., team’s fifth remake of the day=5).

Quality Control

The quality control (QC) team will randomly select remade ballot printouts from the “Completed” tray and compare them to attached original ballots to ensure valid votemarks, and only valid votemarks, have been copied correctly. Ballots that have in fact been remade correctly will be processed, with remake printouts being transferred for scanning and tabulation and both originals and remakes stored at the Department’s warehouse.

If the QC team finds a ballot that has been remade incorrectly, they will review the error(s) with the responsible remake team in detail, referring to applicable rules in the Adjudication Guide and explaining how to prevent similar mistakes in the future.

Ballot Custody Transfer Procedures

Ballot custody transfer procedures specific to VotingWorks are defined below. The complete San Francisco ballot custody procedures are included in the appendix.

After remaking ballots, the original and remade ballots are separated and organized according to the serial numbers written on the bottom of the ballots in the following order:

1. Date that the ballot was remade
2. Team initials
3. Daily remake number

Original ballots are stored in a secured room in the Department of Elections. Remade ballots are transferred to the tabulation room for processing. After the remade ballots are tabulated, ballots are placed in storage boxes with a unique box barcode affixed to the box. To secure the boxes, tamper evident seals are placed around the box and box lid.

5.8. Securing audit logs and back-up records

All components enable administrators to save audit logs to USB drives for further analysis as desired. VotingWorks system audit logs are defined in sections 4.1 and 10.5.

The jurisdiction should retain all audit logs and original election definition files as long after the election as required by law.

5.9. Troubleshooting and problem resolution

This section includes the most common problems using VxAdmin and VxMark and their respective solutions.

Card Reader Not Detected on VxAdmin

- Confirm the card reader is connected to a VxAdmin USB port.

Printer Not Detected on VxAdmin

- Confirm the printer USB cable is properly connected and the printer is on.

Printer Not Detected on VxMark

- Confirm the printer USB cable is properly connected and the printer is on.

Smart Card is Inserted, but Not Detected

- Confirm that the card is inserted in the proper orientation following the on-card guidelines where the “back of card” is facing away from the user, and the down arrow is inserted into the card reader. Confirm that the card is inserted all the way into the card reader.

A Printer Paper Jam Occurs

- Follow the on-screen instructions on the HP 404n to resolve.

If any other issues arise while operating equipment, the VotingWorks support team can be reached by emailing help@vx.support or calling (510) 426-9991.

6. Absentee/Mail Ballot Procedures (Central Tabulation)

For this pilot election, the system will only be used in person at a single voting location (City Hall Voting Center). There will be no absentee/mail ballots cast as part of the pilot.

7. Semi-Official Canvass Tabulation and Reporting

VotingWorks will not tabulate any ballots during this pilot. VotingWorks ballots are copied onto Dominion-formatted ballots and scanned on Dominion equipment for semi-official results.

8. Official Canvass and Post-Election Procedures

VotingWorks-tabulated results will not be included in the Official Canvass for this pilot.

VotingWorks ballots are copied onto Dominion-formatted ballots and scanned on Dominion equipment for official results.

9. Manual Recount procedures

California Elections Code section 19209 requires that either a partial or full risk-limiting audit depending on whether all ballots for a given contest are cast on the pilot voting system. California Elections Code further specifies that “each contest” conducted either entirely or partially on the pilot voting system needs to be audited.

Ballots marked using a VotingWorks ballot marking device will be duplicated onto Dominion ballots before tabulation. If required, San Francisco will conduct a partial risk-limiting audit on all VotingWorks marked ballots & their respective duplicated Dominion copies in the form of a full hand-tally. The hand-tallied totals of both VotingWorks and Dominion ballots will be compared for duplication accuracy.

10. Security

Like all modern secure systems, the VotingWorks voting system is designed with layers of security, so that a single failure does not compromise the system. The basic layer of security is the paper ballot itself. If all else fails, paper ballots can be recounted by brand new equipment or even by hand.

In addition to paper ballots, the VotingWorks system is designed to be resistant to any attempt to modify the software it runs. The key feature here is secure boot: the entire software stack is signed and chained down to a hardware root of trust, with each component initialized with VotingWorks keys, so that only VotingWorks source code can execute.

Finally, authentication is required, simple, and multi-factor, so that it is easy to ensure that only election administrators have access to the various features needed to operate an election.

10.1. Physical security of system and components

All VotingWorks system components are stored in their respective cases when not in use. VxAdmin and VxMark cases are built to be easily locked with any standard padlock, and sealed with tamper-evident seals. The same seal and/or lock locations are shared between the VxAdmin and VxMark cases (see image below). The VxMark printer case also supports sealing with a tamper-evident seal when zipped.

VotingWorks recommends keeping the cases in a room to which only authorized personnel have access. VotingWorks also recommends applying tamper-evident seals to all equipment cases and bags when not in use, and meticulously checking seal numbers before opening up any component. The recommended seal procedure is defined in section 5.

10.2. Logical security of system and components

10.2.1. Essential and non-essential services and ports

VotingWorks system software is installed by VotingWorks personnel. All non-essential services and ports are disabled at the operating system level, through the complete software installation process described in Section 3.3. Users, even administrators, cannot re-enable these services and ports.

In addition, for voter-facing equipment, notably the VxMark, no ports are physically accessible:

10.2.2. User-level security

VotingWorks systems have three roles: Superadmin, Admin, and Poll Worker. Access control is performed using smartcards with PINs, designed to meet the NIST standard for cryptographic multi-factor authentication. The authentication process is the same across all components.

Superadmin cards are bound to a single VxAdmin unit. Admin and Poll Worker cards are bound to a given election definition.

VotingWorks provides three Superadmin cards, pre-programmed to authenticate to the VxAdmin unit. The Superadmin cards then enable an election administrator to create the election definition and to program Admin and Poll Worker cards bound to that election definition.

A VxAdmin unit cannot be accessed without an admin or superadmin card. The screen is fully locked until a valid card is inserted and the appropriate PIN entered:

An admin card is used to configure the VxMark components for the given election as well as for putting the VxMark through its paces during Logic & Accuracy Testing. A poll worker card is used by poll workers to open and close the polls on the VxMark.

Finally, an admin card is used on VxAdmin to collect cast-vote record files and print a tally report (though tallying functionality on VotingWorks machines will not be used during this pilot.)

As per NIST specifications, all admin smartcards are usable only by entering the correct 6-digit PIN associated with that card. For poll worker cards, use of a PIN is up to the election administrator at the time those cards are programmed. The PIN code is selected at card programming time, and can only be viewed during said programming time.

10.2.3. Anti-virus protection

VotingWorks uses a VVSG2-centric approach to security, with a particularly powerful anti-virus approach: the only software that can run on a VotingWorks system is that initially installed via a VotingWorks USB installer stick. This protection is implemented via secure boot, whereby:

- VotingWorks code-signing keys are installed on every laptop as part of the installation process.
- The BIOS is locked down so that it cannot be modified in the field.

- Only a VotingWorks-signed bootloader and kernel will boot.
- Using dm-verity, only the VotingWorks approved version of the executable partition on the hard drive will be accepted by the kernel, otherwise causing the boot process to stop.

In other words, rather than using the commonly deployed (and fairly weak) approach of virus deny-lists, VotingWorks systems simply do not allow any program to run that hasn't been pre-approved by the VotingWorks setup process. This includes any potential viruses, but also any programs that an attacker might want to maliciously install that wouldn't show up as typical viruses using typical anti-virus protection.

10.2.4. Procedures for verifying, checking, and installing essential updates and changes

No updates will be applied to the system during the course of the pilot. If updates were to be performed, they would be performed as explained in the installation process in section 3.3.

By virtue of the secure boot feature described in section 10.2.3 and enabled on all VotingWorks systems, only properly digitally signed VotingWorks USB installer sticks will boot on a VotingWorks machine, and only properly digitally signed VotingWorks voting software will boot after it is installed. This is the strongest form of code integrity available today: a digital signature chain that connects the hardware root of trust, to the bootloader, to the kernel, and to the exact disk image for all executable code on the machine.

In addition, if one so desires, because the executable code of any VotingWorks system is the exact same disk partition on all machines, this disk partition can be read, hashed, and compared to the official hash. To that end, the VotingWorks USB installer provides an additional feature before and after installation: checking the installed version against a list of known versions of VotingWorks software, and reporting which is currently installed. This is done independently of the installed operating system, using only the USB installer stick.

10.2.4.1. Audit records for the changes showing what, when, who, and why

No updates will be applied to the system during the course of the pilot.

If updates were to be performed, VotingWorks would provide a log of what software was updated, when it was updated, who performed the update, and why the update was performed.

10.2.4.2. Installation procedures for those updates which would normally be installed using an internet connection

No updates will be applied to the system during the course of the pilot.

If updates were to be performed, VotingWorks would perform the update on behalf of the jurisdiction by authorized VotingWorks personnel. These updates would be applied entirely offline with system images transferred via USB drives. If preferred, the San Francisco Department of Elections may apply these updates themselves.

10.2.4.3. Acceptance testing after the installation.

Acceptance testing is performed as per the instructions in section 3.4.

10.3. Security procedures for central processing

In this pilot, only VxAdmin is used for central processing, and only for the purpose of programming admin and poll worker cards to be used on VxMark for configuration and operation of election day.

When not in use, VxAdmin should be turned off and physically secured in its case, locked and sealed. When in use, if an election administrator needs to leave the room for a few minutes, VxAdmin can be software-locked with just a touch of the screen:

Which then requires re-authentication with an admin card.

All smartcards, notably the superadmin and admin cards, should be stored securely by election administrators. These are easily stored in a wallet, or locked in a small lockbox/safe.

The PINs for smartcards should be kept separate from the cards themselves, ideally by remaining memorized by election administrators and not written down anywhere. If it is more practical to write down the PIN, it should be written down in a different location than the card itself.

10.4. Security procedures for polling places

At the precinct, the VotingWorks system only needs a poll worker card for operation. It is a best practice to NOT have an admin card present at the precinct, as that is unnecessary.

Poll worker cards delivered to the precinct should be delivered securely, so that loss of a card is easy to detect. If poll worker cards are programmed with PINs, those PINs should be printed on paper that is separate from the poll worker card itself.

The only polling place equipment used for the pilot is the VxMark, which does not require any application of tamper-evident seals during the course of voting. Poll workers should document the seals removed or applied from VxMark at the point of polls opening and closing if using seals during storage.

10.5. Audit trails

All VotingWorks components enter events into an audit log per the event logging requirements specified in the Voluntary Voting System Guidelines 2.0, which expands upon the event logging requirements defined in the latest version of the California Voting System Standards.

This audit log is extensive, including every ballot printing event, configuration change, device connected or disconnected, power connected or disconnected, and more. An authorized administrator using an Admin Card can save these audit logs to a USB drive for further analysis as desired. The process of exporting audit logs is described in section 4.1.

11. Biennial Hardware Certification and Notification

Biennial hardware certification and notification will not apply to the one-time open-source voting system pilot.

Appendix. San Francisco Ballot Remake & Custody Transfer Procedures

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF ELECTIONS
John Arntz, Director

BMD Ballot Remake Procedures

I. Overview of Remaking a VotingWorks Ballot using Ballot Marking Device from Dominion Voting Systems

Teams of two people, a Ballot Marker and a Ballot Caller, will follow these steps to remake a VotingWorks ballots on the Ballot Marking Device (BMD) from Dominion Voting Systems:

A. The Remake teams obtain VotingWorks ballots from a supervisor or lead.
B. The Ballot Marker will enter the precinct number listed on the VotingWorks ballot into the BMD.
C. The Ballot Caller will announce the contest name and voter's selection on the VotingWorks ballot.
D. The Ballot Marker will enter the corresponding selections onto the BMD.
E. Upon completing the entry of voter intent, both the Marker and the Caller will verify the selection on the review screen and make corrections as necessary.
F. The Marker will click on "Print Ballot", then "Cast Your Ballot", to generate a printout of the BMD ballot selections.
G. The Team will verify the precinct number on the printout matches the original VotingWorks ballot.
    a. If the precinct numbers do not match, the Team will spoil the printed Dominion BMD ballot by writing "spoiled" across front and back, place it in the "Spoiled" box, and begin the remake process a second time.
H. After the Team reviews the remade ballots, the Caller will serialize the original VotingWorks ballot and the Dominion ballot so both ballots can be later referenced together.

II. Remake Process

Every remake team will consist of a "Ballot Marker" and a "Ballot Caller" working together.

After a lead assigns a batch of original ballot to a team, the Ballot Marker will begin marking and printing out each ballot in the batch using a BMD device. The Ballot Caller reads the contest names and the corresponding votes, while the Ballot Marker visually verifies this information and marks these votes using a BMD.

All valid votes on each remade ballot must match the original ballot exactly, including undervotes and write-ins. The Ballot Marker will also confirm that all overvoted contests have been remade as blank contests (an overvoted contest must be remade as a blank contest because the BMD does not permit a user to overvote a contest and the end result, no valid vote, is the same.)

Once the ballot has been correctly remade, the Ballot Caller will write matching alphanumeric serial numbers on the original ballot and the remake printout in green ink. Such information includes type of ballot, precinct number, initials of the team members, date, and number of remake ballot in incremental order.

If the Ballot Marker made a mistake, the Ballot Marker will write the word "Spoiled" across the printout and redo the remake.

For quality control, the supervisor or lead will randomly select remade ballots for review, checking in with teams and reviewing any errors as necessary.

Once a batch of ballots has been successfully remade, printed, and reviewed, the original ballots will be separated from the remade printouts, the printouts transferred to the tabulation team for processing on ICC scanners, and both the originals and the remade printouts will be stored in secure rooms in the Department of Elections until certification of the election. After certification the ballots are transferred to the Department's warehouse for record retention.

III. Preparing BMD Device for Remake

To prepare BMD device for remake, the Ballot Marker will:

1. Ask the supervisor for a poll worker key card.
2. Insert the key card into the bottom of a BMD device:

3. Enter the full ballot activation code (precinct number).

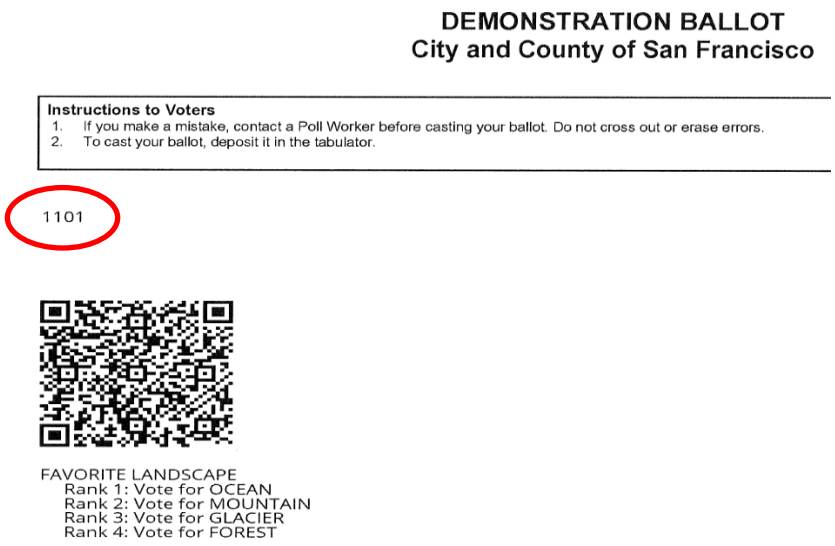
4. Tap the "Activate" button.

5. Remove the poll worker key card.
6. Select “English” in the language menu.

IV. Remaking a Ballot on the BMD Device

To remake a ballot, the Ballot Marker will:

1. Review all votemarks(s) for the first contest on the original ballot.
2. Referring to the *Adjudication Guide,* note the applicable rule(s).
3. Copy all valid votes for the first contest onto the BMD ballot.
4. Repeat this process (1-3) for all contests on the original ballot.
5. Tap “Review” and double check all contests and all votes.
6. Tap “Print Ballot” and “Cast Your Ballot,” then get the printout.
7. Verify the precinct number on the printout matches the one on the original. (If not, write the word “Spoil’ across the printout, place it in the “Spoiled” tray, and ask your lead for assistance.)



DEMONSTRATION BALLOT
City and County of San Francisco

Instructions to Voters
1. If you make a mistake, contact a Poll Worker before casting your ballot. Do not cross out or erase errors.
2. To cast your ballot, deposit it in the tabulator.

1101

FAVORITE LANDSCAPE
Rank 1: Vote for OCEAN
Rank 2: Vote for MOUNTAIN
Rank 3: Vote for GLACIER
Rank 4: Vote for FOREST

8. Write your first and last name initials neatly on the bottom of the remake printout.
9. Paperclip the original ballot to the printout and place the pair in the tray labeled “For Review.”

V. Reviewing a Remade Ballot

To review a remade ballot for accuracy, the Ballot Marker will:

1. Review all votemarks(s) for the first contest on the original ballot.
2. Referring to the *Adjudication Guide*, note the applicable rule(s).
3. Confirm all valid votes for the first contest are on the remade ballot printout.
4. Repeat this process (1-3) for all contests on the original ballot.

5a. If there are NO mistakes in ANY of the contests:

a) The Caller will write the serial number on the original and the printout (see Section VI).
b) Paper clip the original back to the printout, with the printout on top.
c) Place the successfully reviewed ballot in the tray labeled “Completed”.

5b. If there are ANY mistakes in ANY of the contests:

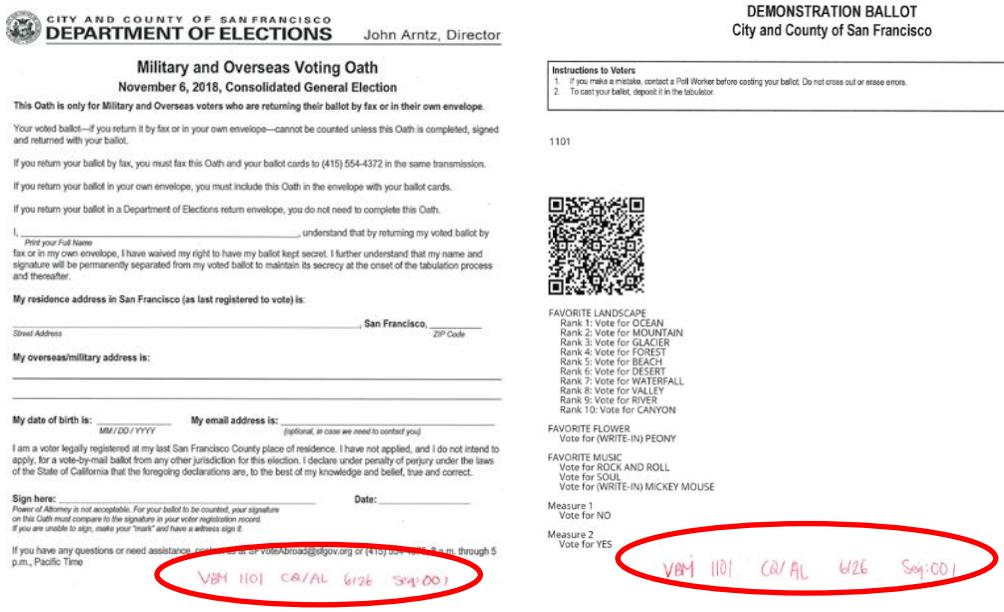
a) Use a marker to highlight the inaccurate votemark(s).
b) In large print, write the word “Spoiled” across the printout.
c) Paperclip the spoiled and original ballots back together.
d) Place the ballot in the Ballot Marker’s “For Remake” tray.

VI. Creating Serial Numbers

The Caller marks each pair of successfully reviewed original and remake ballot printouts with a serial number composed of:

1. “VBM” or “PV WBT” or “VW” (vote-by-mail or provisional wrong ballot type or VotingWorks);
2. Ballot precinct number;
3. Initials of the Ballot Verifier;

4. Today's date in dd/mm format; and
5. Daily remake number (i.e., team's fifth remake of the day=5).



CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF ELECTIONS John Arntz, Director

Military and Overseas Voting Oath
November 6, 2018, Consolidated General Election

This Oath is only for Military and Overseas voters who are returning their ballot by fax or in their own envelope.

Your voted ballot—if you return it by fax or in your own envelope—cannot be counted unless this Oath is completed, signed and returned with your ballot.

If you return your ballot by fax, you must fax this Oath and your ballot cards to (415) 554-4372 in the same transmission.

If you return your ballot in your own envelope, you must include this Oath in the envelope with your ballot cards.

If you return your ballot in a Department of Elections return envelope, you do not need to complete this Oath.

I, _____, understand that by returning my voted ballot by
Print your Full Name
fax or in my own envelope, I have waived my right to have my ballot kept secret. I further understand that my name and signature will be permanently separated from my voted ballot to maintain its secrecy at the onset of the tabulation process and thereafter.

My residence address in San Francisco (as last registered to vote) is:

_____, **San Francisco,** _____
Street Address *ZIP Code*

My overseas/military address is:

_____

_____

My date of birth is: _____ **My email address is:** _____
MM / DD / YYYY *(optional, in case we need to contact you)*

I am a voter legally registered at my last San Francisco County place of residence. I have not applied, and I do not intend to apply, for a vote-by-mail ballot from any other jurisdiction for this election. I declare under penalty of perjury under the laws of the State of California that the foregoing declarations are, to the best of my knowledge and belief, true and correct.

Sign here: _____ **Date:** _____
Power of Attorney is not acceptable. For your ballot to be counted, your signature on this Oath must compare to the signature in your voter registration record. If you are unable to sign, make your "mark" and have a witness sign it.

If you have any questions or need assistance, [illegible] VoteAbroad@sfgov.org or (415) [illegible] 8 a.m. through 5 p.m., Pacific Time

VBM 1101 CA/AL 6/26 Seq:001

DEMONSTRATION BALLOT
City and County of San Francisco

Instructions to Voters
1. If you make a mistake, contact a Poll Worker before casting your ballot. Do not cross out or erase errors.
2. To cast your ballot, deposit it in the tabulator.

1101 1

FAVORITE LANDSCAPE
Rank 1: Vote for OCEAN
Rank 2: Vote for MOUNTAIN
Rank 3: Vote for GLACIER
Rank 4: Vote for FOREST
Rank 5: Vote for BEACH
Rank 6: Vote for DESERT
Rank 7: Vote for WATERFALL
Rank 8: Vote for VALLEY
Rank 9: Vote for RIVER
Rank 10: Vote for CANYON

FAVORITE FLOWER
Vote for (WRITE-IN) PEONY

FAVORITE MUSIC
Vote for ROCK AND ROLL
Vote for SOUL
Vote for (WRITE-IN) MICKEY MOUSE

Measure 1
Vote for NO

Measure 2
Vote for YES

VBM 1101 CA/AL 6/26 Seq:001

VII. Quality Control

The Quality Control (QC) team will randomly select remade ballot printouts from the "Completed" tray and compare them to attached original ballots to ensure valid votemarks, and only valid votemarks, have been captured correctly. Ballots that remade correctly will be processed, with remake printouts being transferred for scanning and tabulation and both originals and remakes stored at the Department's warehouse.

If the QC team finds a ballot that has been remade incorrectly, they will review the error(s) with the responsible remake team in detail, referring to applicable rules in the *Adjudication Guide* and explaining how prevent similar mistakes in the future.

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF ELECTIONS
John Arntz, Director

Custody Transfer Procedures: Ballot Processing

I. Red Ballot Boxes

After the VotingWorks Ballot Marking Device (BMD) in the City Hall Voting Center generates printouts of ballots, voters will place the ballots into envelopes, which voters will then deposit into large, red ballot boxes. The Voting Center is organized to provide several ballot box stations, and each station is staffed with a Voter Guide. The Guides secure the election materials and red ballot box at each station.

Before the Voting Center opens, Voter Guides follow the below steps to prepare the red ballot boxes:

1. Collect an empty red ballot box from the designated storage area
2. Secure the red box lid and red box with a yellow cable and yellow barcode seal
3. Move the empty red ballot box to a ballot box station

After Voting Center is closed, two flex Voter Guides are responsible for transporting all red boxes from each Ballot Box Station to Ballot Distribution (BD) members at the central ballot-processing location in City Hall. Voter Guides fill out the following sections in the *City Hall Voting Center Custody Transfer Form*:

1. Box location
2. Date
3. Time of pick up
4. Number of red boxes transferred
5. Voter Guide signature
6. Flex Voter Guide Signature

City Hall Voting Center Custody Transfer Form

April 19, 2022 Special General Election

Location	Date
	/ /

1. Time of Pick Up	2. Number of red boxes transferred	3. Voter Guide signature	4. Flex Voter Guide signature	5. Ballot Distribution member signature

- The Voter Guide stationed at the red box(es) fills out columns 1-3
- The Flex Voter Guide fills out column 4 and transports red box(es) to Room 59
- A Ballot Distribution member accepts red box(es) and fills out column 5.

Upon receival of the red ballot boxes, BD members follow the below steps to take custody transfer of the red ballot boxes:

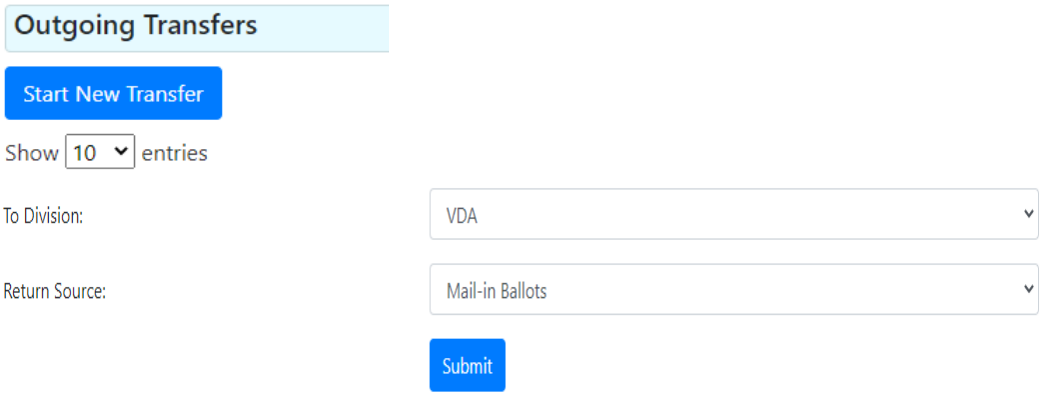
1. Check if the *City Hall Voting Center Custody Transfer Form* is filled out correctly
2. Sign their name in the "Ballot Distribution member signature" section
3. Give the yellow copy of the *City Hall Voting Center Custody Transfer Form* to a Flex Voter Guide
4. Remove the seal from each red box and empty out the voted ballot envelopes
5. Sort and count the different types of voted ballot envelopes
6. Record the number of voted ballot envelopes in the *Drop Boxes Form*
7. Put the empty red boxes back to the designated storage area for reuse
8. Enter the number of voted ballot envelopes from each station in the daily VBM Counts from Voting Center and Drop Boxes spreadsheet
9. File the white copy of *City Hall Voting Center Custody Transfer Form* for record retention

The next working day, BD personnel will scan the voted ballot envelopes using the Agilis to capture an image of voters' signatures on each envelope for signature verification process. Any ballots the Agilis separates for review will be transferred to the Voter Services or Voter Data Assistance Divisions.

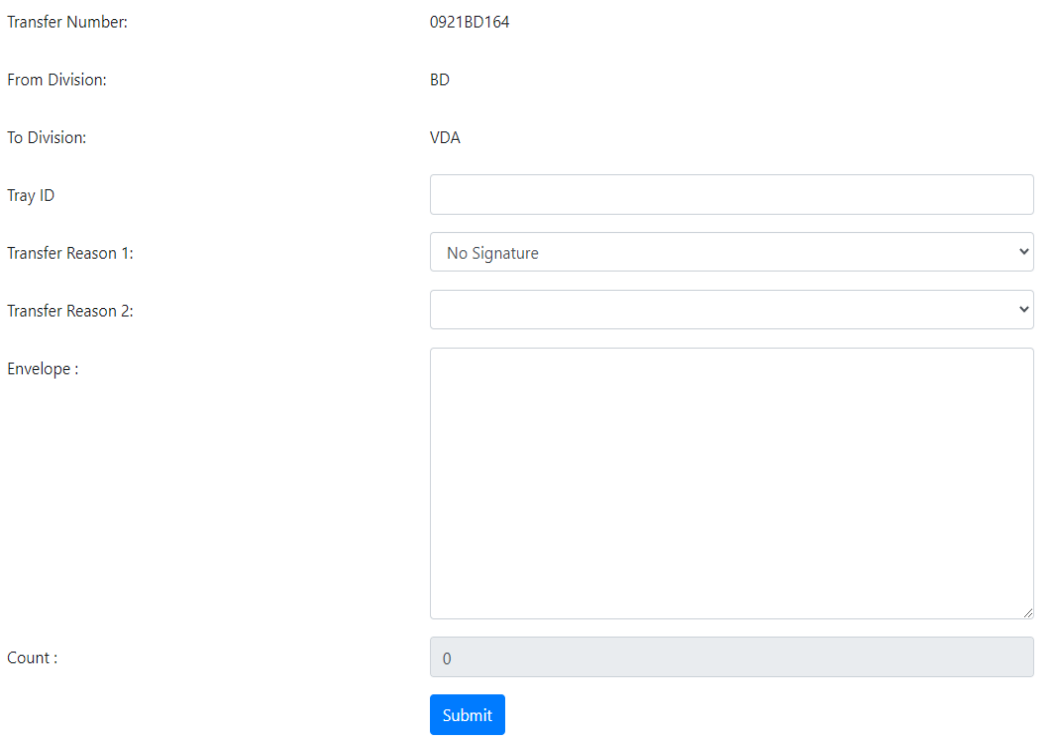
II. Preparing a Custody Transfer Log

When ballots are transferred between Administration Division “AD”, Ballot Distribution “BD”, Voter Servicers “VS”, Voter Data Analysis “VDA, or Warehouse “WH”, division leads create a custody transfer log using the following steps:

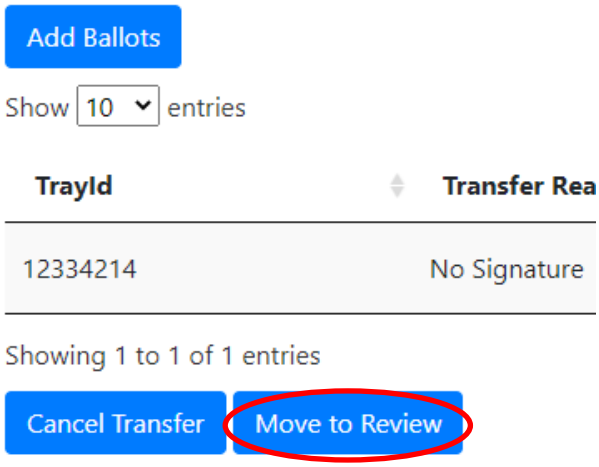
A. Open the ballot custody transfer application.
B. Log in using your name and password.
C. Click on “Start New Transfer” tab and enter the following information:
    1. Transfer Division
    2. Return Source



D. Click on “Add Ballots” tab and enter the following information:
    1. Tray ID
    2. Transfer Reason 1
    3. Transfer Reason 2 (if necessary)
    4. Envelope ID



E. Click on "Submit" tab to record the transfer information and click "Return to Transfer Details" tab to review the entered data.
F. After confirming the data is correct, click "Move to Review" tab and then click "Initiate Transfer" tab to record the transferring of ballots to another division.

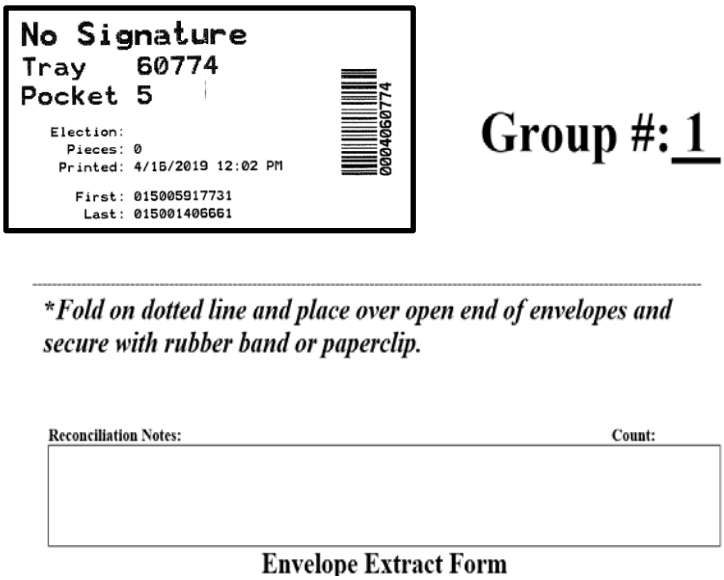


G. Click "View Summary" tab to printout two copies of the custody transfer log.
H. Sign both copies of the custody transfer logs.
I. Bring the ballots and custody transfer logs to the receiving division lead.
J. The receiver signs both copies of the custody transfer logs.
K. The receiver retains one copy for record retention and the second copy is given to the originator of the document.

III. Scanning and Sorting of Vote-by-Mail Envelopes

Upon receipt of vote-by mail (VBM) ballots from USPS, the Agilis team uses the Department's ballot envelope sorting system (Agilis) to sort and scan the envelopes. There are two phases to the sorting of VBMs.

A. The first phase involves the Agilis capturing a digital image of the signature on each envelope for signature verification and outstacking spoiled ballots and ballots with no signature (step known as incoming scan).
   1. The Agilis sorts envelopes in batches of 400 that Agilis team members place into trays.
   2. Each tray has a cover sheet with a tray tag, that record which envelopes are sorted into that tray.



   3. BD lead transfers outstack ballots to VS or VDA for review using a custody transfer log and a manual review form to indicate the reasons for the transfer.
      a. The procedure for creating a custody transfer log is described in section I.
      b. The manual review form is a cover sheet for the VS/VDA team to identify types of outstacked envelopes.

MANUAL REVIEW

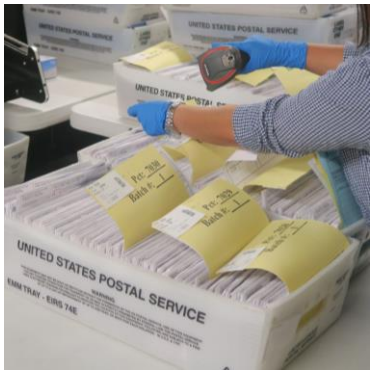
TRAY: 4801

DATE: **TOTAL:**

☐ INCOMING SCAN	☐ AUDIT PASS	☐ EXTRACTION
SOURCE: ☐ MAIL ☐ VOTING CENTER ☐ CURBSIDE ☐ POLL PLACE _____ ☐ SPOIL ☐ NO SIGNATURE ☐ PENDING FOR ADDITIONAL REVIEW ☐ REJECTS ☐ INVALID APP ID ☐ OTHER_____	☐ CHALLENGES ☐ REJECTS ☐ MANUAL ☐ PENDING CHALLENGES ☐ OTHER_____	☐ SPOIL ☐ DECEASED ☐ OTHER_____

B. After VS/VDA complete their review, envelopes are transferred to BD for a second sort using the Agilis. The second sort separates challenged and accepted ballot envelopes (step known as audit scan). A ballot is challenged if the signature on the return envelope does not match the voter's signature history in the Election Information Management System "EIMS".

1. BD lead transfers challenged envelopes to VS/VDA team for further processing using a custody transfer log and a manual review form.
2. Agilis team member assigns the accepted envelopes to a group number and a tray number using the Ballot Tracking Application:
   a. Pick up a tray of accepted envelopes and a tray header sheet as shown below:



GROUP:_____	TRAY: 0001

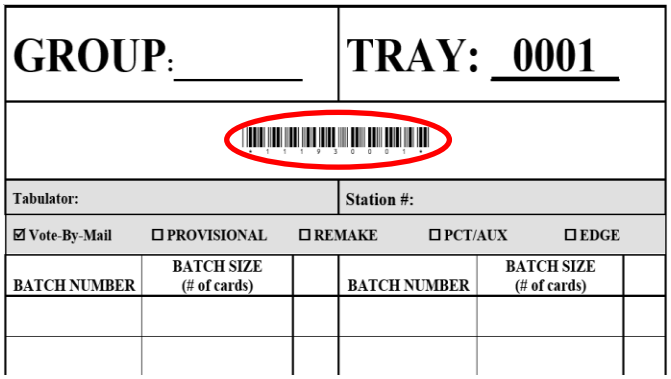
Tabulator:	Station #:

☑ Vote-By-Mail ☐ PROVISIONAL ☐ REMAKE ☐ PCT/AUX ☐ EDGE

BATCH NUMBER	BATCH SIZE (# of cards)		BATCH NUMBER	BATCH SIZE (# of cards)	

   b. Log into the Ballot Tracking Application
      i. Click the drop down menu on the "Manage" tab and click "Tray Assignment"

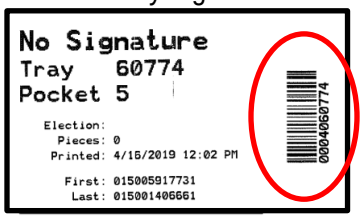
ii. Scan the tray header sheet barcode to fill the “Tray Number” field.



GROUP:_____			TRAY: 0001		
Tabulator:			Station #:		
☑ Vote-By-Mail	☐ PROVISIONAL	☐ REMAKE	☐ PCT/AUX	☐ EDGE	
BATCH NUMBER	BATCH SIZE (# of cards)		BATCH NUMBER	BATCH SIZE (# of cards)	

iii. Enter a Group number in the “Batch” field.

iv. Scan the tray tag barcode in the “Tag” field



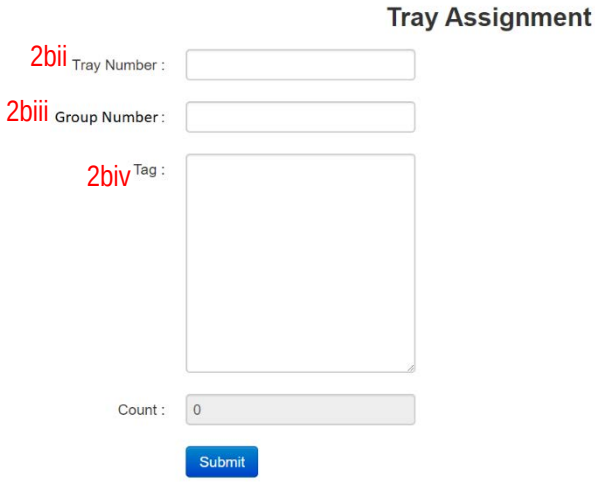
Group #: 1

Fold on dotted line and place over open end of envelopes and secure with rubber band or paperclip.

Reconciliation Notes: Count:

Envelope Extract Form

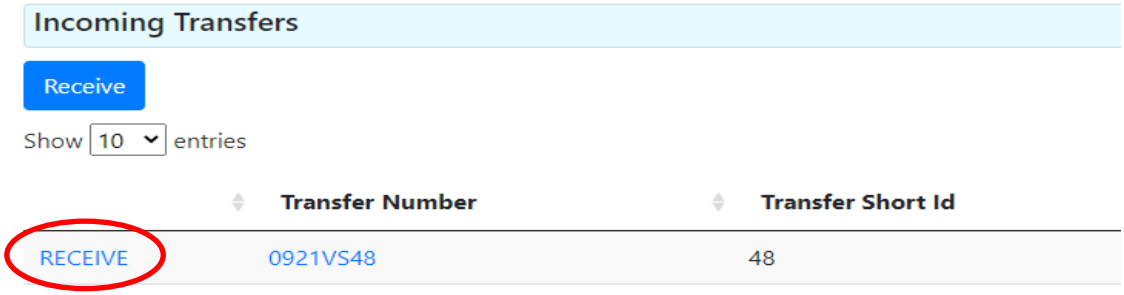
v. Click “Submit”



IV. Receiving Transfer of Ballots

Upon receiving the transfer of ballots, the recipient division lead signs the custody transfer log and verifies that the number of envelopes received matches the total recorded on the log. If the number of envelopes does not match, return all of the ballots to the transferring division to resolve the mismatch. If the number matches, the recipient division lead follows the steps below to record the transfer of ballot custody in the ballot custody transfer application.

1. Recipient division lead opens the division's ballot custody transfer application.
2. Under incoming transfers section, click on "Receive" tab.



V. VotingWorks Ballots

To ensure all VotingWorks ballots are remade each day, lead staff members compare the number of VotingWorks ballot listed in the record retention log matches with the number of remade VotingWorks ballots in the remake log. If the number does not match, notify a supervisor.

Then, the original and remade ballots are separated and organize according to the serial numbers written on the bottom of the ballots in the following order:

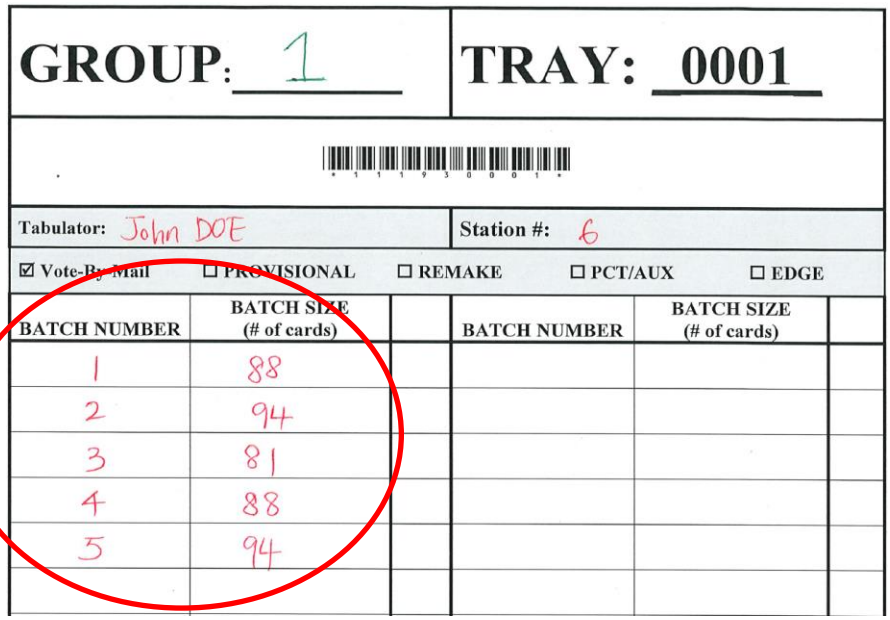
1. Date that the ballot was remade
2. Team initials
3. Daily remake number

Original ballots are stored in a secured room in the Department. Remade ballots are transferred to the tabulation room for processing. After the remade ballots are tabulated, ballots are placed in storage boxes with a unique box barcode affixed to the box. To secure the boxes, tamper proof seals are placed around the box and box lid.

VI. Ballot Manifest

To validate the total number of ballots scanned in each batch, tabulation teams compare the number written on the tray header sheets with the "Batches Loaded Report" from the tabulation system. All box and cart information is recorded in a spreadsheet for reference. The Ballot Manifest is also use as tool to tog and track the location of counted ballot boxes.

A. BD lead opens "Batches Loaded Report".
B. Tabulation teams compare the batch number and on the tray header sheet to the batch number and total ballots in Batch Loaded Report.
    1. If the number does not match, notify a lead.



GROUP: 1 TRAY: 0001

Tabulator: John DOE Station #: 6

☑ Vote-By-Mail ☐ PROVISIONAL ☐ REMAKE ☐ PCT/AUX ☐ EDGE

BATCH NUMBER	BATCH SIZE (# of cards)		BATCH NUMBER	BATCH SIZE (# of cards)	
1	88				
2	94				
3	81				
4	88				
5	94				

Batches Loaded Report

DateTime	Tabulator Number	Tabulator Name	Batch Number	Result File Name	Lead Ballots	Total Ballots	Result State	Adjudication State
7/30/2019 10:43:43 AM	6	ICC01-VBM	1	1_1_6_1_DETAIL.DVD	88	88	Published	Adjudicated
7/30/2019 11:01:41 AM	6	ICC01-VBM	2	1_1_6_2_DETAIL.DVD	94	94	Published	Adjudicated
7/30/2019 11:20:41 AM	6	ICC01-VBM	3	1_1_6_3_DETAIL.DVD	81	81	Published	Adjudicated
7/30/2019 11:23:41 AM	6	ICC01-VBM	4	1_1_6_4_DETAIL.DVD	88	88	Published	Adjudicated
7/31/2019 9:47:51 AM	6	ICC01-VBM	5	1_1_6_5_DETAIL.DVD	94	94	Published	Adjudicated
7/30/2019 11:30:41 AM	6	ICC01-VBM	6	1_1_6_6_DETAIL.DVD	26	26	Published	Adjudicated

C. After the ballot counts are confirmed, BD lead creates a ballot manifest using the tray header sheet number (box number) and cart number.

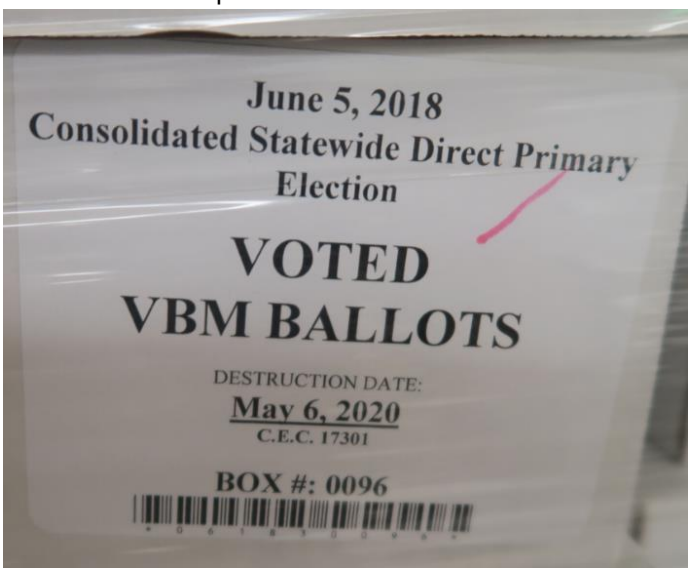
Ballot Manifest

DateTime	Tabulator Number	Tabulator Name	Batch Number	Result File Name	Lead Ballots	Total Ballots	Result State	Adjudication State	Tray number (tray header sheet)	Cart number
7/30/2019 10:43:43 AM	6	ICC01-VBM	1	1_1_6_1_DETAIL.DVD	88	88	Published	Adjudicated	1	14
7/30/2019 11:01:41 AM	6	ICC01-VBM	2	1_1_6_2_DETAIL.DVD	94	94	Published	Adjudicated	1	14
7/30/2019 11:20:41 AM	6	ICC01-VBM	3	1_1_6_3_DETAIL.DVD	81	81	Published	Adjudicated	1	14
7/30/2019 11:23:41 AM	6	ICC01-VBM	4	1_1_6_4_DETAIL.DVD	88	88	Published	Adjudicated	1	14
7/30/2019 11:30:41 AM	6	ICC01-VBM	6	1_1_6_6_DETAIL.DVD	26	26	Published	Adjudicated	1	14
7/30/2019 11:37:41 AM	6	ICC01-VBM	7	1_1_6_7_DETAIL.DVD	20	20	Published	Adjudicated	1	14
7/30/2019 4:26:43 PM	6	ICC01-VBM	8	1_1_6_8_DETAIL.DVD	5	5	Published	Adjudicated	1	14
7/31/2019 9:47:51 AM	6	ICC01-VBM	5	1_1_6_5_DETAIL.DVD	94	94	Initial	In Adjudication	1	14

VII. Record Retention

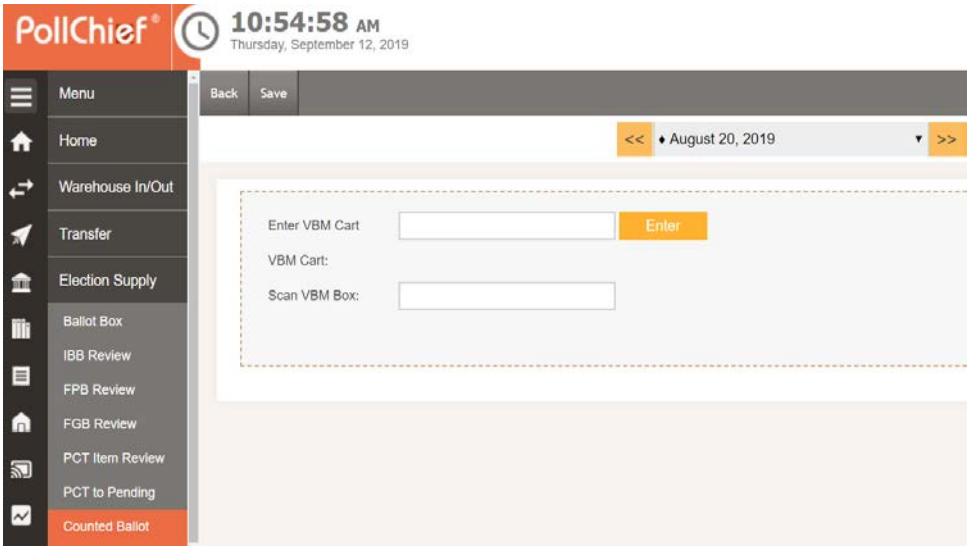
After ballots are tabulated, scanned ballots are placed inside a cardboard box for storage. Each box contains approximately 500 ballot cards, and ballots are separated into different batches using a tally sheet. The boxes are labeled with the election name and date, the contents, the destruction date set by CEC 17301, and a box barcode number. A tamper proof security seal is placed around each box which covers the container and the box lid. Using the asset management system, BD staff members follow the steps below to prepare the boxes for storage at the warehouse.

A. BD staff members put the tabulated boxes of ballots on a two tier carts, with the box label facing one direction.



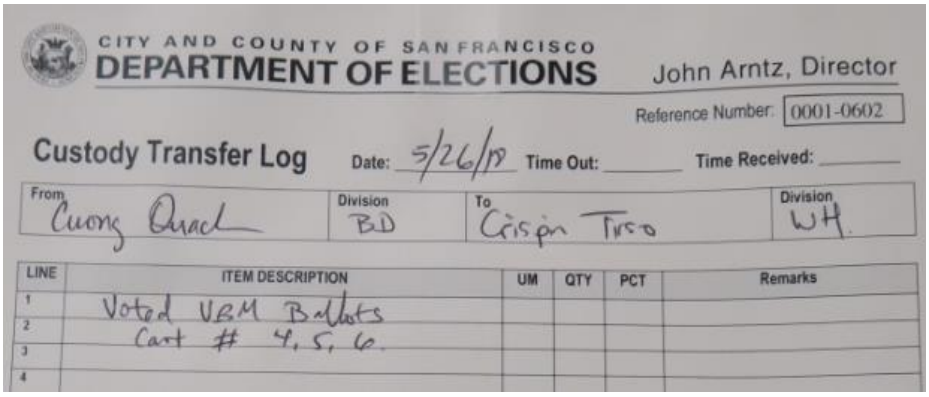
B. BD lead assigns a cart number to the two tier carts.

C. BD lead logs into the asset management system:
   1. Click “Counted Ballot Box/Cart” under Election Supply.
   2. Click “Create Counted Ballot Box/Cart:
   3. Enter the cart number in “Enter VBM Cart” field.
   4. Click “Enter”.
   5. Scan all of the box barcode numbers in “Scan VBM Box” field.
   6. Click “Save”.



D. BD staff members shrink-wrap the cart and seal with anti-tamper door seal.

E. BD manager fills out a warehouse custody transfer form.


CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF ELECTIONS
John Arntz, Director

Reference Number: 0001-0602

Custody Transfer Log Date: 5/26/19 Time Out: _____ Time Received: _____

From	Division	To	Division
Cuong Quach	BD	Crispin Tiro	WH

LINE	ITEM DESCRIPTION	UM	QTY	PCT	Remarks
1	Voted VBM Ballots				
2	Cart # 4, 5, 6.				
3					
4					

VIII. Security Practices

After tabulation, all ballots are stored in City Hall Room 59, secured back room, conference room, and tabulation room. The room is safeguarded with an anti-tamper door seal. In addition to the seal, only authorize personnel are given the passcode to open the secured room. BD and VS staff members follow the steps below as the opening and closing practices.

A. Opening Procedure
   1. Verify the anti-tamper door seal and confirm that no one has entered the room after the seal was put on.
      a. If the seal is tampered, inform a supervisor.
      b. If the seal is not tampered, move on to step 2.
   2. Remove the tamper-evident seal and place the seal in the Access Log.
   3. Record the date, time, name in the Access Log.

Access Log

CLOSED BY:			Serial number 001504	Attach Broken Seal Below
Date	Time	Staff 1 / Staff 2	SF Elections Anti-Tamper Door Seal	By: Date: 001504
4/20	3:30	Staff 1 [illegible] / Staff 2 [illegible]		
OPEN BY:				
Date	Time	Staff 1 / Staff 2		
4/23	8—	Staff 1 [illegible] / Staff 2 Dom Buoni		
CLOSED BY:			Serial number 001505	Attach Broken Seal Below
Date	Time	Staff 1 / Staff 2	SF Elections Anti-Tamper Door Seal	By: Alice L/AL Date: 4/23/18 001505
4/23	5 PM	Staff 1 Dom Buoni / Staff 2 Alice Law		
OPEN BY:				
Date	Time	Staff 1 / Staff 2		
4/24	8AM	Staff 1 Dom Buoni / Staff 2 Alice Law		
CLOSED BY:			Serial number 001506	Attach Broken Seal Below
Date	Time	Staff 1 / Staff 2	SF Elections Anti-Tamper Door Seal	By: Dom Buoni AL Date: 4/23/18 001506
4/23	5 PM	Staff 1 Dom Buoni / Staff 2 Alice Law		
OPEN BY:				
Date	Time	Staff 1 / Staff 2		
4/24	8AM	Staff 1 Dom Buoni / Staff 2 Alice Law		

Rev. 4/17/2018

B. Closing Procedure
   1. Obtain an anti-tamper door seal.
   2. Record the date, time, name, and seal number in the Access Log.
   3. Write down their name and date on the tamper-evident seal.
   4. Seal the room with tamper-evident seal.

Secretary of State
SHIRLEY N. WEBER, Ph.D.

STATE OF CALIFORNIA

CALIFORNIA APPLICATION FOR APPROVAL OF A VOTING TECHNOLOGY

APPLICATION INSTRUCTIONS

APPLICATION INSTRUCTIONS

INTRODUCTION

Pursuant to California Elections Code Sections 19202, 19283 and 2550 and California Code of Regulations Sections 20707, prior to considering any new voting technology for approval, or any modification to a currently approved voting technology, the Secretary of State (SOS) must conduct a thorough examination and review of the proposed system. The examinations typically include:

- Examination of application and technical documentation.
- Development of a detailed system test plan that reflects the scope and complexity of the system.
- Code review for selected software components.
- Witnessing of a system 'build' conducted by the manufacturer to conclusively establish the system version and components being tested.
- Operation and function testing of hardware and software components.
- Security testing that includes a full source code review and penetration (red-team) testing.
- Volume testing of the system and/or all devices with which the end user directly interacts.
- Functional and performance testing of the integrated system, including testing of the full scope of system functionality, performance tests for telecommunications and security; and examination and testing of the system operations and maintenance manual.
- Accessibility examination and testing of the system.

GENERAL INSTRUCTIONS

This document provides detailed instructions for completion and submission of a voting technology application. An application is considered complete only when all appropriate forms and supplemental materials are provided to the SOS. The application forms are composed of the following six parts:

- **Part 1 – Request For Approval & System Identification**
- **Part 2 – Ownership & Control**
- **Part 3 – References**
- **Part 4 – Technical Data Package (TDP)**
- **Part 5 – System Description & Configuration**
- **Part 6 – System Change Log**

The application should be submitted to the SOS electronically. The application should be in the root directory of the submitted electronic media. The technical data package (TDP) file(s) should be in a sub-directory named "Technical_Data_Package". Do not order the documentation into further sub-directories. Identifying photographs may be submitted in .JPG, .BMP, .GIF or .TIF format.

Upon receipt of an application, the submitted documentation will undergo review by the SOS. You will be contacted if any parts of the application are determined to be insufficient. If the submitted documentation is determined to be sufficient, you will be contacted by the SOS to begin arrangements for the subsequent steps of the process. The SOS reserves the right to determine the extent of testing necessary for evaluation and approval of any voting technology.

For additional information regarding the approval process, refer to the Secretary of State's website at: https://www.sos.ca.gov/elections/ovsta/certification-and-approval/ or contact the Office of Voting Systems Technology Assessment at (916) 695-1680 or votingsystems@sos.ca.gov.

SHIRLEY N. WEBER, Ph.D.
CALIFORNIA SECRETARY OF STATE
Office of Voting Systems Technology Assessment | 1500 11th Street, 6th Floor
Sacramento, CA 95814 | **Tel** 916.695.1680 | www.sos.ca.gov

PART 1 OF 6
REQUEST FOR APPROVAL AND SYSTEM IDENTIFICATION

Part 1 must be completed by all applicants and submitted electronically. In addition, a hard copy of Part 1 must be printed, signed, and submitted with the electronic submission. All information contained on this form is a matter of public record.

1. **VOTING TECHNOLOGY TYPE -** Select a voting technology type from the available options.
   - ☐ Remote Accessible Vote by Mail (RAVBM)
   - ☐ Electronic Poll Book (ePB)
   - ☑ Voting System (VS)

2. **APPLICATION DATE** – Date the complete application is submitted to the SOS 5/5/22

3. **SYSTEM NAME AND VERSION -** Official name and version number of the system. VotingWorks V

4. **APPLICANT(S) –** Provide the following for each entity party to this application. If more than two applicants, provide the required information for the additional applicants on a separate copy of this form.

   - **Name** – Full legal name.
   - **Standing to Present Application** - Explain each applicant's legal standing to present an application for this system (e.g., licensed distributor, licensed user, manufacturer, jurisdiction, etc.). California Elections Code Section 19210 only allows parties with interest in the voting technology to present an application.
   - **Entity Type** - Identify the applicant entity type from one of the following options:
     - Manufacturer - Distributor - Jurisdiction - Other (Elaborate)
   - **Principle Address** - If business entity, provide the legal principal address of the business. If government entity, provide the official address of the entity. This must be a physical address, not a post office box.

   APPLICANT 1

   Name: San Francisco Department
   Standing to Present Application: Jurisdiction
   Entity Type: Jurisdiction
   Principle Address: 1 Dr. Carlton B Goodlett Pla

   APPLICANT 2

   Name:
   Standing to Present Application:
   Entity Type:
   Principle Address:

5. **APPLICANT CONTACT -** Person who will serve as official point of contact for this application and the approval process for this system. Please provide all of the following:

   Name: John Arntz
   Mailing Address: 1 Dr. Carlton B Goodlett Pla
   Telephone: 415-554-4375
   Fax:
   Email: john.arntz@sfgov.org

6. TYPE OF APPLICATION - Indicate the nature of this application.

☐ **Entirely New System -** No version of this system has previously been approved for use in California.

☑ **Pilot Program –** Request to pilot voting technology pursuant to Elections Code Section 19209.

☐ **Amended Application -** This is an updated/amended application for a system currently under review.

☐ **Administrative Approval –** This is limited to minor changes to a voting technology. Pursuant to CCR 20707, the request shall, at minimum, include:

- Documentation supporting the need for each change or modification. (Please provide justification for administrative approval request on a separate and clearly identified document.)
- A list of every system component – hardware, firmware, or software – that interacts directly with the component(s) for which administrative approval is being requested.
- Version numbers of all affected software, hardware, and firmware.
- Classification of each modified component as commercial-off-the-shelf (COTS), third-party or vendor developed.

☐ **Blended System-** This is an approval requested to combine elements of separately approved systems. Requests for blended systems follow the same guidelines as Administrative Approvals above.

7. IDENTIFICATION OF SYSTEM COMPONENTS:

a) Hardware - Identify the following for each hardware component of this system:

- **Name (Model #)** - Provide the official name of the hardware component and, if applicable, the model number assigned to that hardware component.
- **Version** - Provide the exact version number of any firmware that runs on the hardware component. Software applications that actually run on a hardware component should be separately listed in the software section below.
- **Type** - Indicate whether the hardware component is:
  - New - No version of the component has previously been approved for use in California.
  - Updated - Other versions of the component have previously been approved for use in California.
  - No Change - This particular version of the component has already been approved for use in California.
- **Description** - Provide a brief description of the hardware component, such as "precinct- ballot scanner," "high speed ballot scanner," or "ballot marking device." In addition, indicate whether the hardware component is third-party, COTS or vendor developed.

Name (Model #)	Version	Type	Description
VxAdmin	v2	New	Local election management system
VxMark	v2	New	Ballot marking device

b) Software - Identify the following for each software component of this system:

- **Name** - Provide the official name of the software component.
- **Version** - Provide the exact version number of the software component. Software applications that run on a hardware component but are not firmware should be separately listed in this section.
- **Type** - Indicate whether the software component is:
  - New - No version of the component has previously been approved for use in California.
  - Updated - Other versions of the component have previously been approved for use in California.
  - No Change - This particular version of the component has already been approved for use in California.
- **Description** - Provide a brief description of the software component, such as "election definition and ballot formatting application," or "vote tabulation and reporting application." In addition, indicate whether the software component is third-party, COTS or vendor developed.
  - If the software is an election management system with multiple modules or sub-components, list the overall system name and version number, then list each sub-component application in the lines immediately following, indicating each subcomponent in the "Name (Model #)" field.

Name (Model #)	Version	Type	Description
VxSuite	v2.1	New	VotingWorks open-source voting system software

COTS Components - For each Commercial Off The-Shelf (COTS) component of the system (hardware or software), identify:

- **Name** - If a make and version of the component is specified for the system, provide the exact name. Alternatively, if minimal specifications are prescribed for the component, provide a descriptive name.
- **Model/Version** - If a make and version of the component is specified for the system, provide the exact model and/or version. Alternatively, if minimal specifications are prescribed for the component, provide a descriptive name.
- **Manufacturer or Specs; Description** - If a particular make and version of the component is specified for the system, identify the manufacturer. Also include a brief description of the component and its role in the system.

Name (Model #)	Version	Type	Description
Lenovo Thinkpad L14		New	VxAdmin laptop
HID Omnikey Card Reader - Large		New	VxAdmin and VxMark card reader
Apache 4800 Case		New	VxAdmin and VxMark case
Lenovo Flex 14		New	VxMark laptop
Storm Interface AudioNav		New	VxMark accessibility controller
Sony MDR-ZX110		New	VxMark headphones
HP 404n printer		New	VxMark printer

8. **FEDERAL QUALIFICATION NUMBER(S) AND DATE QUALIFIED -** Provide all applicable federal qualification numbers for this system and the date qualified.

N/A; system is not federally certified

9. **ACCESSIBILITY**

Describe the Modalities of Physical Disabilities that are Supported by this System and Detail the Nature of that Support - Be specific with respect to each type of disability, how it is supported and the system component that provides the support.

The VxMark ballot marking device meets the accessibility requirements under the federal Help America Vote Act through the use of an attached tactile accessible controller and attached headphones. For example, voters who are unable to read the ballot content presented on-screen can navigate ballot selections through the tactile controller with feedback presented verbally through the attached

Detail the Alternative Languages that are Supported by this System - If a particular make and version of the component is specified for the system, identify the manufacturer. Include a brief description of the component and its role in the system. A separate and clearly identified document providing the aforementioned will suffice.

Chinese, Filipino, and Spanish will be supported for the San Francisco pilot.

10. **UPGRADE PLAN FOR EXISTING CUSTOMERS –** Identify all current California customers that will be affected if this system is approved and detail the plan for their upgrade. If approval of this system will require existing customers to upgrade part or all of their current system, identify each of those customers and detail the plan for their upgrade. This plan should be specific as to the components that will be upgraded, the timeframe for that upgrade, who will perform the upgrade and who will be responsible for any costs associated with the upgrade. A separate and clearly identified document providing the aforementioned will suffice.

N/A; no existing California customers

11. **USERS' GROUP –** Provide detail on the existing users' group or detail the plan for creating a users' group. If a California users' group already exists for this system (or previous versions of the system), provide the details on that users' group, including: how frequently it meets; where it meets; who plans the meetings, sets the agendas and chairs the meetings; and how minutes or information from the meeting are distributed to all California users of the system. If a California users' group does not currently exist, provide the plans to form such a group, providing the detail identified above. A separate and clearly identified document providing the aforementioned will suffice.

No user group exists in California for VotingWorks equipment as the pilot is scoped to one-time use in San Francisco.

12. COMPLIANCE WITH CONDITIONS OF APPROVAL FOR SYSTEMS CURRENTLY USED BY CALIFORNIA CUSTOMERS – Has the applicant and, if applicable, any parent or subsidiary company, fully complied with all conditions set forth in the SOS approval document for all versions of systems manufactured or sold by the applicant or parent or subsidiary company that is currently used by one or more California customers?

☐ YES ☐ NO

If NO, identify every condition with which the applicant, parent or subsidiary company has not fully complied and explain the reason(s) for the lack of full compliance below. An attached document explaining the aforementioned will suffice.

N/A; no existing california customers

13. EXISTING CUSTOMERS – Identify all current California customers that will be affected by this request**.**

Customer	Customer	Customer
N/A	No existing CA customers	

ATTESTATION AND SIGNATURES - Each organization that is party to the application must have a representative sign the application certifying the information contained in the application is true and accurate. Each signatory must be a person legally authorized to sign and submit the application on behalf of the applicant or organization.

"I hereby certify that the information submitted on this form, as well as all attachments and submitted documentation is true, accurate and complete. I further certify that all hardware and software changes from previously approved versions of system components have been clearly identified in Section 6 – Change Log. Finally, I certify that I am legally authorized to sign and submit this application on behalf of the applicant organization(s)."

Signature	Signature
John Arntz	
Name (printed)	Name (printed)
San Francisco Department of Elections	
Organization	Organization
5/5/22	
Date	Date

SHIRLEY N. WEBER, Ph.D.
CALIFORNIA SECRETARY OF STATE

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Sacramento, CA 95814 | **Tel** 916.695.1680 | www.sos.ca.gov

PART 2 OF 6
OWNERSHIP AND CONTROL

Part 2 must be completed by all applicants and submitted electronically. If there is more than one applicant entity for this application, a separate Part 2 should be completed for each applicant. Each file should be named "Application Part 2 – XXXX.doc" (or .pdf), where XXXX represents the applicant's name. All information contained on this form is a matter of public record.

APPLICATION DATE: 5/5/22

SYSTEM NAME AND VERSION: VotingWorks VxSuite v2.1

1. **APPLICANT INFORMATION –** If the entity is a government jurisdiction, complete only sub-parts "a) Applicant's Full Legal Name" and "e) Principle Address." Otherwise, this section should be completed in its entirety.

   a) Applicant's Full Legal Name - Provide the full legal name of the applicant.

   San Francisco Department of Elections

   b) Type of Entity - Indicate the legal status of the entity. If "Other," explain in the space provided.

   ☐ Publicly-held Corporation ☐ Subchapter S Corporation ☐ Privately-held Corporation
   ☐ LLC ☐ Partnership ☐ Sole Proprietorship
   ☐ Other:

   c) Date Established - If applicant is not an individual, indicate the date the entity was legally established.

   d) Primary State of Incorporation (or Registration) - If the applying entity is a corporation, indicate the US state (or country) in which incorporated. If entity is another form of business entity, indicate the US state or country in which registered.

   e) Principle Address - Provide the primary legal address of the entity.

   1 Dr. Carlton B Goodlett Place, City Hall, Room 48, San Francisco, CA 9410

   f) Principle Officers - For corporations, identify the Chief Executive Officer, the Secretary, the Chief Financial Officer and all Directors. For partnerships, identify each of the partners. For sole proprietorships and Subchapter S corporations, identify the principal. For each individual identified, provide the name, title, telephone number and mailing address.

Name	Title	Telephone Number	Mailing Address

g) Agent of Record - Provide the name, telephone number and mailing address of the designated agent for service of process in California.

Name	Telephone Number	Mailing Address

h) Identify Legal Name and Address of all Entities with More Than 10% Ownership Interest in Entity - If the applicant entity is not a sole proprietorship, Subchapter S corporation or partnership, provide the legal name and mailing address of each entity that owns 10% or more interest in the applicant entity.

Name	Mailing Address

i) D-U-N-S® Number - If the applicant entity has been issued a Data Universal Numbering System (D-U-N-S®) number by Dun & Bradstreet, provide this number. If no such number has been issued to this entity, state "None Issued."

j) Gross Annual Sales for the Last Three Fiscal Years - Provide the Gross Annual Sales for the applicant business entity separately for each of the last three fiscal years. For each, provide the fiscal year end date.

2. MANUFACTURING AND SOFTWARE DEVELOPMENT

a) Applicant Addresses for Manufacturing and Development - For each hardware or software component of the system manufactured or developed by the applicant, identify the component and the primary address of manufacture or development.

2565 Third Street #304, San Francisco, CA 94107

System Components Not Manufactured or Developed by Applicant - For each hardware or software component of the system that is manufactured or developed by an entity other than the applicant, identify (a) the component, (b) the name of the entity that develops or manufactures the component, (c) the financial relationship between that entity and the applicant, (d) the principal address of that entity and (e) the primary address where that component is manufactured or developed.

(a) Component	(b) Developer / Manufacturer	(c) Relationship	(d) Developer/ Manufacturer Address	(e) Address Component Developed/ Manufactured
404n printer	HP	Vendor-Customer	1501 Page Mill Road Palo Alto, CA 94304	
Thinkpad L14	Lenovo	Vendor-Customer	8001 Development Dr Morrisville, NC 27560	
Flex 14	Lenovo	Vendor-Customer	8001 Development Dr Morrisville, NC 27560	
Omnikey	HID	Vendor-Customer	611 Center Ridge Dr. Austin, TX 78753	
AudioNav	Storm Interface	Vendor-Customer	13835 N Tatum Blvd., Phoenix, AZ 85032	
MDR-ZX110	Sony	Vendor-Customer	25 Madison Avenue New York, NY 10010 USA	

b) Intellectual Property Rights - For each component of the system for which the applicant does not own full intellectual property rights, identify (a) the component, (b) the name of any entity that owns any intellectual or other rights in the component, (c) the contractual relationship between that entity and the applicant, and (d) the principal address of that entity.

(a) Component	(b) Rights Owner	(c) Relationship	(d) Developer/ Manufacturer Address
404dn printer	HP	Vendor-Customer	1501 Page Mill Road Palo Alto, CA 94304
Thinkpad L14	Lenovo	Vendor-Customer	8001 Development Dr Morrisville, NC 27560
Flex 14	Lenovo	Vendor-Customer	8001 Development Dr Morrisville, NC 27560
Omnikey	HID	Vendor-Customer	611 Center Ridge Dr. Austin, TX 78753
AudioNav	Storm Interface	Vendor-Customer	13835 N Tatum Blvd., Phoenix, AZ 85032
MDR-ZX110	Sony	Vendor-Customer	25 Madison Avenue New York, NY 10010 USA

SHIRLEY N. WEBER, Ph.D.
CALIFORNIA SECRETARY OF STATE

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PART 3 OF 6
REFERENCES

Part 3 must be completed by all applicants and submitted electronically. All information disclosed in Part 3 is a matter of public record.

APPLICATION DATE: 5/5/22

SYSTEM NAME AND VERSION: VotingWorks VxSuite v2.1

1. CERTIFICATION IN OTHER STATES

a) For Each State Where This Exact Version of System is Already Certified or Application Has Been Made - If necessary, list all additional states in a separate and clearly identified document, providing the following information for each:

- Any states that have denied approval of this system
- States that have approved the system
- States in which application is still pending (under consideration)

For each state listed, provide the following information:

(a) The name of the state.
(b) The date on which the application for approval of this exact system was first submitted to the state.
(c) Current status of that application -
  - Pending
  - Denied
  - Approved
(d) Provide the date the system was approved or denied, otherwise, leave the field blank.
(e) If the status is denied, provide the reason given by the state for that denial.
(f) Provide the name, mailing address, telephone number and email address of the government employee in that state who is most knowledgeable about the actual testing and evaluation of the system.

(a) State	(b) Date Submitted	(c) Status	(d) Date	(e) Reason for Denial (if applicable)	(f) State Contact Information – Including Mailing Address Telephone Number & E-mail

b) For Each State Where Other Versions Of This System Are Certified - Identify other states where another version of this system has been certified. Do not include states listed in table 1.1, above, where the status is identified as "Approved." If ten or less states qualify, list all. If more than ten, give preference to states in which the version has been approved for the longest time.

For each state listed, provide the following information:

(a) The name of the state.
(b) The version certified.
(c) The date on which a version of the system was first approved in that state.
(d) Provide the name, mailing address, telephone number and email address of the government employee in that state who is most knowledgeable about the actual testing and evaluation of the system.

(a) State	(b) Version	(c) Date 1st Approved	(d) Contact Information – Including Mailing Address Telephone Number & E-mail

c) If State Approval/Certification Has Ever Been Revoked On Any Version Of This System - Identify all states in which approval of any version or component of this system has been revoked or denied, including the State of California. If more than one version or component has been revoked or denied by a state, list each instance on a separate line. If necessary, either add additional lines to the table or list all additional instances in a separate and clearly identified document, providing the required information for each.

For each revocation or denial listed, provide the following information:

(a) The name of the state.
(b) The version of the system or component for which approval was revoked or denied.
(c) The date on which that approval was revoked or denied.
(d) The reason given by the state for revoking or denying approval.
(e) Identify the government employee who is most knowledgeable about the circumstances regarding that revocation or denial. For this person, provide the mailing address, telephone number and email address.

(a) State	(b) System Version	(c) Date Revoked	(d) Reason for Revocation	(e) Contact Information – Including Mailing Address Telephone Number & E-mail

JURISDICTIONS USING THE SYSTEM

a) Jurisdictions Outside California Using This System - Identify jurisdictions outside California that are using a version of this system, or components of this system. If ten or less, identify all such jurisdictions. If more than ten, list only ten in the following order of preference:

- Any jurisdictions using this exact version of the system, with preference to the largest over the smallest; then
- Jurisdictions using any version of this system, with preference to the most current versions.

For each jurisdiction listed, provide the following information:

(a) The name of the jurisdiction.
(b) The population of the jurisdiction.
(c) Whether the version used in the jurisdiction is the same version for which approval is requested.
(d) The date the jurisdiction first purchased or leased a version of the system.
(e) Identify the chief elections official for the jurisdiction. For this person, provide the mailing address, telephone number and email address.

(a) Jurisdiction	(b) Jurisdiction Population	(c) Version	(d) Date Purchased or leased	(e) Contact Information – Including Mailing Address Telephone Number & E-mail
Calhoun County, MS	9,745	VxSuite v2	2022	Carlton Baker cbaker@calhouncoms.com (662) 983-5877 103 West Main Street Pittsboro MS 38951
Choctaw County, MS	5,820	VxSuite v2	2020	Amy Burdine circuitclerk@choctawcountyms.com (662) 285-6245 22 East Quinn Street Ackerman MS 39735
Quitman County, MS	5,806	VxSuite v2	2022	Brenda Wiggs (662) 326-8003 sosquitman@bellsouth.net 220 Chesnut Street Marks, MS 38646
Warren County, MS	31,939	VxSuite v2	2021	Jan Daigre (601) 636-3961 jdaigre@co.warren.ms.us 1009 Cherry Street Vicksburg, MS 39181
Wilkinson County, MS	7,129	VxSuite v2	2022	Lynn Delaney (601) 888-6697 circuitclerk@wilkinson.co.ms.gov 525 Main Street WoodVille, MS 39669

b) California Jurisdictions Using A Version Of This System - Identify all California jurisdictions using a version of this system. For each such jurisdiction, provide (a) the name of the jurisdiction, (b) the type of jurisdiction (e.g., county, city, etc.), and (c) the version.

(a) Jurisdiction	(b) Jurisdiction Type	(c) Version

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PART 4 OF 6
TECHNICAL DATA PACKAGE (TDP)

Applicants must submit a complete TDP with this application. The TDP shall include all of the items listed within this section according to application type. If the TDP is incomplete, or if the Secretary of State cannot clearly identify each of the items listed within this section, the entire application may be rejected or pended until made satisfactory by the applicant.

All documents supplied must be current for the version for which approval is being requested. Documents must be titled and submitted according to the subcategories and order outlined below. All documentation must be submitted in a directory titled "(System Name and Version) - Technical Data Package". Identifying photographs may be submitted in .JPG, .BMP, .GIF or .TIF format.

Information disclosed in Part 4 is a matter of public record. The applicant must clearly mark any documentation it requests to be treated as confidential and proprietary before providing it to the Secretary of State or its representatives for evaluation. Marking the entire package as confidential and/or proprietary is insufficient. All pages of the documentation that contain information the applicant considers confidential and/or proprietary information must be clearly marked as such.

APPLICATION DATE: 5/5/22

SYSTEM NAME AND VERSION: VotingWorks VxSuite v2.1

ELECTRONIC POLL BOOK (EPB)

TDP MAIN PART - The main part of the TDP is relevant for conformity assessment and certification.

- ☐ **Customer Maintenance Documentation** - Documentation describing any maintenance that the vendor recommends can be performed by a customer with minimal knowledge of the system shall be provided.
- ☐ **Operations Manual** - Documentation that is normally supplied to the customer for use by the person(s) who will operate the equipment shall be provided.
- ☑ **Use Procedures** - Specific election administration procedures recommended for use with the system shall be provided. These must be written to conform to the template for such procedures that is available from the Secretary of State's website at: http://votingsystems.cdn.sos.ca.gov/cert-and-approval/vsysapproval/use-procedures-2006.pdf .
- ☐ **Software System Design** - Documentation describing the logical design of the software shall be provided. This documentation should clearly indicate the various modules of the software, their functions, and their interrelationships with each other. This shall include the data format(s) for which the system is capable of importing and exporting.
- ☐ **Test Data** - Any available test data that can be used to demonstrate the various functions of the electronic poll book or verify that the version of the applications submitted are identical to the versions that will be certified shall be provided. This includes test reports for certification of the identical system in other jurisdictions.
- ☐ **Security Procedures** - Documentation of the recommended security procedures and system hardening settings to ensure the optimum security and functionality of the system shall be provided.
- ☐ **Training Manual** - Documentation for use by the person(s) that will conduct staff and poll worker training.

ANCILARY DOCUMENTATION

- ☐ **Beta Test Results** – Provide all information regarding beta test results for this system, if applicable.
- ☐ **Vendor Proposed Test Plan** – Describe the scope, approach, resources and schedule of intended activities.
- ☐ **Identifying Photos** – Provide identifying photos of the hardware components of the system.
- ☐ **Substantiation of Elections Code Section 2550 -** Identify which document(s) and pages substantiate that the e-poll book system meets the requirements outlined in California Elections Code Section 2550.

REMOTE ACCESSIBLE VOTE BY MAIL (RAVBM) / VOTING SYSTEM (VS)

TDP MAIN PART - The main part of the TDP is relevant for conformity assessment and certification.

- ☐ **Implementation Statement** – Provide declaration of which standard options were implemented in the system.
- ☐ **System Hardware Specification** – Provide detailed specifications of the hardware components of the system, including specifications of hardware used to support telecommunications capabilities of the system.
- ☐ **Application Logic Design and Specification** – Provide detailed specifications of all included non-COTS software, firmware, and hardwired logic. In addition, provide precise identification of all included COTS software, firmware, and hardwired logic. This may include: overview, standards and conventions, the operating environment, functional and programming specifications, system databases, interfaces, etc.
- ☐ **System Security Specification** - Provide detailed descriptions of all system security specifications (design/interface specifications, security architecture, development environment specifications, security threat controls, security testing, vulnerability analysis documentation, etc.).
- ☐ **System Test Specification** – Provide all information regarding development tests, usability test reports, etc.
- ☐ **System Change Notes** - If a revision of a previous system, supply detailed specifications of the changes.
- ☐ **Configuration for Testing** – Provide the configuration actions necessary to obtain conforming behavior.
- ☐ **Quality and Configuration Management Manual** – Detail the manufacturer's quality and configuration management processes and procedures.

TDP USER DOCUMENTATION - The documentation must be produced with end users as the target audience.

- ☐ **System Overview** - Provide information that identifies the functional and physical components of the system, how the components are structured, and the interfaces between them.
- ☐ **System Functionality Description** – Provide the scope of the system's functional capabilities, establishing the performance, design, test, manufacture, and acceptance context for the system.
- ☐ **System Security Manual** – Provide all aspects of system design, development, and proper usage that are relevant to system security. This may include: access controls, system event logging, software installation, setup inspection, communications, voter verifiable paper audit trail (VVPAT), etc.
- ☐ **System Operations Manual** - Provide all information necessary for system use by all personnel who support pre-election and election preparation, polling place activities and central counting activities, as applicable, with regard to all system functions and operations identified. This may include: operational environment and features, system installation and test specification, operating procedures, documentation for poll workers, operations support, transportation and storage, etc.
- ☐ **System Maintenance Manual** – Provide maintenance procedure information in sufficient detail to support election workers, information systems personnel, or maintenance personnel in the

adjustment or removal and replacement of components or modules in the field. Technical documentation needed solely to support repair ordinarily done by the manufacturer or software developer is not required.

☐ **Personnel Deployment and Training Requirements** - Provide information about the staff needed to run the system, as well as the training required for the various roles.

☑ **Use Procedures** - Must be written to conform to the template for such procedures that is available from the Secretary of State's website at: http://votingsystems.cdn.sos.ca.gov/cert-and-approval/vsysapproval/use-procedures-2006.pdf .

ANCILARY DOCUMENTATION

☐ **Beta Test Results** – Provide all information regarding beta test results for this system, if applicable.

☐ **Vendor Proposed Test Plan** – Describe the scope, approach, resources and schedule of intended activities.

☐ **Identifying Photos** – Provide identifying photos of the hardware components of the system.

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PART 5 OF 6
SYSTEM DESCRIPTION & CONFIGURATION

System Description & Configuration - Complete each of the following tables where applicable to your system. If a table is not applicable to your system, please simply mark N/A, for not applicable on the first line.

1. **Proprietary Hardware/Software** - List all components of the system that are proprietary. This includes your custom software solution, and hardware not considered commercial off the shelf (COTS).

Component	Hardware Version(s)	Software Version
VxAdmin	v2	v2.1
VxMark	v2	v2.1

2. **COTS Hardware/Software** - List all components of the system that are commercial off the shelf products. This list should not include any items listed in Table 1.

Component	Version/Model	Manufacturer
VxAdmin	Thinkpad L14 laptop	Lenovo
VxMark	Flex 14 laptop	Lenovo
VxMark	404n printer	HP
VxAdmin	Omnikey card reader	HID
VxMark	Omnikey card reader	HID
VxMark	AudioNav accessibility Controller	Storm Interface

3. **Configurations -** List all possible configurations your system has. For example if the system has multiple devices or servers of varying sizes (Small, Medium, Large), please list each of those configurations separately.

Configuration	Description
SF Pilot	Only one supported configuration where one VxAdmin is used as a local EMS, ballots are marked on ballot marking devices, and ballots are tabulated centrally after duplication. This co

4. **Server Hardware Requirements** - List any minimum server hardware components in your system.

Component	Requirement
N/A	No server hardware in the pilot system

5. Workstation Hardware Requirements - List any minimum workstation components in your system.

Component	Requirement
VxAdmin	Lenovo Thinkpad L14 flashed with a VotingWorks installation USB drive following software installation and configuration procedures in t

6. Lines of Source Code

Software	
vxsuite-complete-system	1,587
vxsuite	140,546
kiosk-browser	7,118
Firmware	
Total Lines of Code:	149,251

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PART 6 OF 6
SYSTEM CHANGE LOG

Part 6 must be completed if any components, hardware, firmware, or software of the proposed system have been previously approved in California under another version and have encumbered changes. The intent of this form is to clearly identify all hardware, firmware or software changes made to system components between the previously approved version and the version for which approval is being requested.

A separate and clearly identified log must be submitted for each change to a system component. All changes must be accounted for and clearly identified. For each component, list all changes that have occurred since the last approved version. Each change type must appear on its own row. Changes should be listed in chronological order, starting with the oldest and ending with the most recent.

INSTRUCTIONS

For each change, the following must be provided unless otherwise indicated:

a) **Applicant ID#** (optional) **–** This is the internal tracking number, if any, that the applicant has assigned to this bug or modification.

b) **Version Changed –** Identify the version of the system component in which the change was made.

c) **Type of Change** – Indicate the nature of the change. Valid options are:
- Cosmetic – Minor changes that affect the appearance of the component that have no impact on the actual functionality or performance of the component. This would include things like minor cabinet changes on hardware, or minor changes to screen layout in software.
- Minor Bug Fixes – Minor fixes to resolve bugs that did not materially affect the usability, accuracy, security or reliability of the system.
- Major Bug Fixes – Modification of the component to resolve a bug that materially affected the usability, accuracy, security or reliability of the system.
- New Feature – Introduction of a new feature for this system component.
- Performance Enhancement – Modification that substantially improves performance of the system without other functional changes. For example, a modification to make a report run faster, without changing the composition or layout of the report.

d) **Description of Symptom/Problem** – This should be a plain language description of the symptom, bug or problem the modification was meant to address. Be specific. The description should be written to be understood by someone who is not intimately familiar with the system.

e) **Version Discovered** – Identify the version of the component in which the problem or bug originated, or, if that is not known, the version in which the problem or bug was first identified.

f) **Describe the Fix/Modification/Enhancement** – Provide a concise, specific description of the modification made. This should be a plain language description. The description should be written to be understood by someone who is not intimately familiar with the system.

COMPONENT: CURRENT VERSION: LAST VERSION APPROVED:

Applicant ID#	*Type of Change*	*Description of Symptom / Problem*	*Version Discovered*	*Describe the Fix / Modification / Enhancement*

Applicant ID#	*Type of Change*	*Description of Symptom / Problem*	*Version Discovered*	*Describe the Fix / Modification / Enhancement*